Pediatric OSCE Stations

1st Edition

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PEDIATRIC OSCE STATIONS

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Dedication

This book is dedicated to
our faithful wives,
our mentors, whom we strive to emulate,
our teachers, whom we hope to do proud,
our colleagues, with whom we proudly persevere,
our students, whom we dare to inspire,
and our patients, whom we endeavor to serve.

ZUHAIR AL-MUSAWI
HAYDER AL-MUSAWI

A very special thanks is extended to my son Ali Zuhair who has helped in the preparation of this book.

Number of Deposition of This Book at Iraqi House of Books and Documents (Iraqi National Library)

Cover photo of the nice twin (SAJAD and ZAHRAA ZAINI), age one year, reproduced with kind permission of the parents.

Contents

Introduction

The traditional clinical examination, consisting of long cases, short cases and vivas, has some strengths but unfortunately significant limitations in terms of validity and reliability. The advent of the structured performance tests has enabled some of the limitations to be overcome. The most popular form of these tests is called OSCE (Objective Structured Clinical Examination).There are many advantages of the OSCE over the traditional clinical examinations. Firstly, the OSCE is fairer than the traditional approach due to the standardization of tasks that have to be performed, an aspect much appreciated by students. Secondly, the wider sampling of competencies and the use of structured marking sheets contribute to improvements in reliability and content validity. However, the OSCE also has its limitations and should be combined with other forms of assessment which may more validly test competences not easily tested within the OSCE format. For example, attitudinal and behavioral aspects of patient care may be better assessed in practice-based settings rather than in examination settings. In addition, there are many aspects of clinical competence that can be more efficiently tested using a written format.

WHAT IS AN OSCE?

Contrary to popular belief, an OSCE is not a method of assessment as such. Rather it provides an organizational framework into which can be incorporated a variety of test methods.

OSCE's consist of a series of stations around which students rotate. At each station students are asked to undertake a well defined task. The criteria on which performance is to be assessed are carefully defined before the examination takes place. Student performance is scored on structured rating forms or marking sheets by examiners (and sometimes patients) whose interaction with the students is carefully regulated, usually being limited to providing instructions or asking predetermined questions.

The length of time spent at each station is usually short (5-10 minutes) though in some examinations, may be longer (e.g. 30 minutes). Some OSCE's incorporate a break between stations for a variety of reasons. For instance a short time (e.g. 1 minute) may be scheduled to allow students to move between stations for examiners to collate marks. Other purposes include a period of time for students to review material before entering the station; to record information (e.g. patient notes) after encountering the patient; or to answer a series of written questions after a patient encounter about clinical findings, diagnosis or management.

The OSCE format is very flexible allowing a wide selection of tasks to be assessed, the range being largely limited only by the ingenuity of those constructing the test. The widespread use of simulated patients and simulation devices has extended the range of conditions and skills that can be assessed beyond those one sees in traditional examinations. However, there are some practical limitations particularly in the finding and use of real patients with physical sign.

PART 1

Static stations

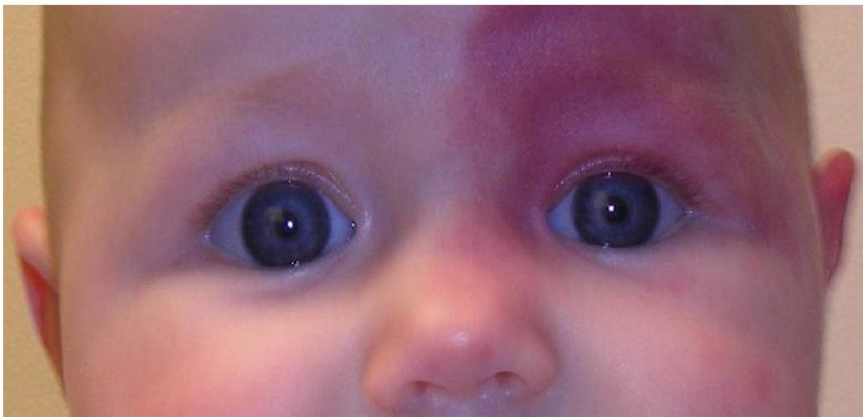
Static stations do not involve any physical interaction but the tasks may be very varied. Examples include interpretation of data and images or writing management plans and prescriptions. Students complete their tasks and record their responses on a structured answer sheet which are collected for marking. Such stations may be included in the OSCE circuit or may be administered at another time and location. Examiners are not required to observe students at static stations but are required to mark their responses.

PART 1

A- CASE STUDIES WITH IMAGES

QUESTION 1

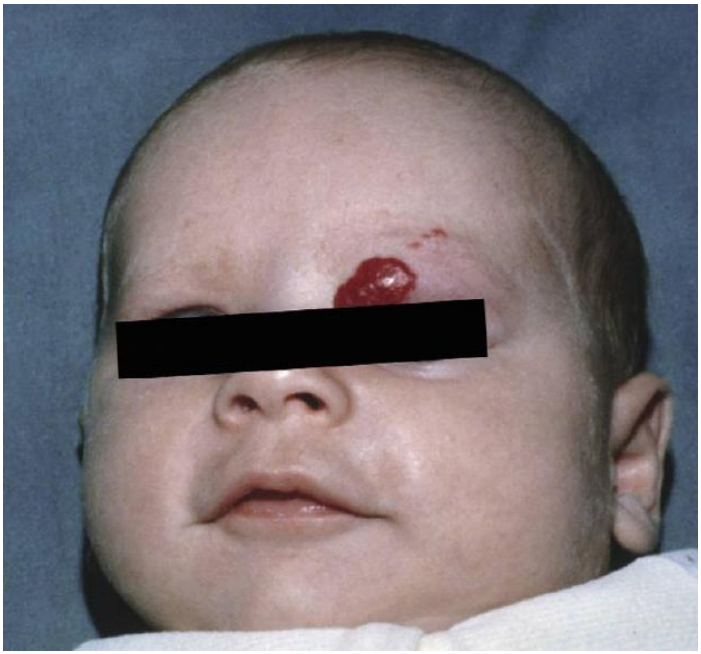
You are evaluating a term infant in the neonatal intensive care unit for a seizure that occurred 1 day after birth. Her neonatal course has been otherwise unremarkable. The only significant finding on physical examination is an erythematous patch involving the left side of the face, including the upper and lower eyelids as shown below



1-What is your diagnosis?
2-What is the most common ophthalmologic finding associated with this condition?
3-What other features may be seen in this infant?

QUESTION 2

The parents of a 2-month-infant who you are seeing for a health supervision visit relate that a red mass on the infant's eyelid has grown and no longer is the flat birthmark seen in the newborn nursery. Physical examination reveals a hemangioma located on the upper lid. The visual axis is not obstructed, but the infant is unable to open her eyelid completely. The remainder of the examination findings is normal, with no evidence of other hemangiomas.



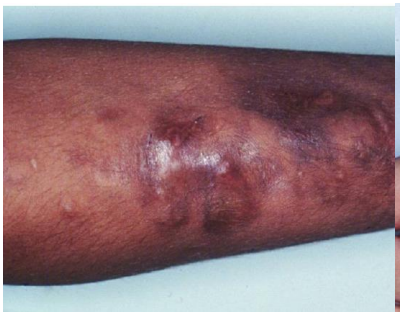
1- What is the most important reason for urgent pediatric ophthalmologic referral for this infant?

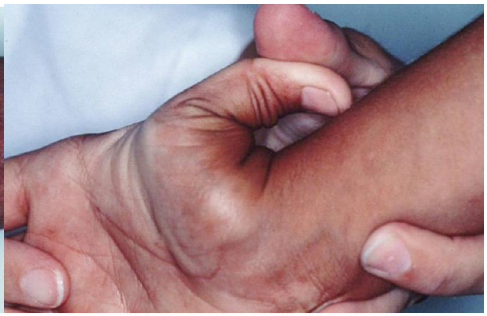
2-What 2 interventional procedures should be advised when there is evidence of this ophthalmologic complication?

3- What lab. Investigation should be ordered before the procedures?

QUESTION 3

A 3-year-old boy is brought to the clinic by his parents due to concerns about how easily he bruises. They say that since he began walking at 18 months, he frequently has large, purple bruises that appear with no known history of trauma. They do not believe that he falls more frequently than other children his age, and they deny a family history of easy bruising. On physical examination, the normally grown child has prominent eyes, a delicate and narrow nose, and numerous bruises in various stages of healing, primarily overlying his shins but also scattered elsewhere on his body. He has translucent skin over the chest, with prominent vascular markings, and his fingers are slender and hypermobile.

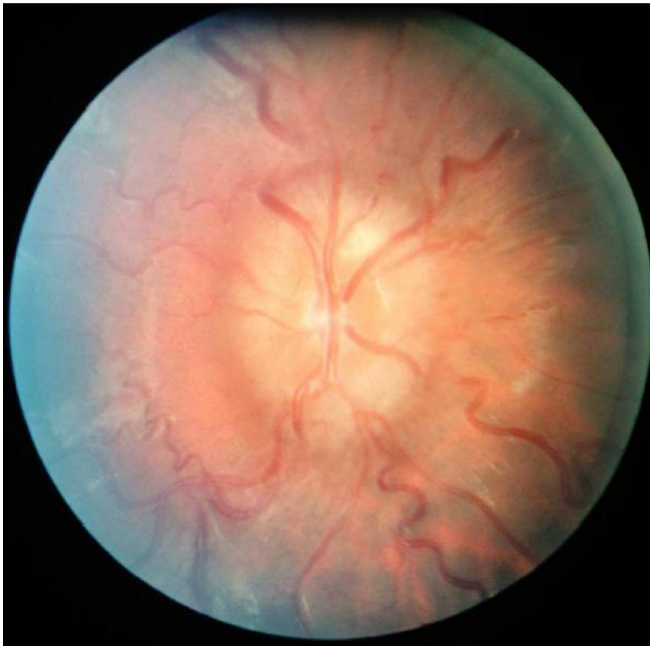




1-Which condition is most consistent with this boy's features?
2-What is the most common type of inheritance?
3-What advice you should give to the patient and his parents when they counsel you?

QUESTION 4

A 7-year-old girl who has chronic sinusitis presents to the emergency department with 1 to 2 weeks of headaches that are worse at night. On physical examination, she is afebrile but seems uncharacteristically sleepy and exhibits hyperreflexia. Funduscopic examination shows papilledema.



1-What is the most likely diagnosis?
2-What is the most appropriate diagnostic test?
3-What do you expect to find in the CSF if you are ordered to do lumbar puncture?

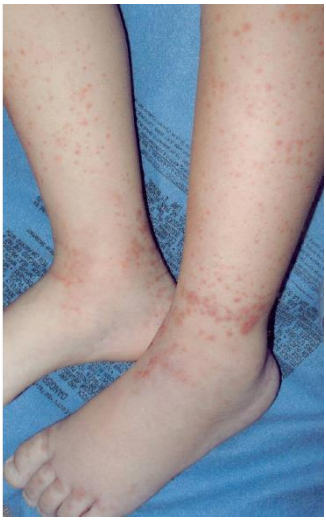
QUESTION 5

A previously well 6-year-old boy presents with a rash over his lower extremities. He has had knee and ankle pain for 3 days that has caused difficulty ambulating since this morning. On physical examination, he is afebrile, and his heart rate is 80 beats/min, respiratory rate is 16 breaths/min, and blood pressure is 108/60 mm Hg. You note bilateral ankle swelling and a purpuric rash over his lower extremities.

Laboratory findings include:

- White blood cell count,$10x10^3$/mcL
- Hemoglobin, 11.5 g/dL
- Hematocrit, 35%
- Platelet count, $410x10^3$/mcL
- Urinalysis shows:
- Specific gravity, 1.025
- pH, 6
- 3+ blood
- Trace protein
- 20 to 50 red blood cells/high-power field

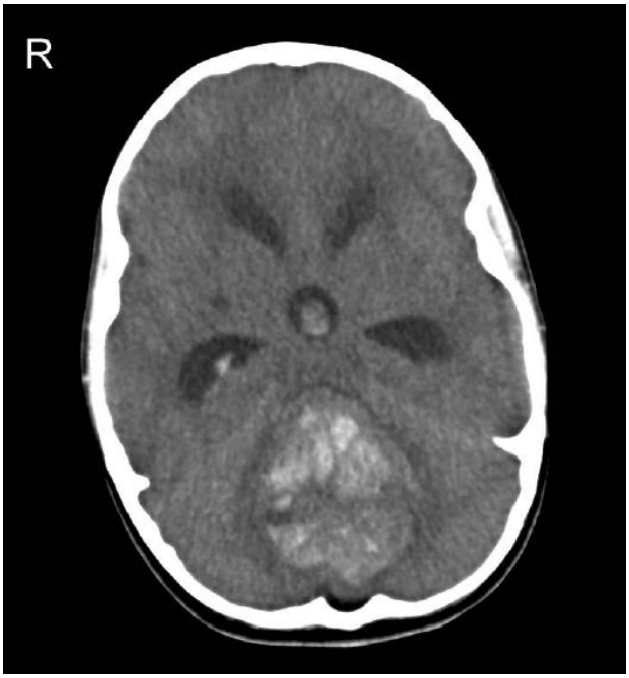
The random urine protein-to-creatinine ratio is 0.15



1-Is renal biopsy indicated for this patient?
2-For how long corticosteroids are given for this patient?
3-Is there any role for ibuprofen in the management of joint manifestation of this patient?

QUESTION 6

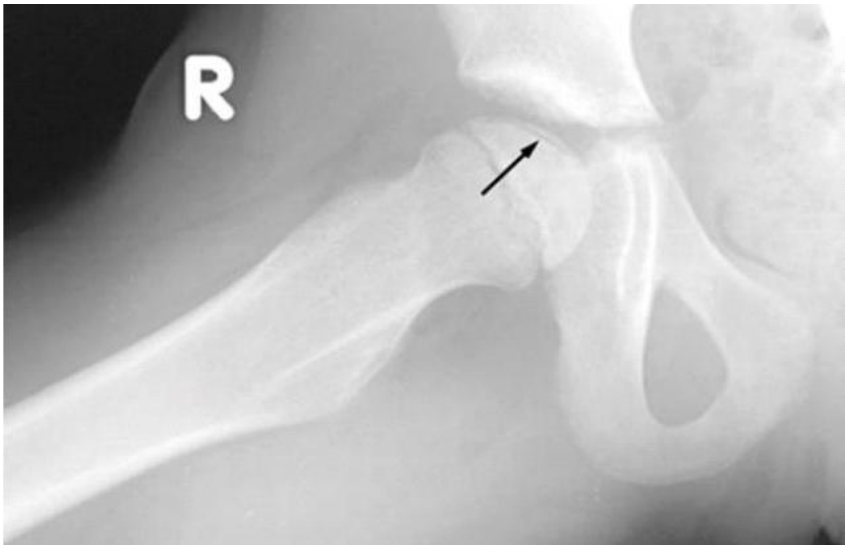
You are evaluating a 5-year-old boy in the emergency department for lethargy. His mother reports that the boy has been lethargic since awakening this morning. She adds that he has been complaining of headaches and has been having morning emesis for several weeks. She also reports that he has become increasingly "clumsy" over the past 4 to 6 weeks. On physical examination, the patient is difficult to arouse; has sluggish pupillary responses; and has rapid, deep, sustained breaths at a rate of 35 breaths/min. His C/T scan is shown below



1- What is the most likely cause for this clinical presentation?
2- What is the best step in the initial management of this patient?
3- Describe the C/T findings?

QUESTION 7

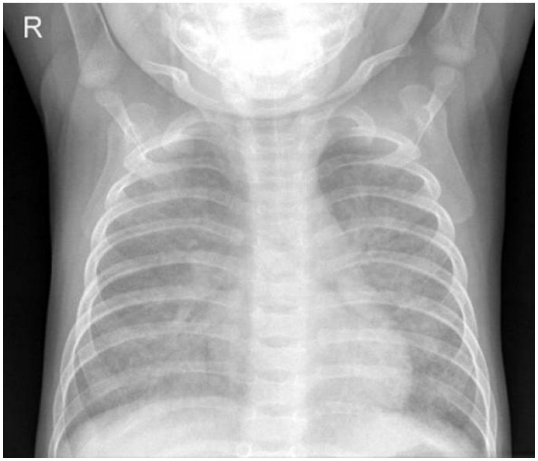
A 5-year-old previously healthy boy has developed a limp and right hip pain over the past week. There is no history of trauma, fever, rashes, or other systemic symptoms. On physical examination, he has limited internal rotation and abduction of the right hip; other findings are within normal parameters. A lateral, anteroposterior, and frog leg radiograph series demonstrates a crescentic subchondral lucency in the medial aspect of the epiphysis.



1-What is the most likely diagnosis?
2- Mention 2 implicating factors for this condition?
3-Enumerate 3 differential diagnoses for this disease?

QUESTION 8

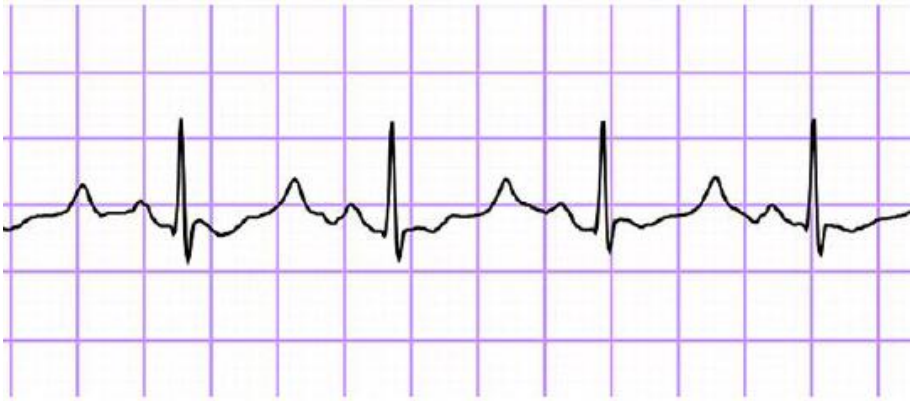
A 6-month-old boy who lives in a foster home presents with progressively increased work of breathing and poor feeding. His past medical history is unknown, except that his biological mother used illicit drugs during pregnancy. On physical examination, his temperature is 37.8°C, heart rate is 110 beats/minute, respiratory rate is 60 breaths/minute, oxygen saturation is 70% in room air, weight is 7.3 kg (10th percentile), and length and head circumference are at the 95th percentile for age. He has mild-to-moderate subcostal retractions, and his lungs are clear to auscultation. A chest radiograph shows diffuse bilateral interstitial infiltrates. The white blood cell count is $2.0x10^3$/mcL ($2.0x10^9$/L), with 51% polymorphonuclear leukocytes, 43% lymphocytes, and 6% monocytes. Serum lactate dehydrogenase is elevated at 700 units/L



1-What is the most likely diagnosis?
2- What is the most likely test to yield the diagnosis?
3-What 2 drugs most commonly used in the treatment of this condition?
4-What is the new name of the causative organism?

QUESTION 9

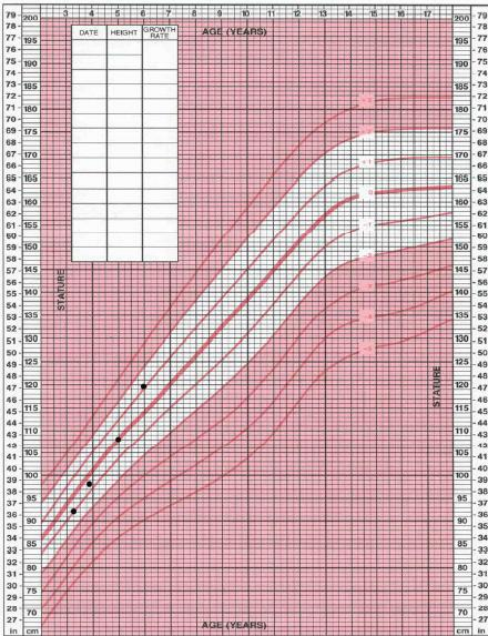
A 14-year-old boy loses consciousness while playing basketball. He regains consciousness in 30 seconds and is transported to a pediatric emergency department. Results of head computed tomography scan, electroencephalography, and echocardiography are within normal limits. Electrocardiography results are interpreted as abnormal, with a heart rate of 90 beats/min, PR interval of 150 msec, and QTc interval of 550



1-What is the most likely explanation for this patient's syncopal episode?
2-What risky complications those patients may develop?
3-Enumerate 3 other cardiac conditions causing syncope?

QUESTION 10

You are seeing a 6-year-old girl for a health supervision visit. On physical examination, you note Sexual Maturity Rating (SMR) 3 pubic hair and SMR 1 breast tissue. You noted no pubic hair last year. She has had a growth spurt in the past 2 years and is presently at the 75th percentile for height. Her weight is at the 50th percentile for age. Her blood pressure is 90/60 mm Hg. The remainder of her evaluation is within normal parameters except for possible clitoromegaly. The radiologist interprets a bone age radiograph as 8 years.



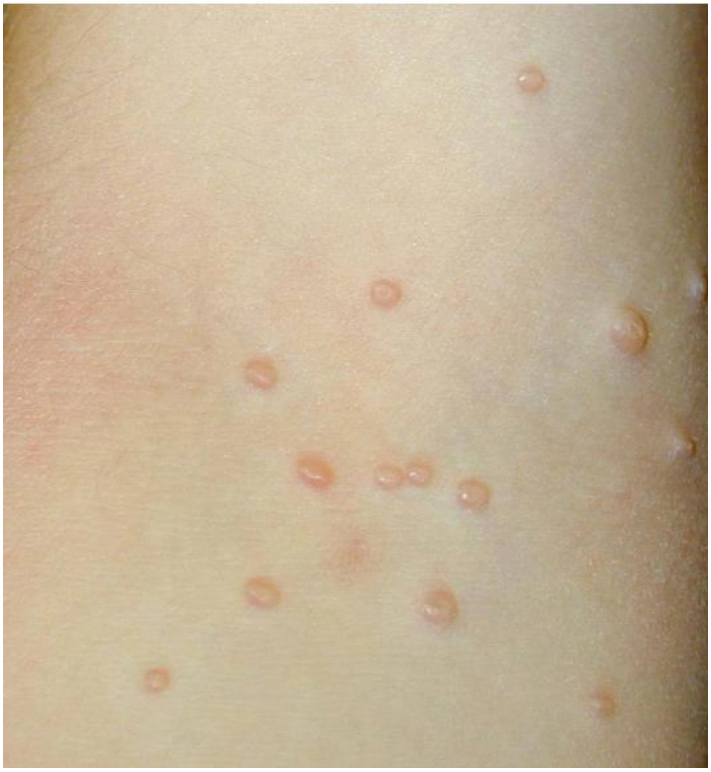
1- What is the most likely explanation for these findings in this girl?

2- What is the most helpful diagnostic laboratory blood test?

3-What serum electrolyte findings you expect to see in this patient?

QUESTION 11

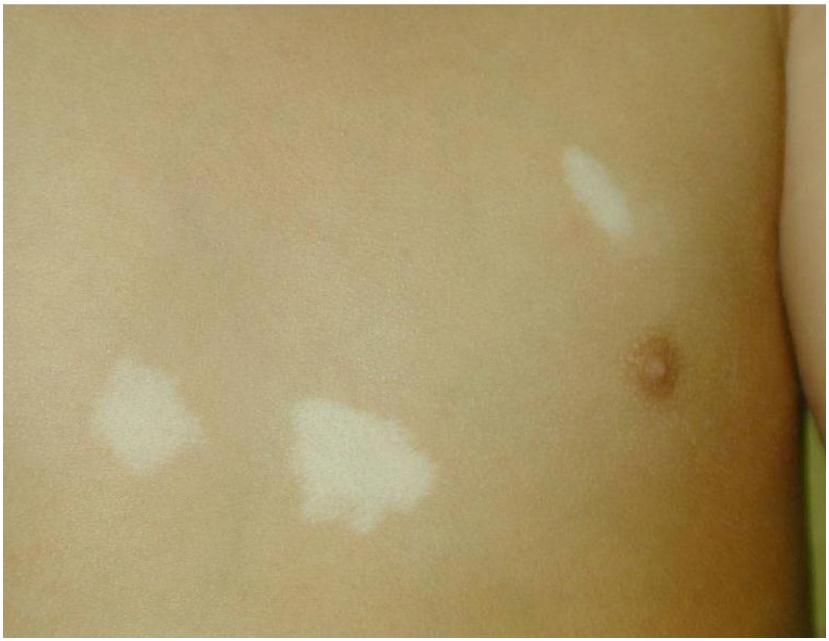
You are evaluating an otherwise healthy 3-year-old boy who has developed a cluster of 5 to 10 flesh-colored, pearly papules, some of which have central umbilication. He has no prior skin conditions.



1-What is your diagnosis?
2-What is the etiology?
3-What is the most appropriate management?
4-What is the fate of the lesion if untreated?

QUESTION 12

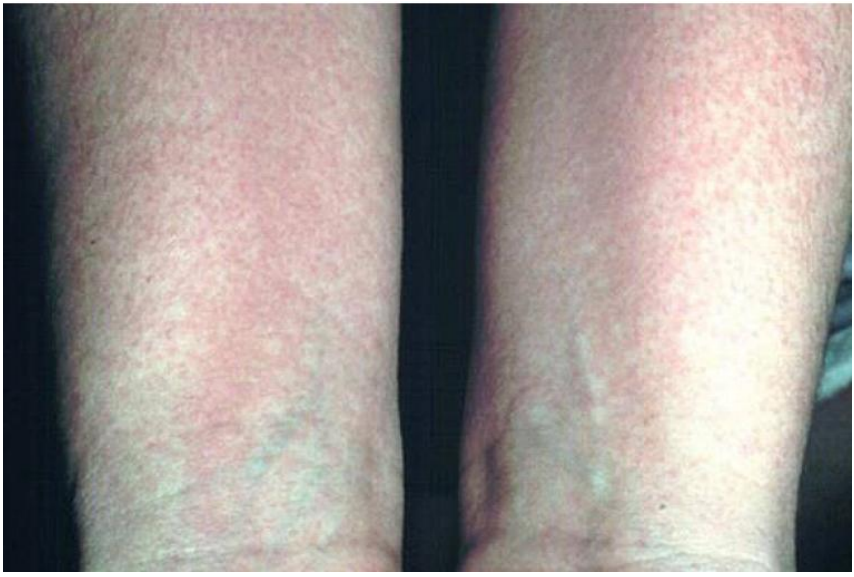
You are evaluating a 15-month-old child for mild developmental delay. He sits well alone, crawls, claps his hands, and waves, but he does not pull to stand or say any words. His father and paternal uncle have epilepsy and attended special education classes when they were in school. You note three hypopigmented macules scattered over his trunk and arms.



1-What is the most likely diagnosis?
2- Name this skin lesion?
3-What is the significance of this skin lesion?
4-What is the most appropriate next step in this boy's evaluation?
5-What additional diagnostic testing should be done?

QUESTION 13

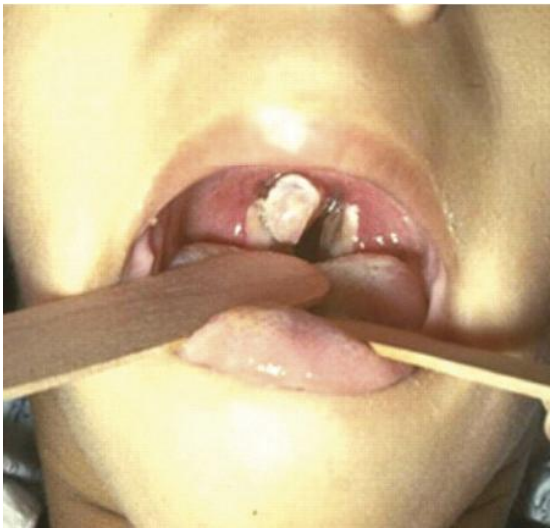
A 13-year-old girl presents with a 2-day history of fever, sore throat, and a rash that began on her arms and legs and spread to her chest and back. Physical examination reveals pharyngeal exudate; bilateral cervical adenopathy; and a "sandpapery" rash over her arms, legs, and trunk. A rapid diagnostic test for group A Streptococcus yields negative results. At 48 hours, a throat culture is growing small colonies with narrow bands of hemolysis on sheep blood agar.



1-What is the most likely organism?
2- What is the most appropriate antibiotic for treating this patient?

QUESTION 14

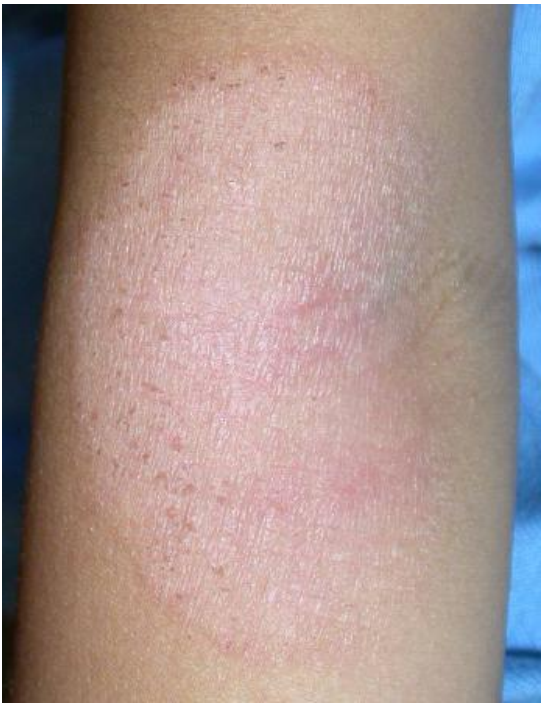
An unimmunized 4-year-old girl presents with malaise, sore throat, and difficulty swallowing. On physical examination, she has a temperature of 38.0°C, bilateral cervical adenopathy, and grayish exudates over the mucous membranes of her tonsils and pharynx. When you attempt to remove some of the exudate for culture, bleeding occurs.



1-What is the most likely diagnosis?
2-How it is treated?
3-What is the most appropriate treatment of close contacts of this child?

QUESTION 15

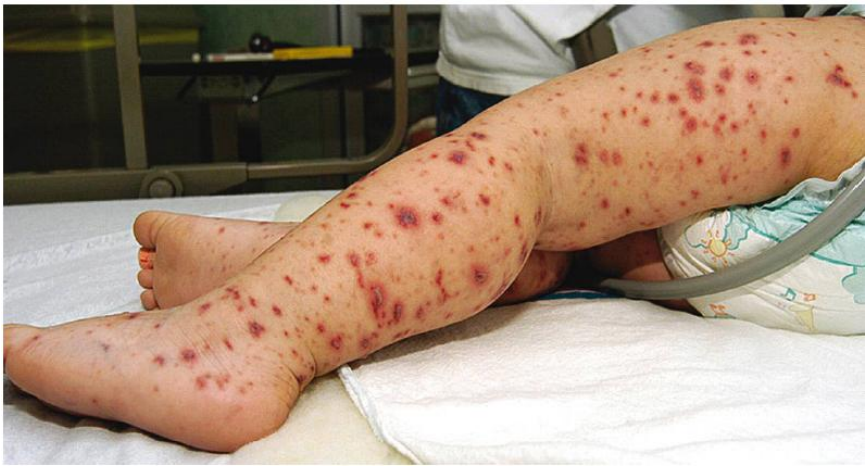
A 6-year-old boy presents with a 2-year history of frequent pruritic, erythematous eruptions on his arms and legs. The rash usually worsens during winter but occurs intermittently throughout the year. His mother has tried various moisturizers, but they have not been effective in controlling the rash. On physical examination, you note erythematous patches on his antecubital and popliteal regions bilaterally.



1-What is the most likely diagnosis?
2- What is the most appropriate initial step in management for this patient?
3-What are the side effects of the treatment?

QUESTION 16

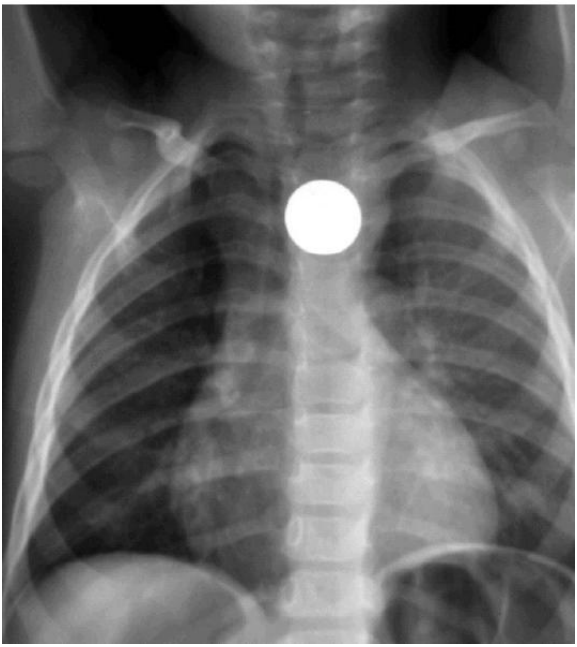
You are treating a 2-year-old girl who has suspected meningococcal bacteremia and meningitis. Over the past 2 hours, she has required multiple fluid boluses and inotropic support to help maintain her blood pressure. She has been intubated due to respiratory failure. Her temperature is 96°F (35.6°C), and she is covered in a petechial and purpuric rash. Her most recent laboratory results reveal a white blood cell count of $1.2x10^3$/mcL ($1.2x10^9$/L) with 80% lymphocytes, 10% neutrophils, and 10% band forms and a platelet count of $32x10^3$/mcL ($32x10^9$/L).



1-What is the most likely cause of her laboratory results?
2- What is the most important additional laboratory test?

QUESTION 17

A 2-year-old girl presents to your office with a 3-week history of a "barky" cough. According to her mother, the girl has had no fever or upper respiratory tract infection symptoms, but she has complained intermittently of a sore throat for the past 2 weeks. On physical examination, the child appears well and playful. Her throat is non-erythematous, and her lungs are clear to auscultation. Because of the persistence of her symptoms, you obtain chest radiograph.

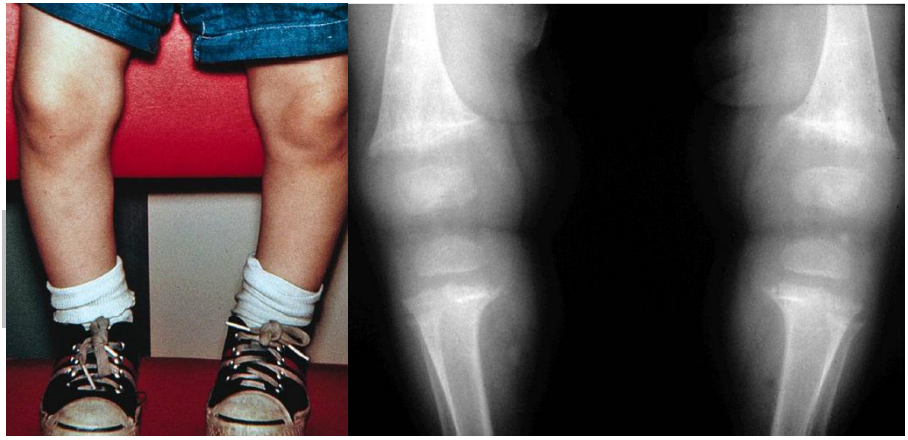


1-Where is the site of the foreign body?
2-What are the complications if left more than 24 hours?

QUESTION 18

A mother brings in her 1-year-old boy for the first time because she is concerned about his “bowed legs”. The mother is 4 ft 10 in tall and says she needed to have surgery to straighten out her bowed legs when she was an adolescent, as did one of her brothers.

Radiographs of the boy’s long bones are obtained.

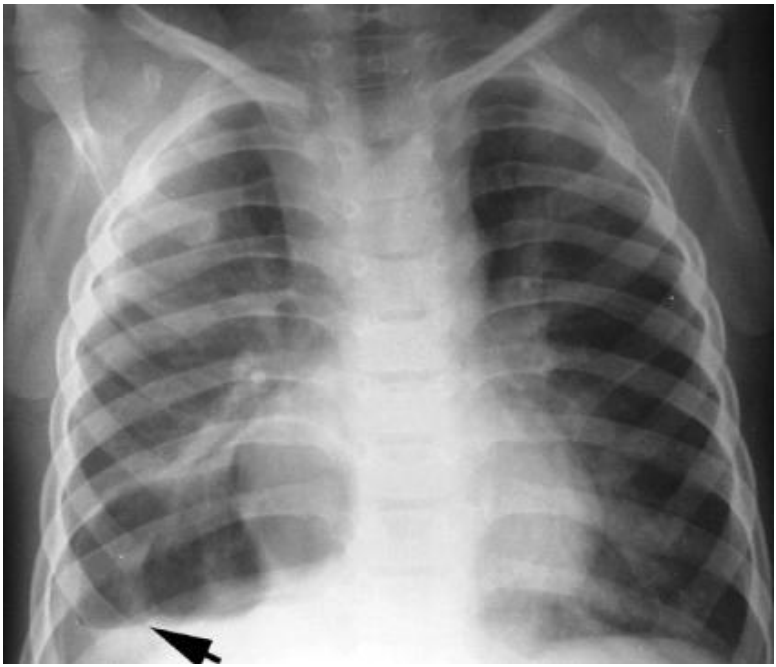


1-What is the most likely diagnosis?

2-What are the most likely serum laboratory findings?

QUESTION 19

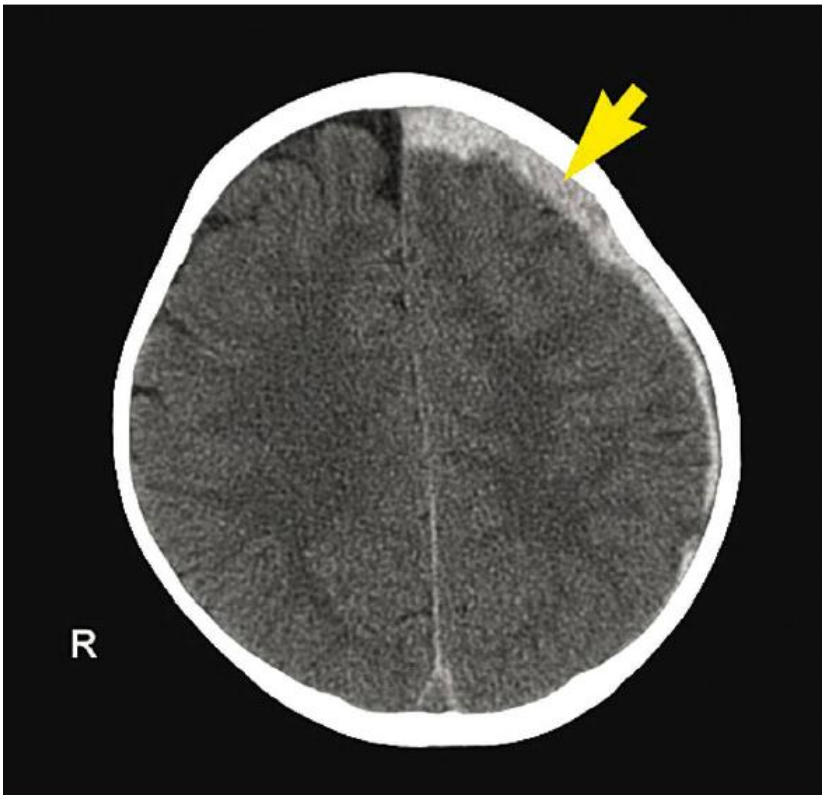
A 17-year-old boy is applying for entry into military service and requires a complete history and physical examination. During the interview, he states that he is healthy, although he admits to being treated for three cases of pneumonia over the past 10 years. A chest radiograph performed during the last infection showed a left lower lobe pneumonia, and the patient states that the infection is "always on that side." The only finding of note on the physical examination today is slightly diminished breath sounds over the left lower lobe.



1- What is the most likely cause for this boy's recurrent pneumonias?
2-How it is treated?

QUESTION 20

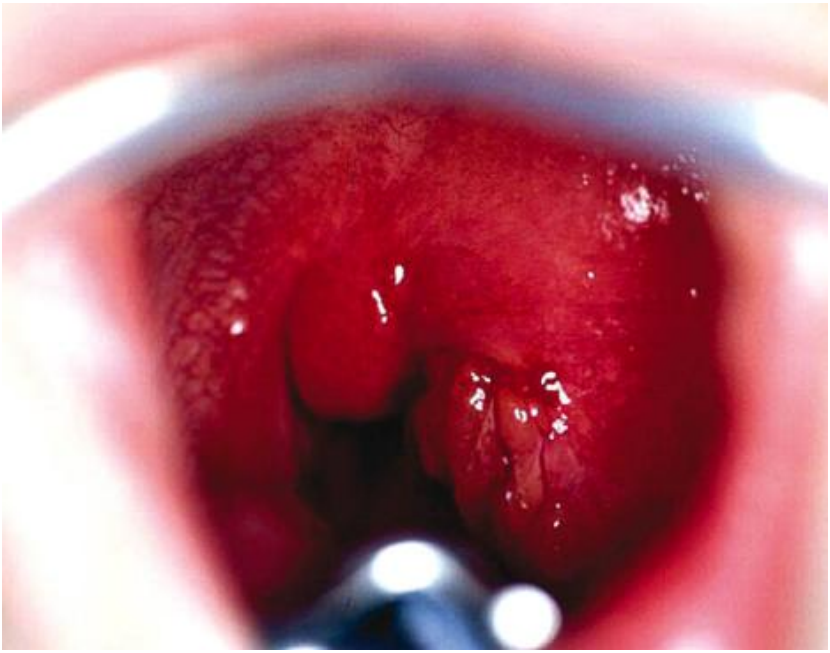
A 3-month-old infant presents to the emergency department with fussiness and decreased alertness. During triage, he experiences a seizure. Physical examination reveals somnolence and a bulging fontanelle. Emergent head computed tomography scan documents acute and chronic subdural hematomas.



1-What is the most likely diagnosis?
2-What is the procedure that is most likely reveal the cause of these findings?
3- Is angiography necessary for the diagnosis?

QUESTION 21

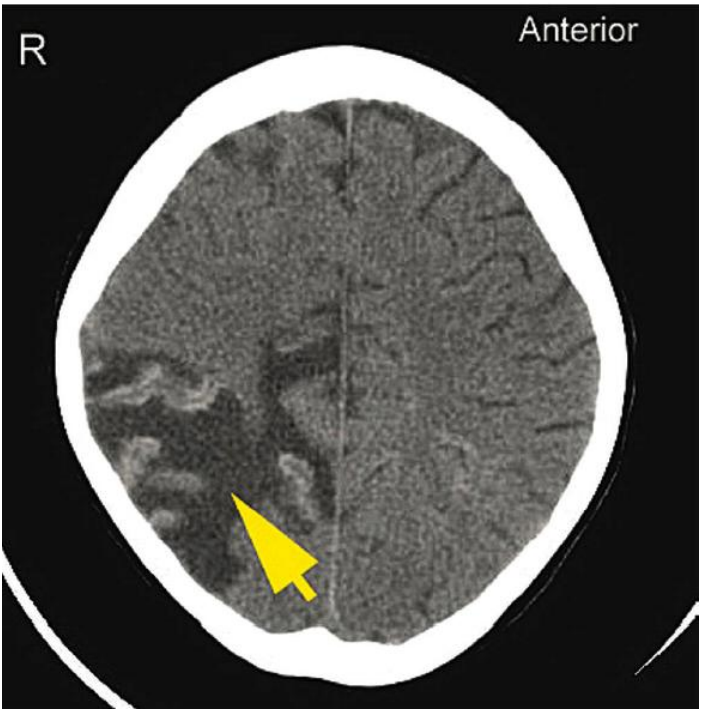
A 13-year-old boy presents to the emergency department with a 3-day history of severe sore throat and fever. He is having trouble swallowing due to pain. His past medical history is unremarkable. On physical examination, he has a temperature of 102.6°F (39.3°C) and a large left tonsil, with swelling of the left soft palate and deviation of the uvula to the right. You suspect a peritonsillar abscess.



1-Mention the bacteria Implicated in this case?
2- What is the most appropriate antimicrobial agent to start empirically?

QUESTION 22

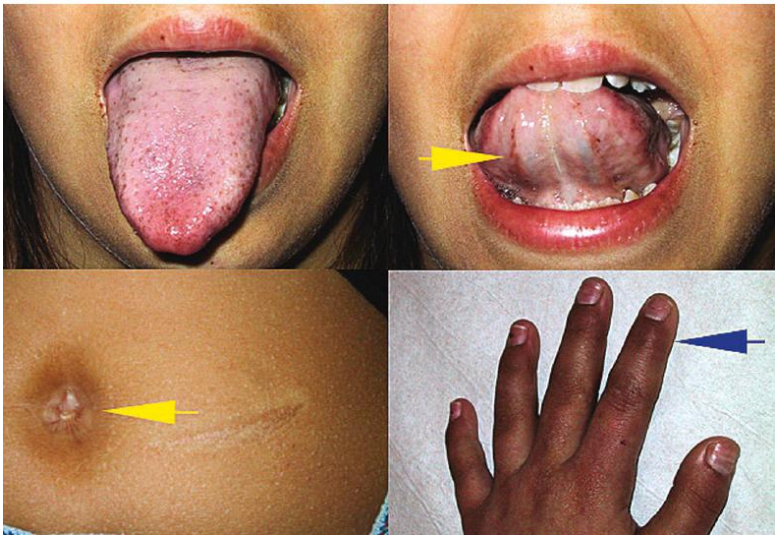
A 10-year-old boy presents to the emergency department with confusion. He is febrile. While you are examining him, his eyes glaze over and deviate to the right, he has automatic chewing movements, and he is completely unresponsive for 30 seconds, after which he is very sleepy. Emergent head computed tomography scan shows low density in the right temporal lobe.



1-What is the most likely diagnosis?
2-Discribe the C/T scan finding?
3-What is the most appropriate next step?

QUESTION 23

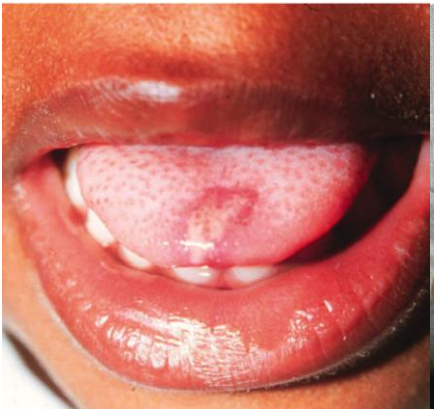
You are evaluating a 15-year-old girl who complains of malaise, fatigue, and occasional abdominal discomfort. You diagnosed hypothyroidism due to chronic lymphocytic thyroiditis (Hashimoto thyroiditis) 6 years ago. She has normal serum immunoglobulin A concentrations. A tissue transglutaminase antibody study was negative 1 month before this visit, and free thyroxine and thyroid-stimulating hormone (TSH) values were normal at that time. She has normal menses. She reports that she has been eating poorly and has lost 5 lb since you saw her at the beginning of the summer, but she obviously has had a good summer and has a tan.

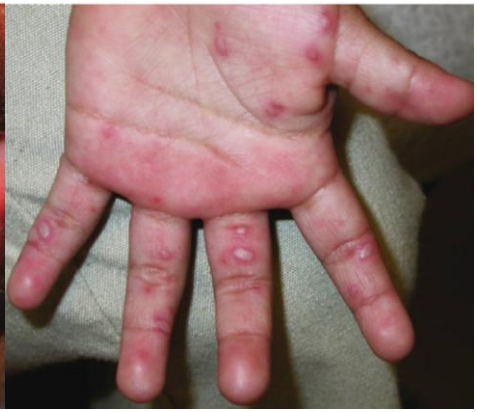


1-What are the most important laboratory studies to obtain at this time?
2-What is your most likely diagnosis?
3-What is the cause of her tan?
4-What other endocrine autoimmunities, the girl is at risk to develop?

QUESTION 24

A 5-year-old boy has been ill for 2 days with fever, decreased appetite, and a rash. On physical examination, you note ulcers on the tongue and soft palate, but the gingivae are spared. You also see oval vesicles with surrounding erythema on the hands.

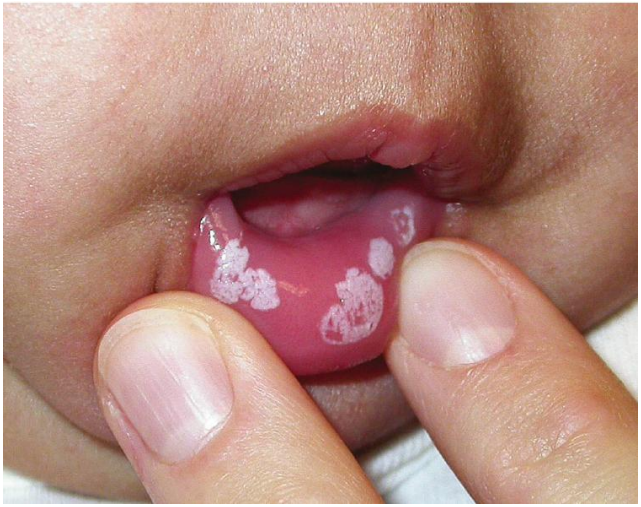




1-What is the most likely diagnosis?
2-What are the causative agents?
3-Enumerate 4 differential diagnoses for the mouth lesion?

QUESTION 25

You are evaluating a previously healthy 3-year-old girl for white spots in her mouth and a worsening rash in her vaginal area. Her mother states that except for decreased oral intake and complaints of itchiness in her vaginal area, the child has had no fever or other systemic symptoms. She has received three different 10-day courses of oral antibiotics in the last 2 months for a throat infection and otitis media. She completed her last antibiotic course yesterday. Physical examination shows two small areas of whitish plaques on her tongue and right buccal mucosa that cannot be removed easily with a tongue blade. She has no abdominal tenderness. Her vaginal area is erythematous, with several areas of excoriation; her hymenal tissue and urethral opening appear normal. The remainder of her physical examination findings is normal.



1-What is the most likely causative agent?

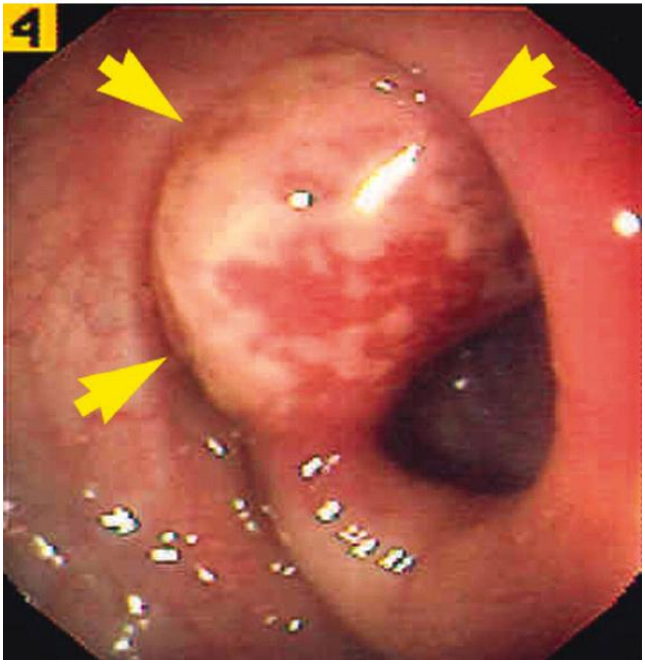
2-What is the most likely cause of this patient's condition?

3-Mention the sites of human body where these organisms usually found?

QUESTION 26

A 3-year-old child presents with a history of intermittent painless rectal bleeding. Approximately once or twice a week, she passes a formed stool that contains up to “a teaspoon” of blood.

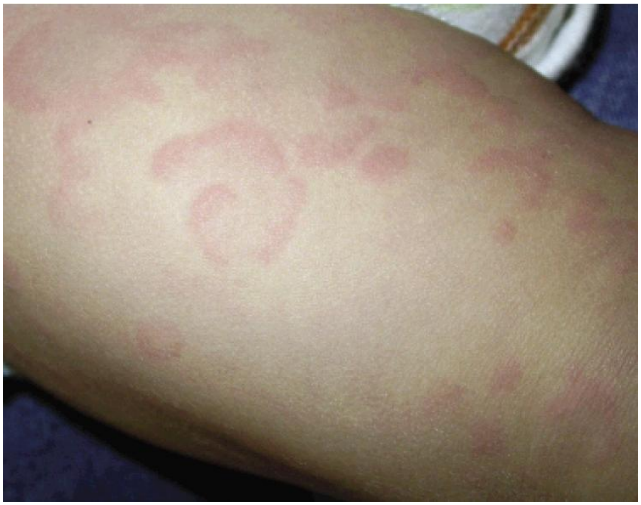
Physical examination demonstrates no fissures or hemorrhoids. Hematocrit measurement and results of coagulation studies are normal. The bleeding persists despite stool softeners.



1-What is the most likely diagnosis?
2-Which test most likely establish the diagnosis?
3-Mention 2 other causes for painless rectal bleeding?

QUESTION 27

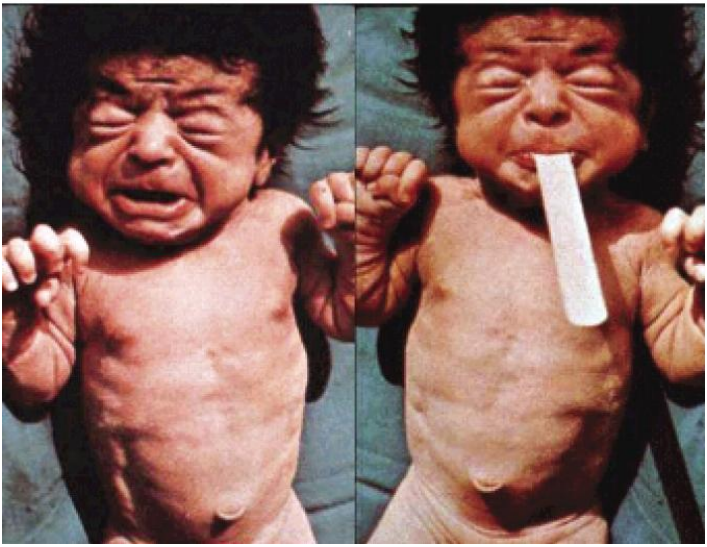
An 18-year-old boy presents to the emergency department 30 minutes after eating at a seafood restaurant. He states that approximately 10 minutes into his meal he developed generalized hives, pruritus, and difficulty breathing. He has a history of shellfish food allergy, although he had ordered steak and denies eating any crab, lobster, or shrimp. On physical examination, the patient appears to have labored breathing, audible wheezing, and diffuse raised erythematous lesions on his trunk and extremities. His vital signs include a temperature of 98.5°F (37°C), heart rate of 100 beats/min, respiratory rate of 22 breaths/min, blood pressure of 110/60 mm Hg, and pulse oximetry of 92% on room air.



1-What is the most likely cause for the patient condition?
2-What is the most appropriate immediate action?

QUESTION 28

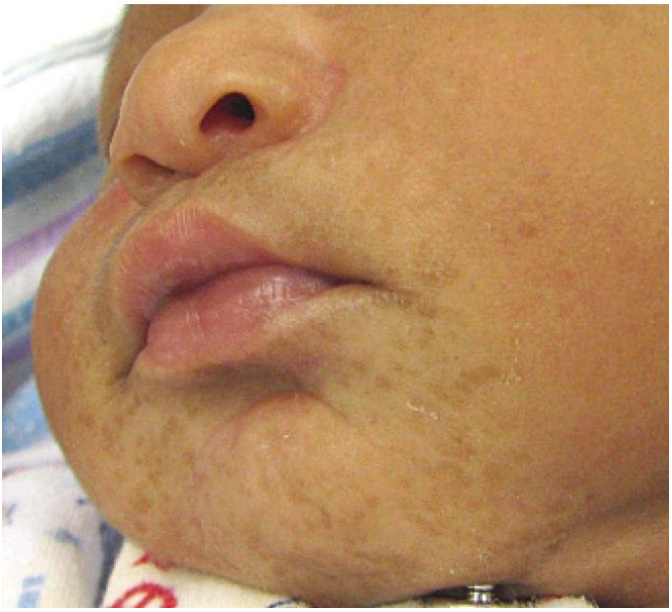
You are working in a refugee camp when a mother brings in her 8-day-old boy. The mother states he started becoming irritable 2 days ago, and now any loud noise appears to cause him pain, as evidenced by muscle tightening and back arching causing his head to nearly touch his feet. Physical examination reveals only a dried packing on his umbilical cord, as is the local custom. He appears normal until he is stimulated by touch or a loud noise, and then he begins to cry, stiffens, and arches his back. The stiffness continues until he calms down.



1-What is the most likely diagnosis?
2-What is your treatment?
3-How it is prevented?

QUESTION 29

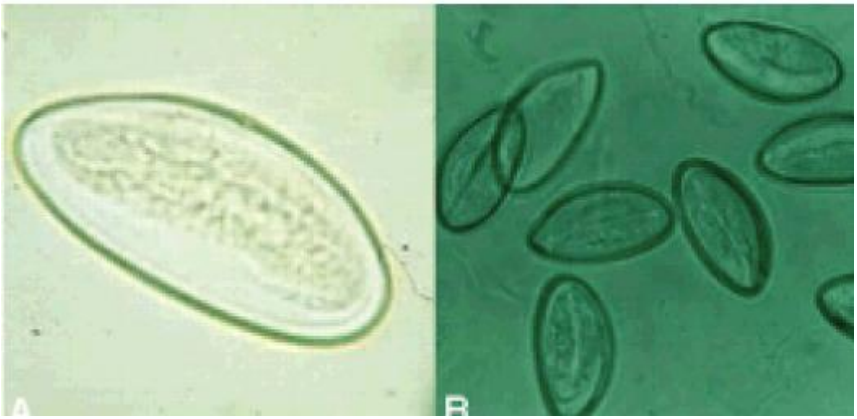
A 1-month-old infant presents with freckle like macules over his face and extremities. The hospital record reveals that he had multiple papules and pustules distributed over his entire body, including palms and soles, at birth. The infant appears to be very healthy and thriving.



1-What is the most likely diagnosis?
2-What are the microscopic findings of the pustules in the newborn period?
3-Mention 4 other neonatal conditions characterized by pustules or vesicles and what are their microscopic lesional contents?

QUESTION 30

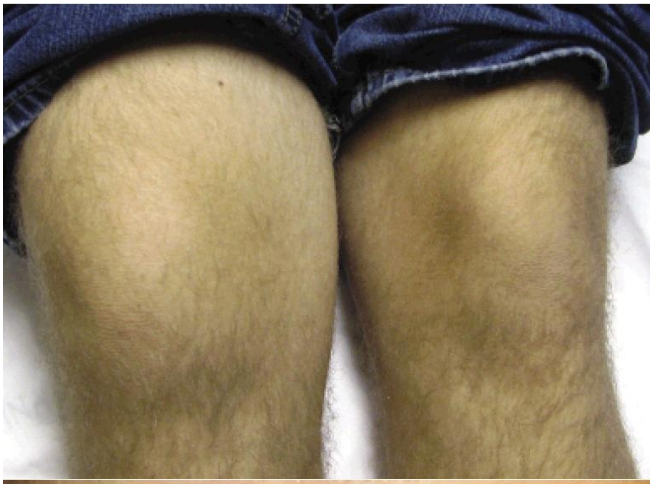
A 4 year-old-boy presents to your clinic with anal itching of 2 weeks' duration. His mother denies itching in other family members. Tape applied to his perianal skin shows oval structures.

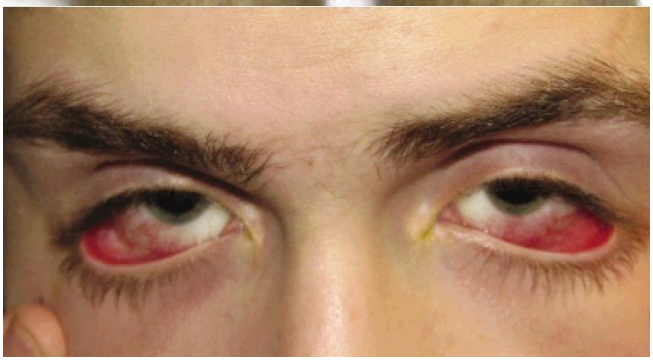


1-What are these oval structures?
2- What is the most appropriate management of this patient?
3- What are the indications for entire family treatment?

QUESTION 31

A 16-year-old boy presents with a very swollen, painful right knee. He is a soccer player, but there is no history of recent injury. During the interview, you notice the boy has injected conjunctivae.

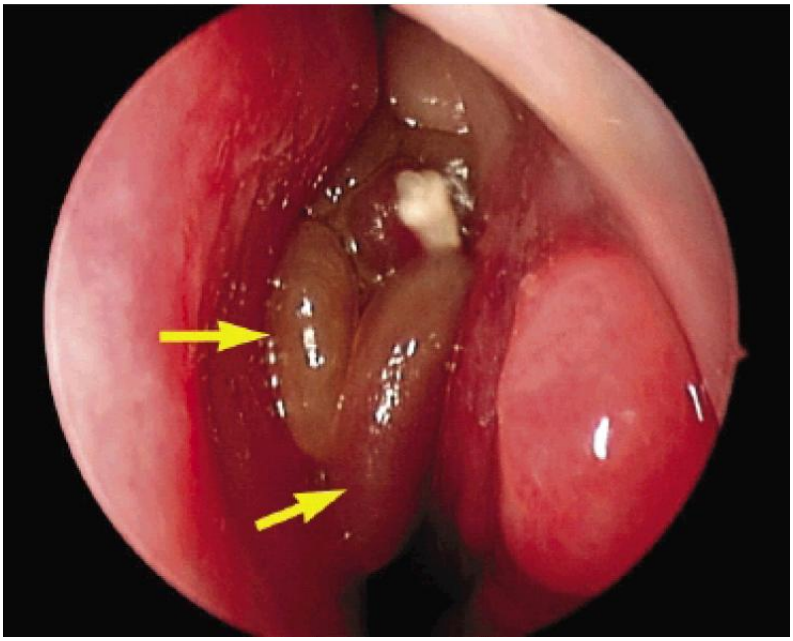




1-What you expect to find in his urine examination?
2-What is the most likely diagnosis?
3-What dermatologic findings you may also see?

QUESTION 32

A 4-year-old boy presents with a history of chronic upper and lower respiratory tract infections. His weight is 15 kg (25th percentile), height is 97 cm (10th percentile), temperature is 98.1°F (36.8°C), and pulse oximetry is 96% on room air. On physical examination, he coughs intermittently and has mild clubbing. On nasal examination, you note purulent rhinorrhea and nasal polyps. Auscultation of the heart reveals a regular rate and rhythm, with the point of maximal impulse displaced to the right.

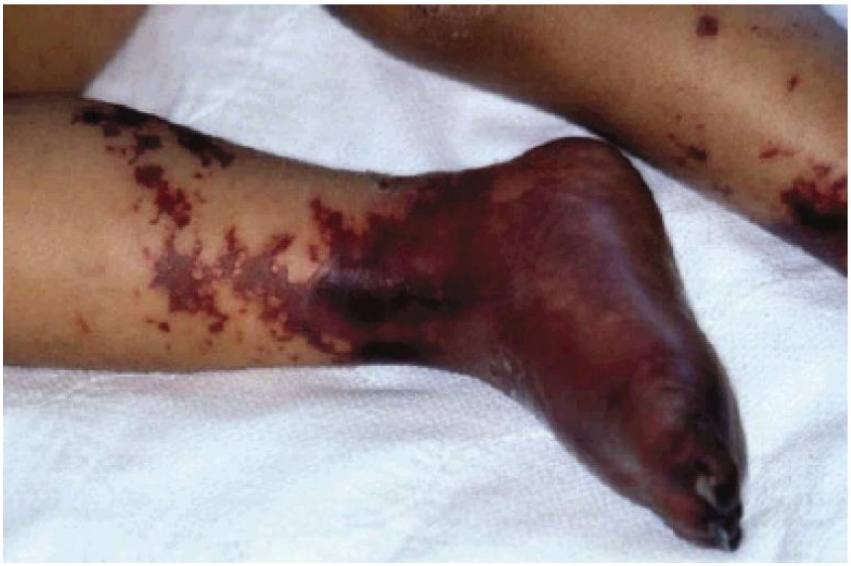


1- What is the most likely diagnosis?
2-What other characteristic finding you may see?
3-How can you prove your diagnosis?

QUESTION 33

A 14-month-old girl is brought to the emergency department with a 12-hour history of fever and rash. Her mother became frightened when it was difficult to arouse the girl after her nap.

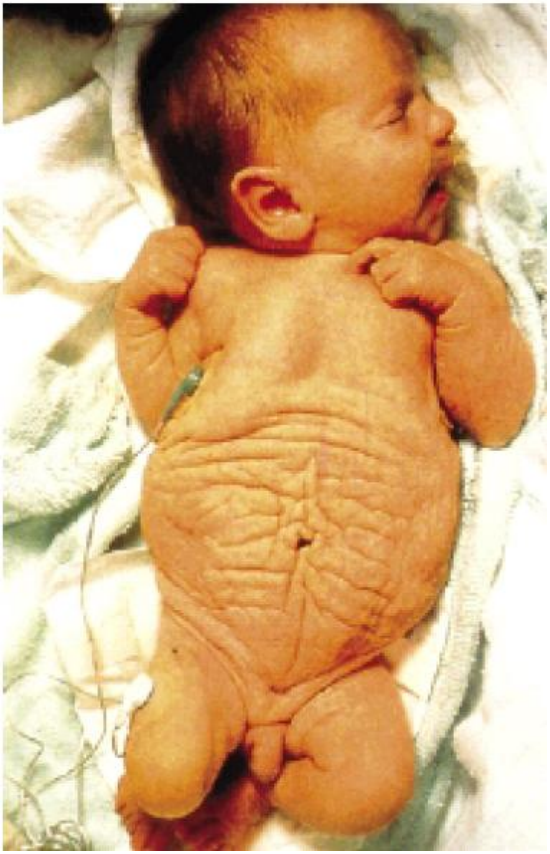
Findings on physical examination include a temperature of 104°F (40°C), a heart rate of 164 beats/min, a respiratory rate of 42 breaths/min, and a blood pressure of 75/45 mm Hg. There are petechiae and purpura on the chest, arms, and legs.



1-What is the most likely diagnosis?
2-What is the most appropriate initial therapy?

QUESTION 34

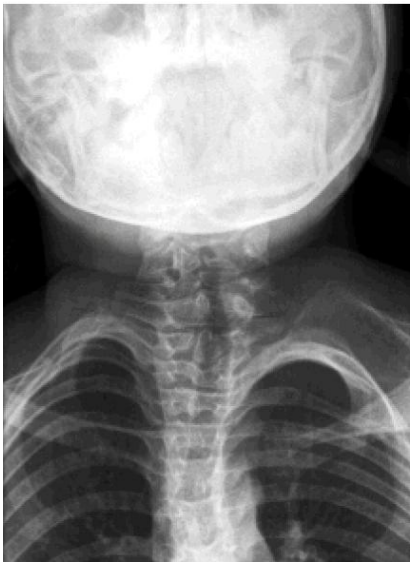
You are evaluating a newborn boy who has lax abdominal musculature and bilateral undescended testes. Other findings on physical examination are normal.



1-What is the most likely diagnosis?
2- What is the most likely urologic abnormality in this boy?
3-What is the renal outcome of this disease?

QUESTION 35

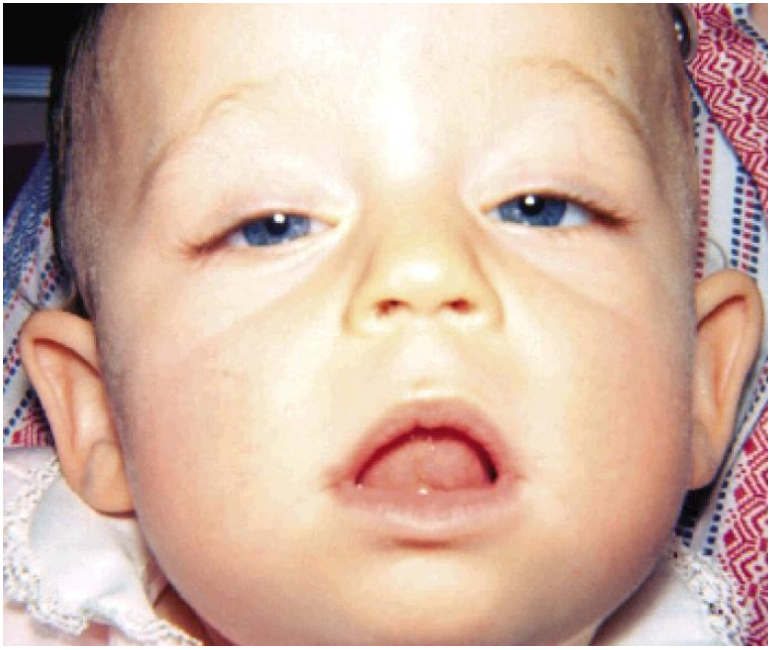
A child presents for her 2-week evaluation after being delivered by a midwife at home. The parents are concerned that they have never seen her turn her head, which makes it difficult for her to feed at the breast. They also note that her back does not appear normal. On physical examination, her hairline appears low posteriorly. You confirm that she does not turn her head, and when placed prone, does not turn her head to the side. Her right scapula appears to be higher than the left, and you note that the spine does not appear to be perfectly straight, suggesting congenital scoliosis. You obtain an anteroposterior radiograph of the cervical spine, which shows multilevel segmentation anomalies in the mid to lower cervical spine.



1-What is the most likely diagnosis?
2- What other associated defects may be seen?

QUESTION 36

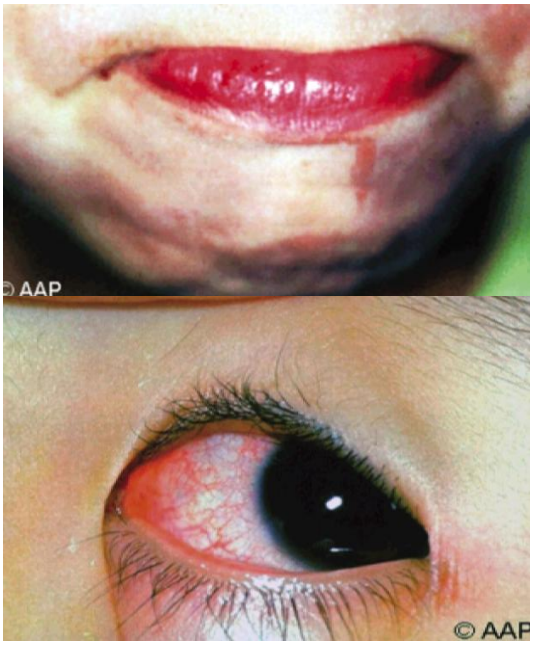
A 4-month-old is brought to clinic by his parents for evaluation of bilateral droopy eyes. His mother believes this has developed just over the last week. The child recently started taking cereal in addition to breastfeeding and has been constipated. Physical examination reveals droopy eyelids and 1+ deep tendon reflexes diffusely.



1-What is the most likely diagnosis?
2-Enumerate 3 neuromuscular causes for ptosis?

QUESTION 37

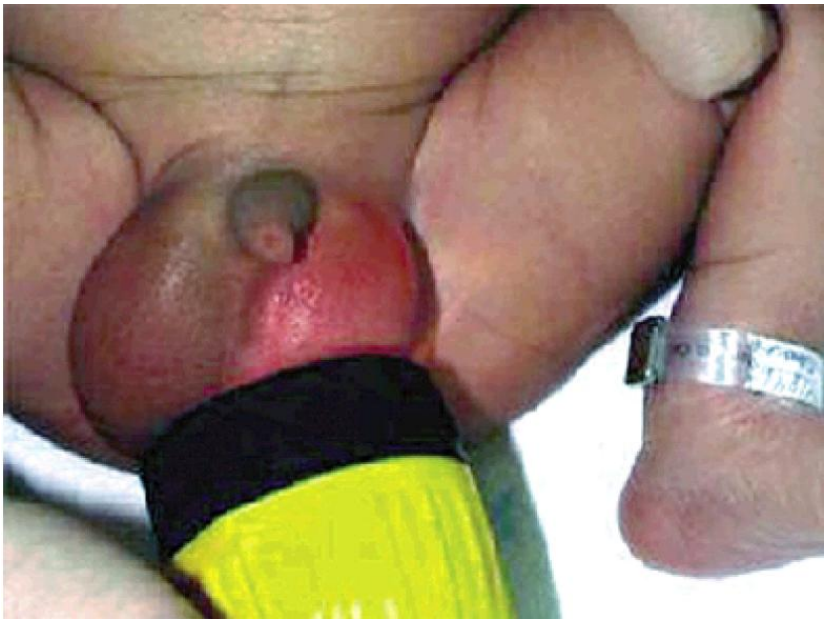
A 3-year-old girl is brought to your office for re-evaluation of a fever that began 6 days ago. Her mother tells you that her daughter's temperature has been as high as 102.2°F (39°C). Her physical examination was unremarkable when you examined her 3 days ago, but today you note injected sclera; cracked, red lips; a strawberry appearance of her tongue; and a swollen, nontender, cervical node.



1-What is the most likely diagnosis?
2-What important test should be done at time of diagnosis and why?
3-What treatment you should order?

QUESTION 38

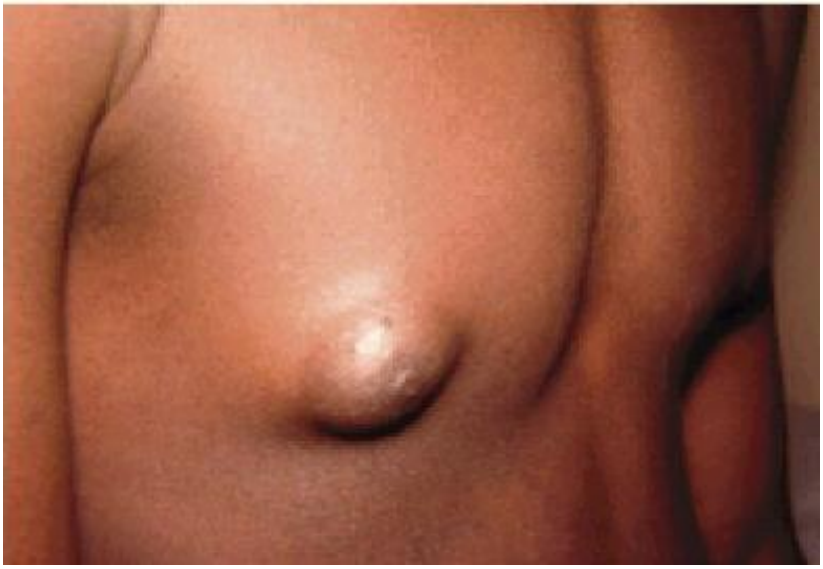
You are seeing a 6-month-old boy for a health supervision visit. On physical examination, you note bilateral, nontender scrotal swelling. The scrotum transilluminates. The remainder of the physical examination findings is normal.



1-What is the most likely diagnosis?
2-What is the fate of this condition?

QUESTION 39

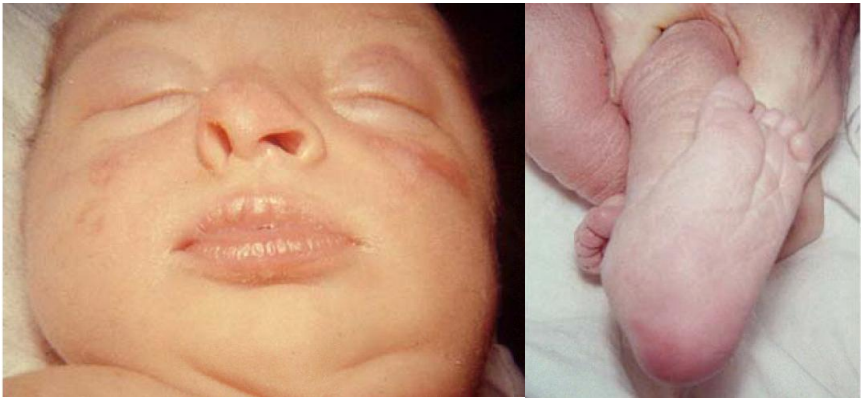
A 17-year-old boy presents for a sports physical. He has a learning disability and is shy. His height is at the 75th percentile, and his body mass index is at the 85th percentile. Physical examination findings include minimal facial hair, bilateral gynecomastia (breast >4 cm in diameter), and small testes (testicular volume of 6 mL).



1- What is the most likely cause of this patient's gynecomastia?
2-Mention 3 conditions causing gynecomastia?
3- Mention 3 drugs causing gynecomastia?

QUESTION 40

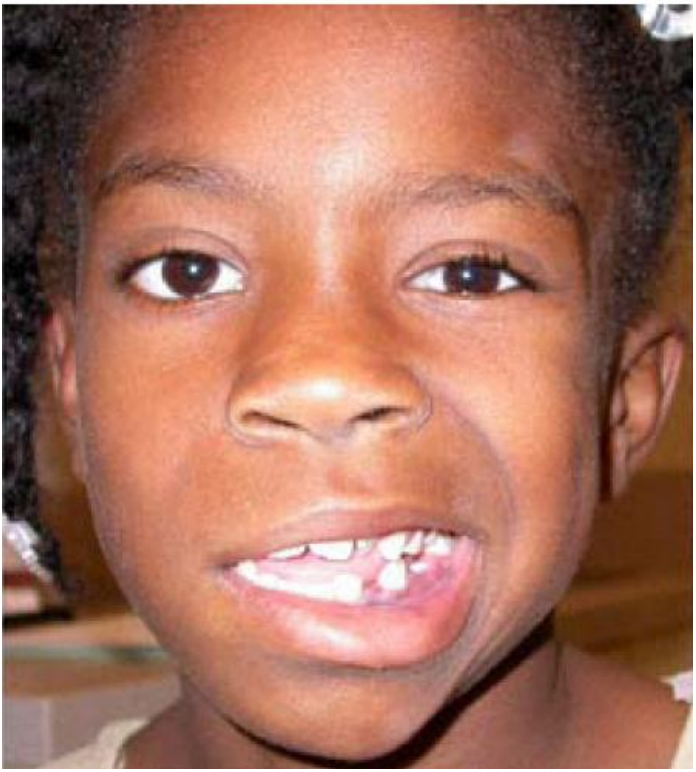
You are called to the newborn nursery to examine an infant who appears dysmorphic. On physical examination, the baby is normally grown and vigorous. You note over folded pinnae, deviation of the nose to one side, and a small chin. The feet are maintained in dorsiflexion, but can be corrected passively.



1- What are the causes of this baby's features?
2- What is the difference between these features and malformations?
3-What is the fate of these features?

QUESTION 41

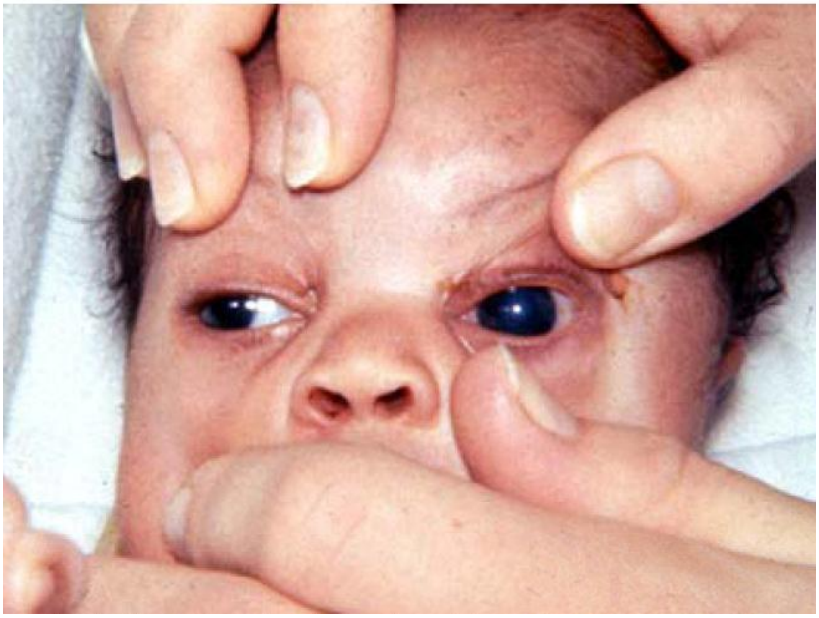
A 6-year-old girl is brought to your office for clumsy gait of 3 days' duration. On physical examination, she is afebrile and ataxic. She has a full right facial palsy. Deep tendon reflexes are hard to elicit at the knees and absent at the ankles. Results of her examination are otherwise normal.



1-What is the most likely diagnosis?
2- What is the most appropriate next step in the evaluation of this child?

QUESTION 42

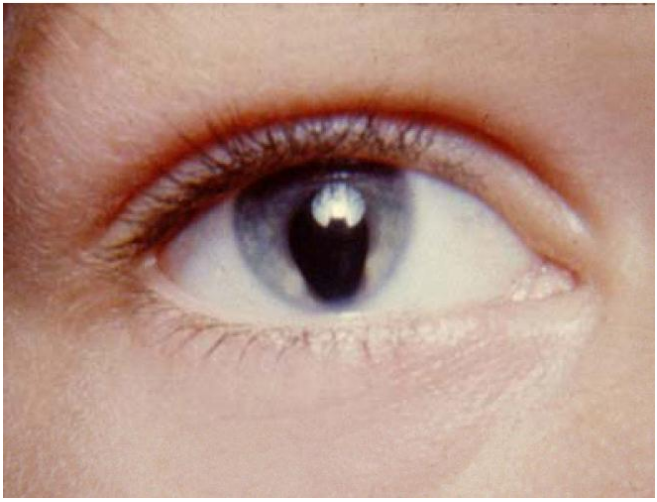
During the health supervision visit of a 2-week-old boy, his mother states that the neonate's left eye constantly tears and that lights seem to bother him. On physical examination, the left eye appears larger than the right, with mild conjunctival injection.



1- What is the most likely diagnosis?
2- What is the most appropriate next step?
3-Why early diagnosis is important?

QUESTION 43

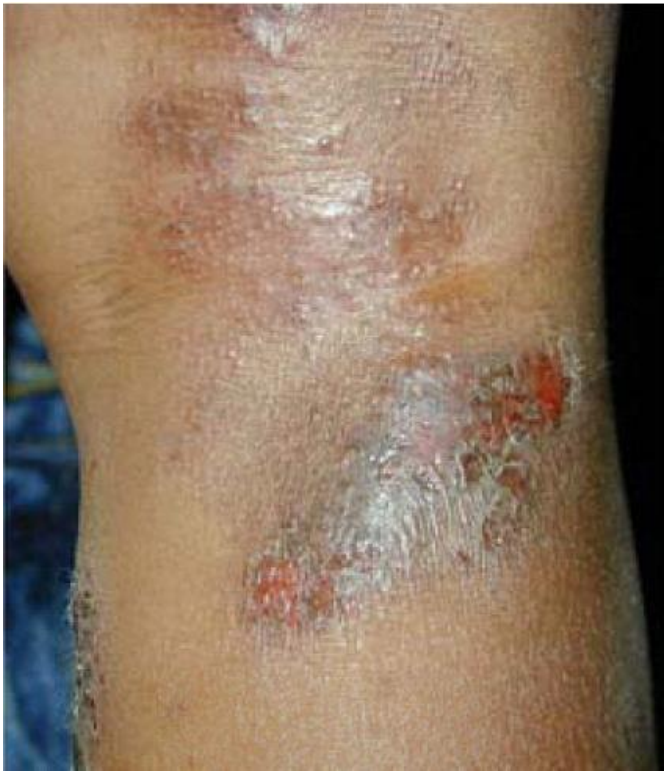
A 6-month-old infant who is new to your practice presents for a health supervision visit. Review of his medical records reveals that he was born at term after a reportedly uneventful pregnancy. He was diagnosed with tetralogy of Fallot soon after birth, for which he has undergone surgical intervention. He has been hospitalized once subsequently for failure to thrive. No gastrointestinal abnormalities were found, and he was discharged on 24-kcal/oz formula. Chromosome analysis reveals a normal 46,XY karyotype. The family history is negative for other individuals who have birth defects or mental retardation. On physical examination, the boy's weight is 5.8 kg (3rd percentile), length is 62 cm (10th percentile), and occipitofrontal circumference is 42 cm (10th percentile). There is a right facial droop, and the left ear is protuberant, with underfolding of the pinna. There is an iris coloboma on the right.



1- What is the most likely diagnosis for this child?
2-What other associated features you should look for?

QUESTION 44

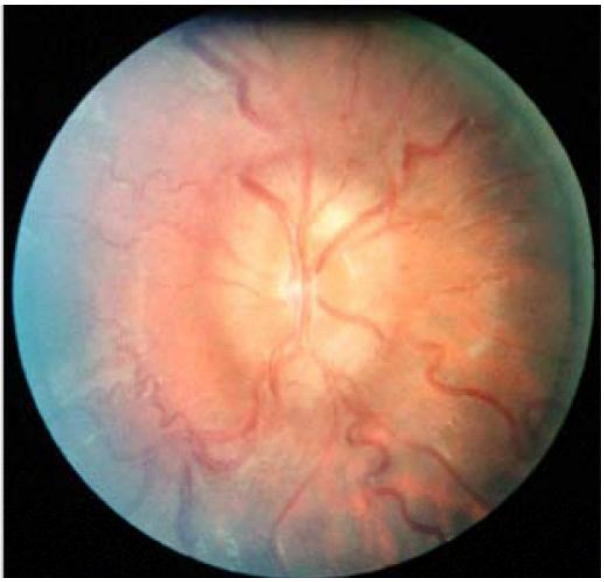
A 2-year-old boy who had a history of recurrent episodes of dry, scaly, pruritic eruptions on the face and extensor surfaces as an infant now presents with multiple pustules that are oozing and crusting. The pustules do not resolve with hydration, emollients, moderately potent topical corticosteroids, or calcineurin inhibitors.



1- What is the most likely diagnosis for this child?
2- What is the most appropriate next step in the management of this patient?

QUESTION 45

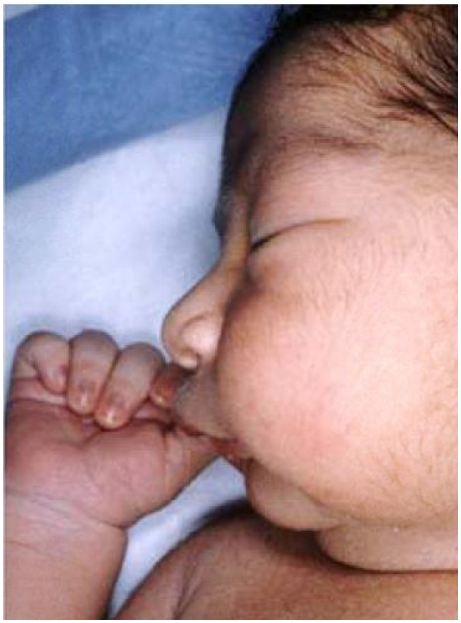
A 15-year-old boy who has cystic acne has experienced a frontal headache for 1 week. He reports that the only drug he takes is isotretinoin. Last night he presented to the emergency department for headache. Computed tomography of the head was obtained and normal; he was given meperidine and discharged home. He presents now to your office for follow-up. The boy has papilledema, but his physical examination findings are otherwise normal.



1- What is the most likely diagnosis?
2-What is the most appropriate next step in the evaluation of this patient?
3-What are the causes of this condition and mention the specific cause in this patient?

QUESTION 46

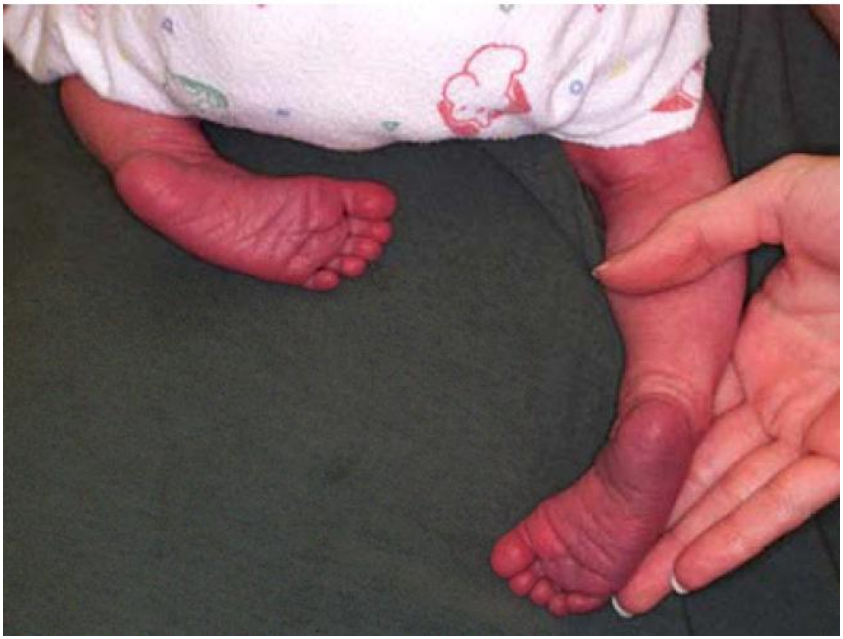
You are called to the nursery to evaluate a term newborn that has dysmorphic features. The baby is normally grown and vigorous. You note a small, symmetrically receded mandible as well as posterior positioning of the tongue and a cleft palate. The baby's 22-year-old mother was born with similar features; she has no health problems at the present except for severe near sightedness.



1-What is the most likely diagnosis?
2- What risk this infant may develop if untreated?
3- What is the most likely diagnosis of the mother?

QUESTION 47

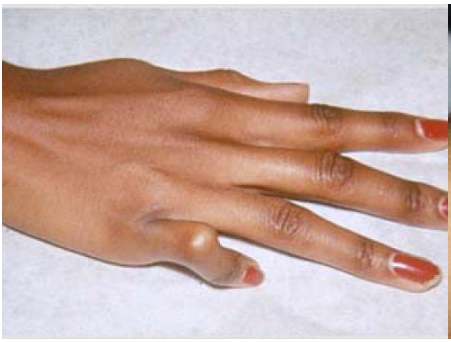
A 2-week-old infant is brought to your clinic for her first health supervision visit. She has been doing well at home, but her mother is concerned that sometimes her hands and feet “turn blue.” On physical examination, she appears alert and well. Her heart rate is 140 beats/min and respiratory rate is 40 beats/min. Her pulses are strong and equal, and there are no cardiac murmurs. Her hands and feet have a bluish tint, but her lips are pink.

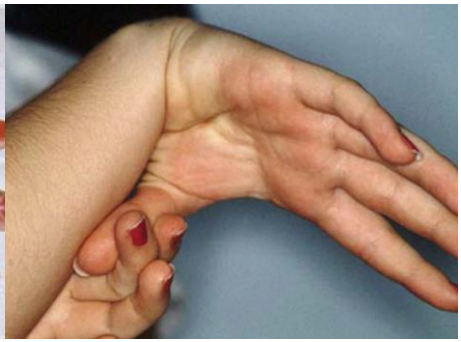


1-What is your diagnosis?
2-What is the etiology?
3-What is the prognosis?

QUESTION 48

As the doctor for the high school basketball team, you are asked to evaluate a student, who injured his right index finger on the rim while dunking the basketball. During your evaluation, you note a hematoma on the finger, but normal range of motion and no broken skin. He has minimal tenderness. You also note arachnodactyly and hypermobility of his thumb joints. He wears glasses, has a pectus carinatum, and after a detailed measurement, his arm span relative to his height is 1.15. He tells you that he can play without pain and is looking forward to the state playoffs later in the week. His parents tell you that basketball offers his best chance of attending college.

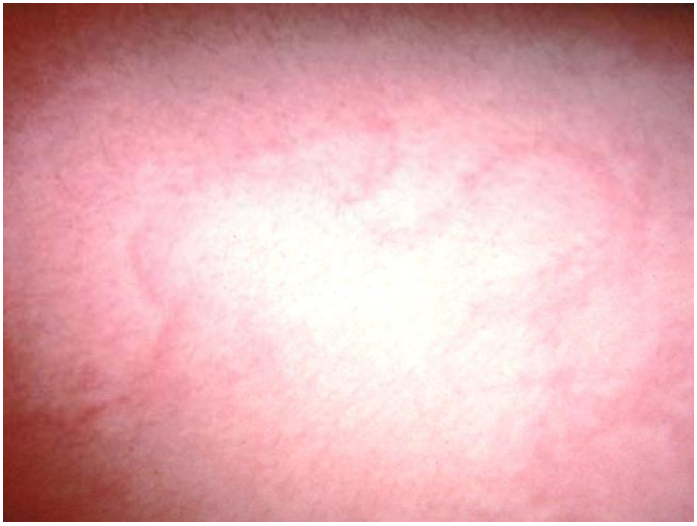




1- What is the most likely diagnosis?
2-Why he wears glasses?
3-What is the first investigation to be done?
4-What is your best advice to the patient?

QUESTION 49

You are evaluating an 8-year-old girl who recently moved to your area from South America. She complains of a sore left knee and tells you that yesterday her left ankle was sore and swollen. On physical examination, she is alert and cooperative. Her resting heart rate is 120 beats/min and respiratory rate is 20 breaths/min. Her left knee is exquisitely painful and tender with motion, mildly swollen, and erythematous. Her left ankle is mildly tender but otherwise normal, although she tells you that on the preceding day, it felt and looked like her knee does now. You notice a pink, macular, erythematous rash on the trunk that has central blanching.



1-What is this skin lesion?
2- What is the most likely diagnosis?

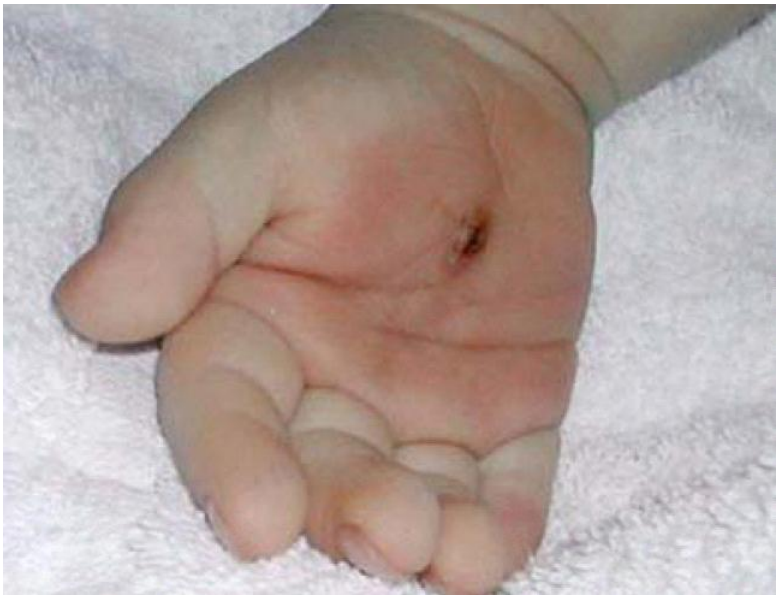
QUESTION 50

A previously healthy 10-year-old girl presents to the emergency department with the acute onset of gross hematuria, headache, and facial swelling. About 2 weeks ago, she had a sore throat that resolved without therapy. Vital signs include:
temperature of 99.3°F (37.4°C), heart rate of 94 beats/min, and blood pressure of 147/92 mm Hg. On physical examination, you note periorbital edema but no other abnormalities. Her serum creatinine is 1.0 mg/dL (88.4 mcmol/L).

1-What is the most likely diagnosis?
2-What is the cause of hypertension in this patient?
3-How you treat his hypertension?

QUESTION 51

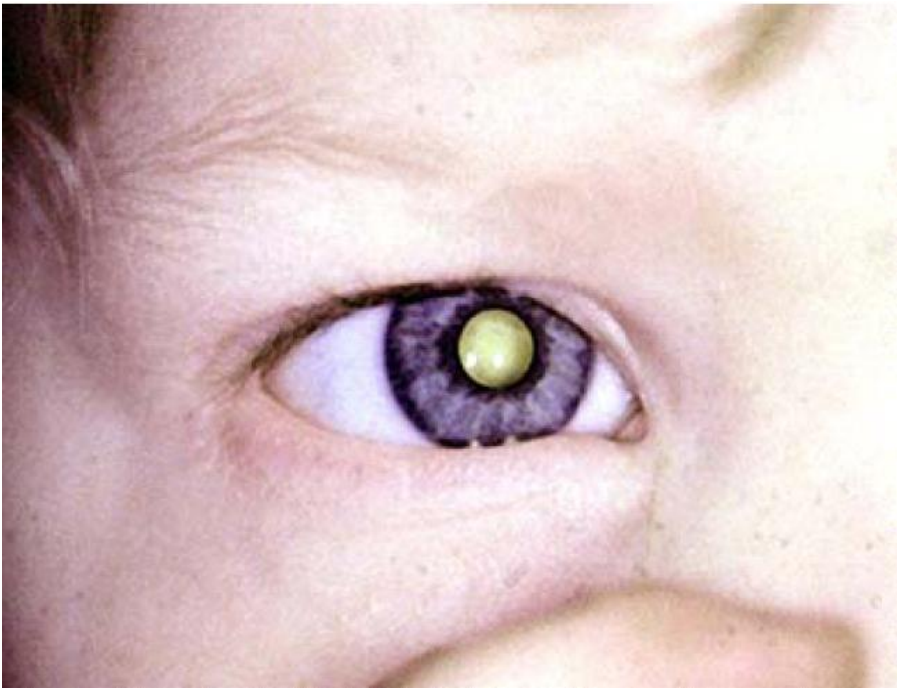
A 3-year-old boy presents with a complaint of a swollen finger . He was playing with the family cat yesterday, and the cat bit him. Within 24 hours, the mother noted redness and swelling of the finger. Physical examination reveals a temperature of 101°F (38.3°C) and an erythematous area surrounding two puncture marks on the palm of his right hand. The palm is very tender to touch. The mother reminds you that he is allergic to penicillin.



1-What are the most likely causative organisms?
2- What is the best choice of initial antimicrobial therapy for this child?
3- Where the infection rate is higher, in cat or dog bite and why?

QUESTION 52

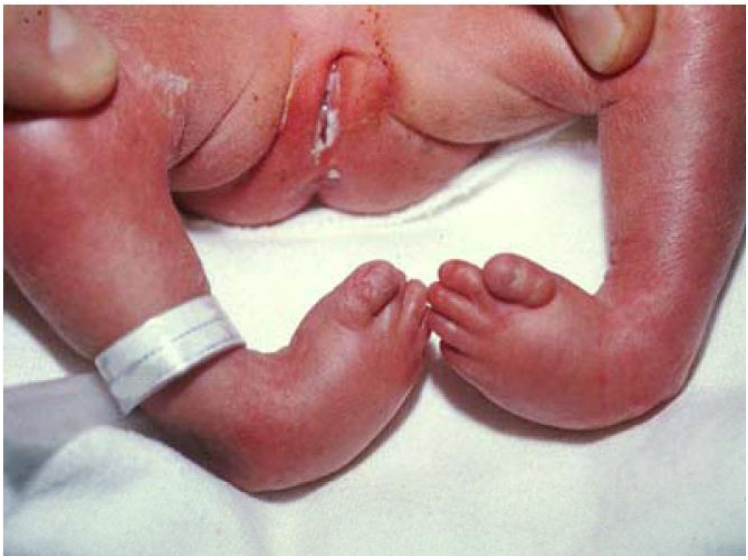
While evaluating a newborn, you note absence of a red reflex. Subsequent evaluation by an ophthalmologist reveals bilateral cataracts. The infant also has failed the neonatal hearing screening test, with results suggestive of severe hearing loss.



1- What is the most likely cause of the findings in this patient?
2-Enumerate 4 other causes for leukocoria?
3-What other findings you may see in this infant?

QUESTION 53

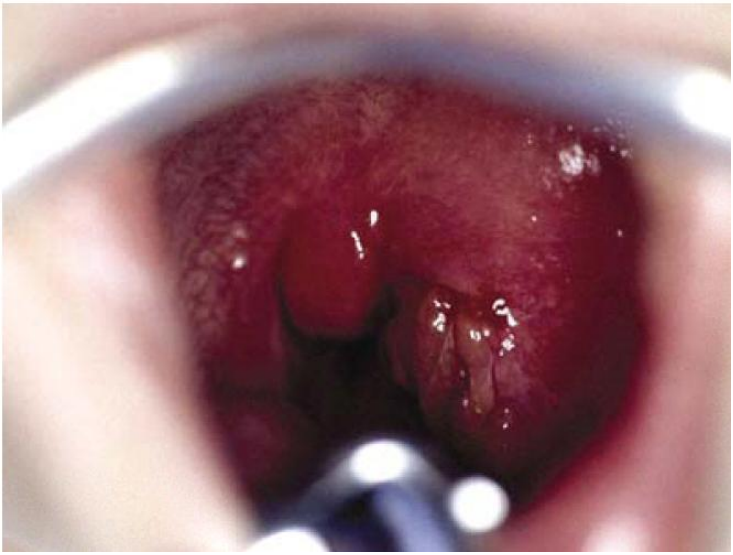
You are called to the nursery to evaluate a newborn who has multiple anomalies. The baby was born at 37 weeks' gestation to a 34-year-old primigravida and was delivered by cesarean section due to breech presentation. Birth records reveal that there was a short, two-vessel umbilical cord. On physical examination, the infant appears pink and cries vigorously with manipulation of his joints. You note flexion contractures at the elbows, wrists, hips, and knees.



1-What is wrong with the newborn?
2-What is the primary cause of this infant's contractures?
3- What is Pena-Shokeir phenotype?

QUESTION 54

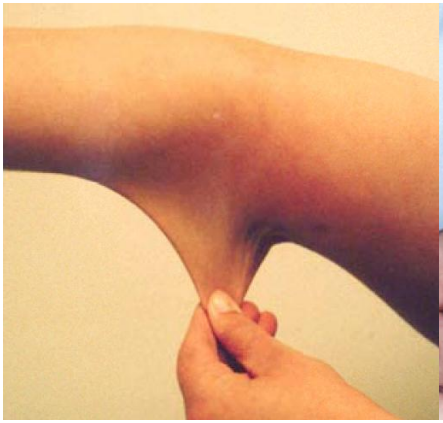
A 15-year-old girl presents with a 4-day history of a temperature to 102°F (38.9°C), a progressively worsening sore throat, right-sided neck pain, and trismus. On physical examination, the apprehensive adolescent has difficulty opening her mouth and swallowing because of pain. Her pharynx is very swollen and erythematous, with a small amount of mucopurulent exudate on the left tonsil, and her uvula is deviated to the right. Tender 1 x 2-cm cervical lymph nodes are palpable in her left neck. Laboratory tests demonstrate a peripheral white blood cell count of 16 x 10^3/mcL (16x 10^9/L), with a differential count of 75% polymorphonuclear leukocytes, 5% band polymorphonuclear leukocytes, and 20% lymphocytes.

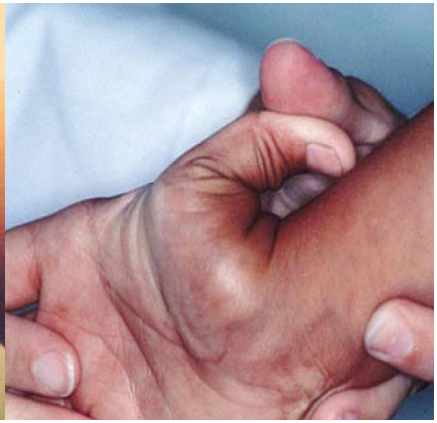


1-What is the most likely diagnosis?
2-Which bacteria are usually isolated?
3- What are the most appropriate antibiotics to use in the management of this patient?

QUESTION 55

A woman brings her 4-year-old son to see you because she is concerned that he bruises easily. He has been well except for having had a cold 2 weeks ago. He is behind on his immunizations. On physical examination, you note that he is normally grown, but he has diffuse joint hypermobility. There are paper-thin scars over both knees where he previously sustained abrasions. The skin is soft and stretchy. There are multiple bruises in various stages of healing on the forehead, arms, and shins.

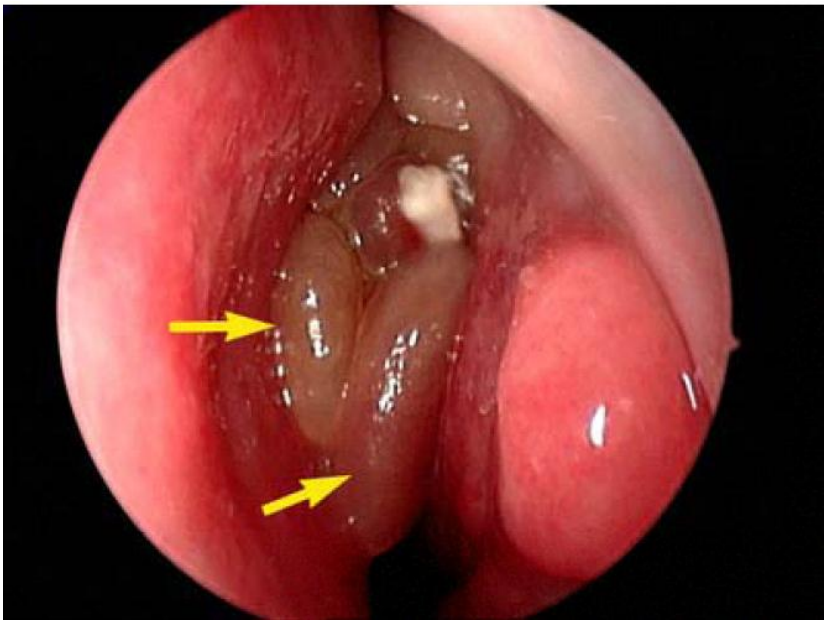




1-What is the most likely diagnosis for this child?
2-What cardiac complications he may develop?
3-What are Beighton criteria?

QUESTION 56

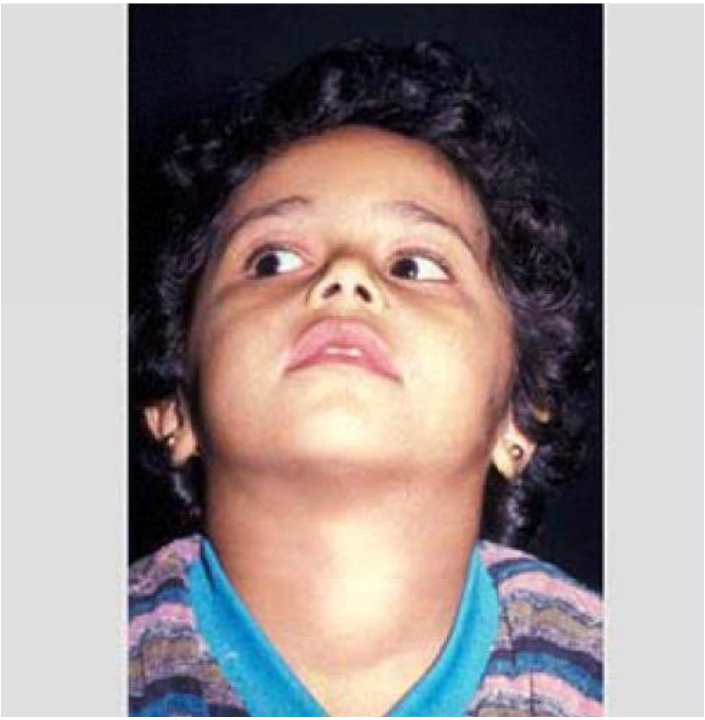
A 4-year-old boy has chronic nasal congestion, poor weight gain, and frequent otitis media. There has been no improvement with oral antihistamines, topical decongestants, or topical corticosteroid sprays. Physical examination of the nares reveals bilateral polyps.



1-What is the most appropriate next study?
2-Enumerate 5 diseases associated with nasal polyposis?
3-What is your therapy?

QUESTION 57

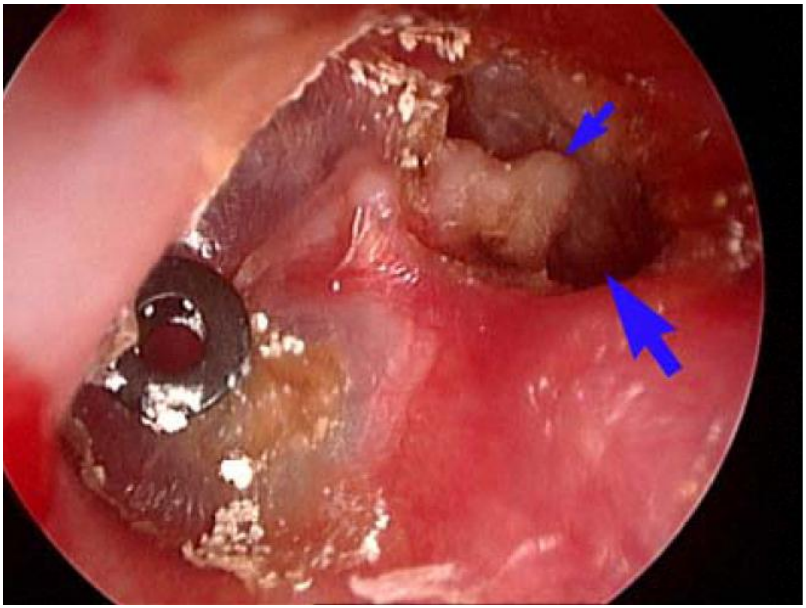
A 9-year-old girl comes into your office for a health supervision visit. You notice that in the last year, she has grown less than 1 in (1.5 cm) and has gained 5 lb (2.2 kg). Her mother tells you that she is doing well in school, but has been a little more tired in the past few months than previously. She appears pale but otherwise well.



1-What is the most likely reason for the growth attenuation?
2-What other features you expect to see in this patient?
3-Mention 4 other causes of growth attenuation?

QUESTION 58

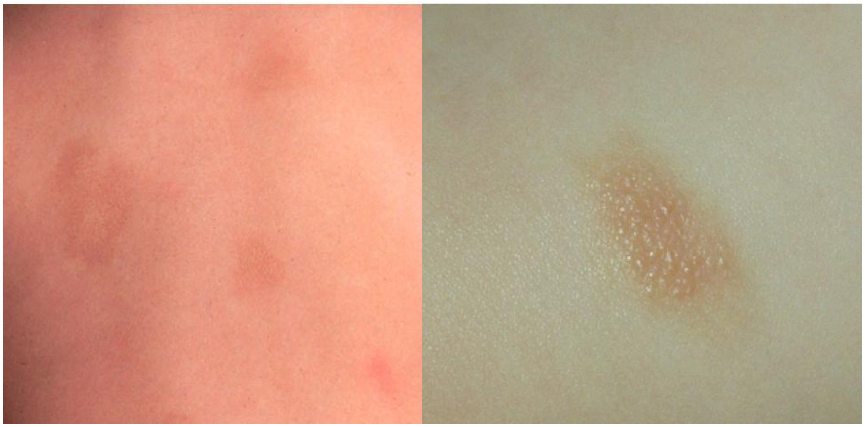
A 4-year-old girl has a 6-month history of right-sided ear drainage that has continued despite several courses of oral and topical antibiotics. Physical examination reveals purulent material in the external auditory canal as well as a white mass on the tympanic membrane.



1- What is the most likely cause of these findings?
2-What is your management?

QUESTION 59

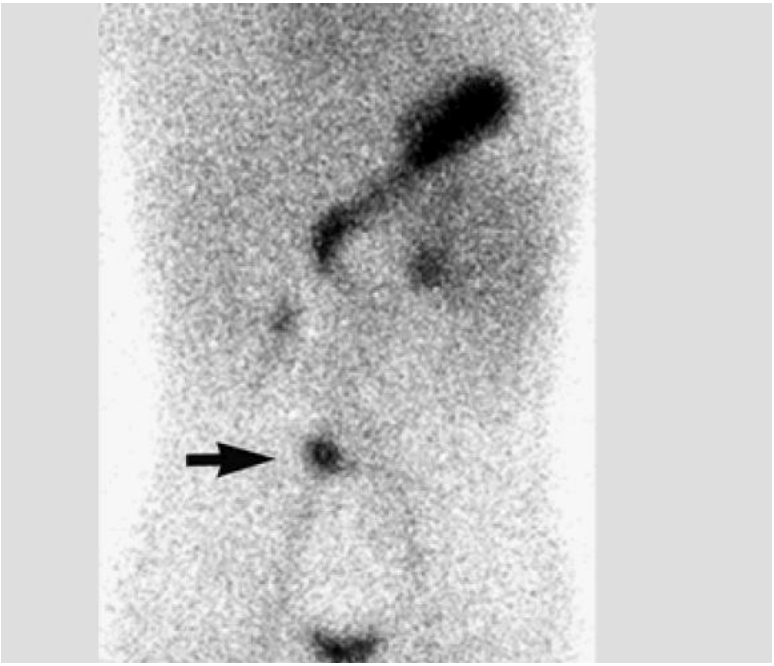
A 30-month-old boy presents with multiple blotchy, brown macules over the trunk and upper extremities. His parents report that a few red lesions first appeared at 9 months of age, and occasionally these lesions develop into"blisters." The boy has continued to develop new lesions on his chest, back, and arms. On physical examination, stroking an individual lesion results in tense edema within the lesion and an erythematous flare surrounding the lesion.



1-What is the most likely diagnosis?
2-What sign is demonstrated in the right photo?

QUESTION 60

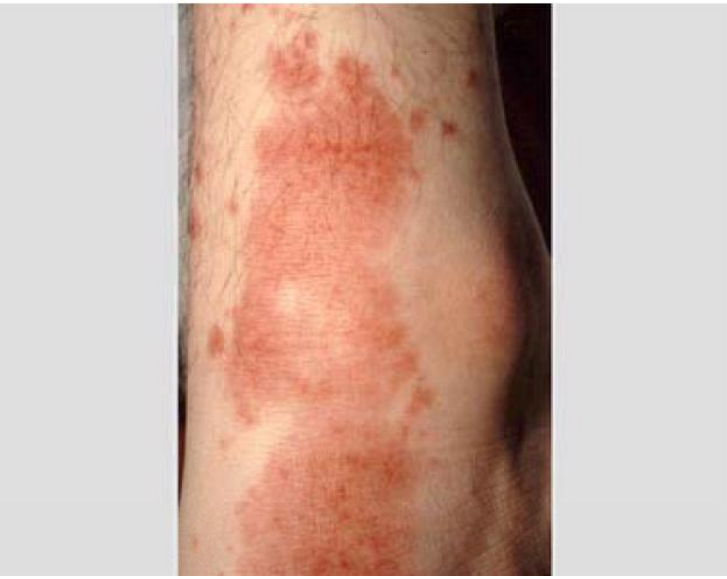
A 3-year-old girl is hospitalized because of the sudden passage of three maroon-colored stools. On physical examination, the child is alert, with a pulse of 100 beats/min and a blood pressure of 80/60 mm Hg. Her abdomen is soft, with no tenderness. Rectal examination demonstrates guaiac-positive stool. An abdominal radiograph appears normal. A technetium-99 pertechnetate scan shows an area of uptake in the right lower quadrant.



1- What is the most likely diagnosis?
2- What is the most appropriate next step?
3- Mention 3 less common presentations of the disease?

QUESTION 61

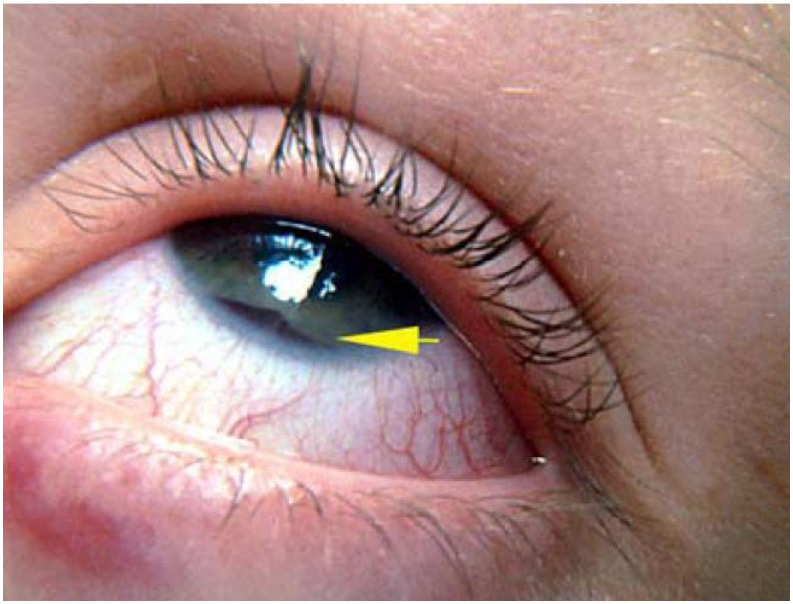
A 3-year-old boy is brought to the office with complaints of intermittent abdominal pain for 2 days. His mother notes that he also had a limp and a faint rash on his legs for 1 day. He has been afebrile and otherwise well except for an upper respiratory tract infection a few weeks ago. On physical examination, he is alert and complains of mild abdominal tenderness on palpation. His left ankle is swollen and tender, and a few 4- to 5-mm nonblanching lesions are visible on his thighs bilaterally.



1- What is the most likely diagnosis?
2-What is primary cause of long-term morbidity?

QUESTION 62

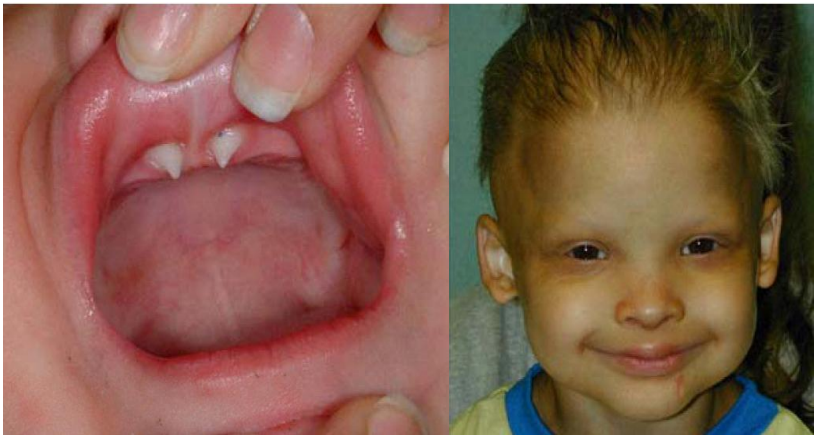
A 10-year-old child presents to your office 1 hour after being struck in the left eye by a thrown baseball. There was no loss of consciousness, and he has not vomited since the incident. On physical examination, the periorbital region appears swollen and bruised diffusely. Extraocular motion is intact. Pupillary responses are normal. The disc margins are sharp. Vision is slightly diminished in the affected eye. You note bright red blood settling in the inferior aspect of the anterior chamber up to the inferior margin of the pupil.



1- What is the most likely diagnosis?
2- What is the most appropriate next step in this patient's management?

QUESTION 63

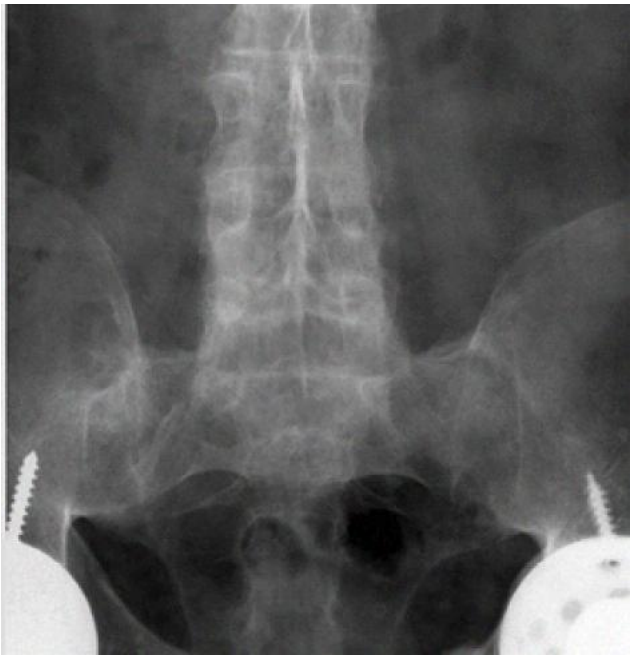
The parents of an 18-month-old boy are concerned because he has only two small, pegged teeth. He also has thin hair. The mother reports she had late dental eruption as a child.



1-What is the most likely diagnosis in this patient?
2-What is the usual presentation of this patient?
3-Enumerate 3 other causes for late dental eruption?

QUESTION 64

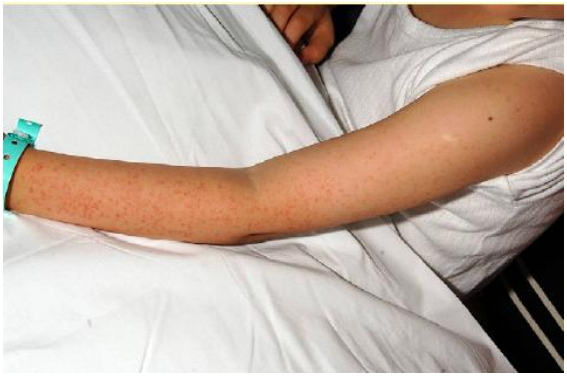
You are evaluating a 16-year-old boy who has a 3-month history of bilateral leg pain and lower back pain. He also reports occasional low-grade fever and a 5- to 10-lb (2.25- to 4.5-kg) weight loss over the last 3 months. He denies rashes or other symptoms. His physical examination reveals loss of mobility of the lower spine when bending forward and tenderness of both knees, hip radiograph was ordered. The remainders of the examination findings are normal.



1- What is the most likely diagnosis?
2- What other features you may see in this patient?
3- What finding you see in the hip radiograph?

QUESTION 65

A 4-year-old boy presents with a 3 d history of jaundice and a florid rash. He has had orange urine and there is no change in his stool colour. There is no history of blood transfusion or sexual abuse. The grandmother was recently diagnosed with hepatitis B.
On examination he is well, apyrexial and mildly jaundiced with cervical and axillary lymphadenopathy. He has an extensive papular rash over the face, extremities and trunk. There is 3 cm hepatomegaly with no splenomegaly or ascites.
Examination is otherwise normal.



Initial investigations are as follows:
Total bilirubin 66 µmol/litre (0–15)
Conjugated bilirubin 23 µmol/litre (0–10)
Alanine aminotransferase (ALT) 2033 IU/litre (0–35)

1. What is the name of this rash?
2- What is the most likely diagnosis?
3- What is the best means of management?

A- CASE STUDIES WITH IMAGES

ANSWER 1

1- Sturge-Weber syndrome.

2- The most common ophthalmologic finding associated with this condition is glaucoma.

3- Affected infants may have seizures, and some children have developmental delay, learning disabilities, and intellectual disability.

ANSWER 2

1- The infant described is at risk for amblyopia or diminished visual acuity because of potential obstruction of vision by a hemangioma. Thus, urgent ophthalmologic referral is indicated.

2- If ophthalmologic evaluation reveals evidence of amblyopia, laser therapy or intralesional corticosteroids may be used to reduce the size of the hemangioma.

3- Platelets count to exclude Kasabach-Merritt syndrome.

ANSWER 3

1- Ehlers-Danlos syndrome.

2- Most types of EDS are autosomal dominant, but autosomal recessive and Xlinked forms also are described.

3- My advice is to avoid activities that can place affected individuals at increased risk for arterial rupture, such as collision sports, weight training, and heavy lifting.

ANSWER 4

1- Brain abscess.

2- The most appropriate diagnostic test is head computed tomography scan with contrast.

3- A lumbar puncture should not be obtained prior to imaging because removing CSF and reducing pressure below the foramen

magnum can cause expanded intracranial contents to herniate downward.

ANSWER 5

1- The patient does not require renal biopsy at this point because the urinalysis does not yet show evidence of significant proteinuria.
2- Corticosteroid therapy is not indicated for joint symptoms or purpura.
3- Ibuprofen should be used with caution in children at risk of renal disease, and they should be avoided in this patient, who already has microscopic hematuria, to prevent further progression of early renal involvement.

ANSWER 6

1- The clinical presentation and medical history of the child described in the vignette is very concerning for an underlying brain tumor.
2- Emergent intubation and control of the airway is indicated before obtaining diagnostic imaging because the child is at significant risk for brainstem herniation and respiratory arrest.
3- Computed tomography scan demonstrate a large posterior fossa mass (medulloblastoma) with associated hemorrhage, obstruction of the 4^{th} ventricle, and dilation of the lateral and 3rd ventricles.

ANSWER 7

1- Legg-Calvé-Perthes Disease.
2- Passive exposure to smoking both prenatally and during childhood has been associated in some studies, possibly by affecting vascular development. Thrombophilia associated with abnormalities of protein C and protein S also has been implicated.
3- *Slipped capital femoral epiphysis.
*Toxic (transient) synovitis.
*Septic hip.

ANSWER 8

1- Pneumocystis pneumonia.

2- The most likely test to yield the diagnosis is bronchoalveolar lavage.

3- Trimethoprim-sulfamethoxazole is effective and generally well tolerated and is the drug of choice for both treatment and prevention. Children who cannot tolerate trimethoprim-sulfamethoxazole can be given intravenous pentamidine.

4- Pneumocystis jiroveci (previously P carinii).

ANSWER 9

1- The most likely explanation for this patient's syncopal episode is long QT syndrome.

2- Patients who have long QT syndrome are at risk for life threatening ventricular tachycardia, torsades de pointes, and ventricular fibrillation.

3-* Complete atrio-ventricular block.

* Hypertrophic cardiomyopathy.

* Supraventricular tachycardia due to Wolff-Parkinson-White syndrome.

ANSWER 10

1- The most likely explanation for these findings in the girl is congenital adrenal hyperplasia (CAH).

2- The most helpful diagnostic laboratory blood test is measurement of 17-hydroxyprogesterone.

3- Electrolyte abnormalities are not found in late-onset CAH.

ANSWER 11

1- Molluscum contagiosum.

2- They are caused by a DNA pox virus called molluscum contagiosum virus (MCV).

3- Because of its benign nature and ultimate self-resolution, observation is frequently the best approach for healthy children.
4- Without treatment, individual lesions usually resolve in 6 to 9 months, and the infection clears within 1 to 4 years. Molluscum contagiosum often behaves differently in patients who have HIV and resists treatment more than in healthy children.

ANSWER 12

1- Tuberous sclerosis complex (TSC).
2- Hypomelanotic macule, sometimes called ash leaf spot or Fitzpatrick patch.
3- The presence of three or more hypomelanotic macules is a major criterion for the diagnosis of TSC.
4- Cranial magnetic resonance imaging is necessary to determine the presence of brain hamartomas.
5- Additional diagnostic testing should include ophthalmologic evaluation, neurodevelopmental testing, echocardiography, and renal ultrasonography. Although the boy's delayed speech suggests the need for audiology evaluation.

ANSWER 13

1- Arcanobacterium (formerly Corynebacterium) haemolyticum.
2- Erythromycin is the drug of choice for treating pharyngitis caused by A haemolyticum.

ANSWER 14

1- Membranous pharyngitis caused by Corynebacterium diphtheria.
2- The mainstay of therapy is diphtheria antitoxin and antimicrobial therapy to stop toxin production, eradicate the organism, and prevent transmission. Acceptable regimens include erythromycin orally or IV for 14 days, penicillin G procaine intramuscularly (IM) for 14 days, or penicillin G IM or IV for 14 days.

3- Close contacts of patients who have diphtheria, regardless of their immunization status, should receive a single IM dose of penicillin G benzathine or 10 days of oral erythromycin.

ANSWER 15

1- Atopic dermatitis, also called eczema.
2- Topical corticosteroid therapy.
3- Regular use of topical corticosteroids is associated with hypopigmentation, bruising, acne, and thinning of the skin.

ANSWER 16

1- Disseminated intravascular coagulation (DIC) associated with septic shock.
2- Measurement of fibrinogen.

ANSWER 17

1- Esophagus.
2- Although less than 1% of esophageal foreign bodies cause significant morbidity, complications have been reported, including esophageal erosion and perforation, esophageal stenosis, aortoesophageal or tracheoesophageal fistula, and death. Because most of the complications have been noted when foreign bodies are retained for more than 24 hours, current guidelines recommend removal of most foreign bodies within this time frame.

ANSWER 18

1- Familial hypophosphatemic rickets of either the autosomal dominant or sex-linked type.
2- The typical laboratory findings in this disorder are normal serum calcium and low serum phosphate values.

ANSWER 19

1- Pulmonary sequestration.

2- Surgical lobectomy generally is curative.

ANSWER 20

1- The most common cause of subdural hematoma in an infant is “shaken baby” or “shaken impact syndrome.”
2- Retinal examination can identify retinal hemorrhages to support the diagnosis.
3- Subdural hemorrhages result from trauma to veins traversing the subdural space, making angiography unnecessary.

ANSWER 21

1- The bacteria that are involved most commonly are group A Streptococcus and mixed oropharyngeal anaerobes.
2- Antimicrobial therapy must cover group A Streptococcus and oral anaerobes, and clindamycin is a good choice.

ANSWER 22

1- Focal encephalitis.
2- Hemorrhagic necrosis.
3- Administration of intravenous acyclovir.

ANSWER 23

1- Measurement of cortisol and adrenocorticotropic hormone.
2-Addison disease (the presence of both autoimmune hypothyroidism and suspected adrenal insufficiency in this girl suggests the diagnosis of autoimmune polyglandular syndrome type 2).
3-Skin pigmentation is increased by high concentrations of adrenocorticotropic hormone.
4-The girl is at risk for other endocrine autoimmunities, including ovarian failure and diabetes.

ANSWER 24

1- Hand-foot-and-mouth disease.
2- Coxsackievirus A16 or enterovirus 71, although other Coxsackievirus types and echoviruses have been implicated.
3- Aphthous ulcers. herpangina, herpetic gingivostomatitis, and thrush.

ANSWER 25

1-Candida albicans, which is a normal commensal organism in human.
2-The repeated courses of antibiotic have created the conditions for Candida organisms to become pathogens.
3-The skin, throughout the entire gastrointestinal (GI) tract, in the female genital tract, and in the urine of patients who have indwelling Foley catheters.

ANSWER 26

1-The patient described has small-volume, painless rectal bleeding that persists despite stool softeners. There is no fever or signs of systemic illness to suggest an infection. The clinical presentation is more consistent with a colonic polyp.
2-colonoscopy is the most likely test to identify the polyp.
3-Painless rectal bleeding generally is caused by anatomic rather than inflammatory lesions. Meckel diverticulum is an extra piece of intestine, typically located in the distal ileum that can ulcerate and cause large-volume painless rectal bleeding. In toddlers, excessive numbers of lymph nodes in the colon (lymphoid nodular hyperplasia) sometimes may present with rectal bleeding.

ANSWER 27

1- The adolescent described in the vignette most likely is experiencing an adverse food reaction, specifically anaphylaxis to shellfish.

2- The rapid (<30 min) onset of urticaria and wheezing in a shellfish-allergic patient who is eating in a seafood restaurant is likely anaphylaxis and warrants prompt administration of intramuscular epinephrine.

ANSWER 28

1- Tetanus (caused by a neurotoxin from the anaerobic bacterium Clostridium tetani).

2- Treatment includes the use of human tetanus immune globulin (TIG), oral antimicrobial agents (metronidazole or penicillin) for 10 to 14 days, and other supportive measures (e.g., ventilator support, decreased external stimuli such as loud noises). In addition, all infected wounds should be cleaned properly and debrided.

3- Tetanus is prevented best through immunization with tetanus toxoid. Tetanus toxoid is available:

1) in combination with diphtheria toxoid and acellular pertussis vaccine (DTaP) to provide basic immunity against tetanus, diphtheria, and pertussis;

2) as part of a double antigen (DT) for children up to 6 years of age who cannot receive the pertussis component of the DTaP; and

3) as a single antigen (tetanus toxoid) (TT) to immunize pregnant women and women of childbearing age to prevent tetanus in their newborns.

ANSWER 29

1- Transient neonatal pustular melanosis (TNPM) is a disorder of unknown cause that begins in utero. At birth, affected infants may exhibit pustules or small hyperpigmented macules surrounded by a rim of scale, the remnant of the pustule roof.

2- A Wright-stained preparation of the pustular contents reveals a predominance of neutrophils.

3- The vesicles of erythema toxicum contain eosinophils, the pustules caused by staphylococcal folliculitis contain gram-positive cocci, the vesicles of herpes simplex virus infection contain multinucleated giant cells, and the pustules of congenital candidiasis contain pseudohyphae and budding yeast.

ANSWER 30

1-Eggs of roundworm Enterobius vermicularis.

2- The treatment of pinworm infections is a single dose of mebendazole, pyrantel pamoate, or albendazole. A repeat dose should be administered 2 weeks after the first dose in case of reinfection.

3- The entire family should be treated if multiple infections or repeated infections occur.

ANSWER 31

1- A finding of leukocyte esterase on a urine dipstick from a male patient suggests the presence of urethritis and is confirmed by the presence of 10 or more polymorphonuclear leukocytes per high-power field in the centrifuged sediment of a first morning void.

2- Reiter syndrome (RS).

3- Dermatologic findings of RS are common and include balanitis; painless ulcers on the tongue, palate, pharynx, and buccal mucosa; onycholysis; and vesicles and papules that mimic psoriasis (keratoderma blennorrhagicum).

ANSWER 32

1- The chronic sinopulmonary infections, nasal polyps, and right-sided heart (dextrocardia) described for the boy in the vignette are virtually diagnostic for primary ciliary dyskinesia (PCD).

2- Approximately 50% of patients who have PCD have situs inversus, a reversal of the visceral organs (Kartagener syndrome).

3-The diagnosis can be confirmed by identification of abnormal cilia orientation or missing dynein arms by electron microscopy.

ANSWER 33

1- Sepsis due to Neisseria meningitides.
2- Vancomycin plus ceftriaxone.

ANSWER 34

1- Prune belly (Eagle-Barrett) syndrome (PBS) is a relatively uncommon condition resulting from poorly developed abdominal musculature.
2- Hydronephrosis is a common anomaly associated with PBS. The hydronephrosis usually is obstructive and due to PUV or vesicoureteral reflux and ureteropelvic junction obstruction.
3- The renal outcome is generally poor, and most children who have PBS develop renal insufficiency.

ANSWER 35

1- The Klippel-Feil syndrome involves the fusion of cervical vertebrae and occurs in approximately 1 in 42,000 births, with a 65% female predominance. It is usually a sporadic event. Due to neck immobility, affected individuals are at risk of cervical spine injury.
2-Associated defects may include deafness (conduction or sensorineural, occurring in up to 30% of patients), congenital heart defects (usually ventricular septal defect), rib defects,hemivertebrae, Sprengel anomaly (elevation of the scapula), scoliosis, and renal anomalies.

ANSWER 36

1- The bilateral ptosis, combined with constipation and diminished reflexes, all developing during the introduction of solid foods described for the infant in the vignette is classic for botulism.

2- Neuromuscular causes for ptosis that have a new-onset neuropathic or myopathic basis include myasthenia gravis, mitochondrial disease (chronic progressive external ophthalmoplegia), and toxin exposures, such as botulism, diphtheria, tick paralysis, insecticides, and vincristine.

ANSWER 37

1- Kawasaki disease (KD) is believed to be a multisystem illness characterized by vasculitis of small- and medium-size blood vessels, including the coronary arteries.
2- Echocardiography usually is performed at the time of diagnosis to assess for the presence of a subclinical myocarditis, to evaluate for coronary arteritis, and to serve as a baseline for future studies.
3- Intravenous gamma globulin during the acute phase and high-dose aspirin therapy (80 to 100 mg/kg per day) is administered until the patient is afebrile for 48 hours, at which time the dose is decreased to 3 to 5 mg/kg per day for 6 to 8 weeks or until platelet concentrations normalize.

ANSWER 38

1- Hydrocele (Failure of the processus vaginalis to obliterate proximally results in fluid accumulation around the testes).
2- Most hydroceles resolve within 1 year; persistence beyond 1 year of age warrants surgical evaluation.

ANSWER 39

1- Adolescent males, who are tall and have gynecomastia and small testes probably have Klinefelter syndrome (impaired androgen production).
2- Liver and kidney disease, hyperthyroidism, androgen insensitivity syndromes, and neoplasms.
3- Spironolactone, ketoconazole, digitalis, anabolic steroids, and cimetidine.

ANSWER 40

1- Causes of fetal deformation are many and include oligohydramnios, prolonged breech positioning, a small or malformed uterus, fibroid tumors of the uterus, and multiple gestations. Often, the affected infant has a pugilistic facies, with deviation of the nose to one side. Limb positioning defects are common.

2- Unlike malformations, which occur due to intrinsic problems within a developing structure, deformations are due to mechanical forces acting on an otherwise normally developing embryo or fetus.

3- The appearance of the affected infant typically normalizes over time.

ANSWER 41

1- The ataxia plus areflexia reported for the girl, paired with a facial palsy, are virtually pathognomonic for Guillain-Barré syndrome.

2- Lumbar puncture will reveal albuminocytologic dissociation, with an increase in protein and no pleocytosis.

ANSWER 42

1- Congenital or infantile glaucoma.

2- Children who exhibit these findings should be referred immediately to an ophthalmologist for measurement of intraocular pressure (IOP) to confirm the diagnosis.

3- Clinicians who care for children need to know the signs and symptoms of glaucoma because delay in making this diagnosis may lead to permanent visual loss.

ANSWER 43

1- The infant has features consistent with CHARGE association.

2- Traditionally, however, CHARGE has been considered an association in which C=coloboma, H=heart defect, A=atresia

choanae, R=retardation of postnatal growth and/or development, G=genital anomaly/ies, and E=ear malformation(s).
To meet criteria for the diagnosis of CHARGE, an individual must have at least four of the above-delineated features, with at least one of those being coloboma, choanal atresia or stenosis, or malformation of the inner ear.

ANSWER 44

1- The child described suffers from atopic dermatitis (AD) and has failed to improve despite use of several appropriate interventions. Therefore, secondary bacterial infection by Staphylococcus aureus should be considered.
2-Administration of an oral antistaphylococcal antibiotic would promote resolution of this exacerbation.

ANSWER 45

1-Pseudotumor cerebri.
2-Lumbar puncture should be the next test performed in the patient to determine opening pressure and exclude infection, aseptic meningitis, or pseudotumor cerebri.
3-Multiple causes of pseudotumor cerebri have been reported, and the clinician should exclude the possibility of these coexisting conditions. Metabolic disorders (hyper- or hypovitaminosis A, Addison disease, hypoparathyroidism,pseudohypoparathyroidism), hematologic disorders (iron deficiency, polycythemia), infections (otitis media and mastoiditis), systemic lupus erythematosus, and pregnancy all can lead to pseudotumor cerebri. More frequently in children, the disorder can be associated with obesity or drugs (isotretinoin and other retinoids, tetracycline, minocycline, corticosteroids, nalidixic acid, nitrofurantoin, oral contraceptives). This boy's isotretinoin should be discontinued to eliminate definitively his pseudotumor cerebri.

ANSWER 46

1- The newborn described has the Pierre-Robin sequence (PRS), also known as Robin sequence.
2- Corpulmonale is a well-documented complication of PRS due to hypoxia, chronic carbon dioxide retention, and elevated pulmonary vascular pressure.
3- The syndromic diagnosis with which PRS most commonly is associated is the Stickler syndrome , an autosomal dominant connective tissue disorder characterized by micrognathia, malar hypoplasia, and rapidly progressive, high myopia. The mother most likely has Stickler syndrome.

ANSWER 47

1- Acrocyanosis.
2- Acrocyanosis is the transient bluish discoloration of the hands and feet in response to vasomotor instability or a cold environment.
3- Acrocyanosis is believed to be due to vasoconstriction of small arterioles and generally is a benign phenomenon that resolves in the first few postnatal months.

ANSWER 48

1-Marfan syndrome is a connective tissue disorder that typically is inherited in an autosomal dominant pattern.
2-He may have ectopialentis or lens dislocation.
3-Echocardiography is essential to evaluate for the possibility of cardiovascular involvement.
4-Patients in whom Marfan syndrome has been diagnosed or is highly suspected should be counseled to avoid participation in competitive contact sports. Avoidance of contact sports is important because there is an increased risk of cardiac, skeletal, and ophthalmologic problems resulting from injury. Specifically with respect to the cardiovascular system, there

can be tearing of the weakened, abnormal aortic wall, which can lead to a catastrophic outcome.

ANSWER 49

1- Erythema marginatum.
2- Rheumatic fever.

ANSWER 50

1- Postinfectious acute glomerulonephritis (PIAGN).
2- The elevated blood pressure is related primarily to salt and water retention by the kidney due to a reduced glomerular filtration rate (GFR). Intrarenal renin levels may be elevated. Because renin induces salt (and, therefore, water) reabsorption in the kidney, this appears to be a likely major mechanism yielding elevated blood pressure in patients who have acute glomerulonephritis (AGN).
3- A variety of medications have proven efficacious in lowering blood pressure in AGN. For mild-to-moderate elevations in blood pressure, the most efficacious agents are usually “loop diuretics” such as furosemide, which block salt and water reabsorption in the distal nephron. Angiotensin-converting enzyme inhibitors (ACEI) also have some efficacy in AGN by inhibiting the effects of renin. Although medications such as nitroprusside and diazoxide are effective in patients who are experiencing a hypertensive emergency, the blood pressure of the child described in the vignette can be managed initially by diuretics followed by ACEI. Another vital strategy to treat the hypertension is to restrict fluid intake, generally to one half to two thirds of maintenance requirements.

ANSWER 51

1- Patients who have been bitten by a cat or dog and develop signs and symptoms of infection within 24 to 48 hours most likely have an infection with Pasteurella multocida.

2- Since the patient described is allergic to penicillin, which makes clindamycin and trimethoprim-sulfamethoxazole the appropriate therapy. The clindamycin is required for coverage of Staphylococcus aureus, which is common in animal bites;
the trimethoprim-sulfamethoxazole kills the Pasteurella.

3- The infection rate associated with cat bites is nearly double that of dog bites because most cat bites result in puncture wounds, while dogs tend to rip and tear the flesh when biting. Puncture wounds are more difficult to clean and, therefore, are more likely to become infected.

ANSWER 52

1- Congenital rubella.

2- A number of different conditions are associated with
leukocoria, including neoplastic conditions (eg, retinoblastoma), retinal abnormalities (eg, retinopathy of prematurity), developmental abnormalities (eg, chorioretinal coloboma), inflammatory conditions (eg, toxocariasis), and other conditions, such as cataracts.

3- Common findings in infants who have congenital rubella include eye abnormalities, such as cataracts, congenital glaucoma, and
retinopathy, as well as sensorineural hearing loss, heart disease (peripheral branch pulmonary artery stenosis, patent ductus arteriosus), and mental retardation. Affected infants often also have intrauterine growth retardation, hepatosplenomegaly, thrombocytopenia, and purpuric skin lesions (blueberry muffin rash).

ANSWER 53

1- The newborn described has multiple joint contractures or arthrogryposis multiplex congenita.

2- The primary cause of arthrogryposis multiplex congenita is decreased fetal movement (fetal akinesia), which often is idiopathic.

3- Fetal akinesia may be associated with a number of other findings, including facial anomalies, hypoplastic lungs, short umbilical cord, and intrauterine growth restriction. This constellation of features, along with arthrogryposis, is referred to as the Pena-Shokeir phenotype.

ANSWER 54

1- Peritonsillar abscess or quinsy.

2- The most common aerobic bacterial pathogens isolated include Streptococcus pyogenes, beta-hemolytic group C streptococci, and Staphylococcus aureus; the most commonly isolated anaerobes are anaerobic streptococci and Prevotella, Bacteroides, and Peptostreptococcus sp.

3- Because of the high frequency of a mixed polymicrobial etiology, patients should be treated with an antimicrobial agent that covers both aerobic and anaerobic bacteria, such as ampicillin/sulbactam, clindamycin (especially if methicillin-resistant S aureus is suspected), or oral amoxicillin/clavulanic acid.

ANSWER 55

1- Ehlers-Danlos syndromes (EDSs) (group of genetic connective tissue disorders that are characterized by hyperextensibility of skin, hyperextensibility of joints, and poor wound healing.)

2- Recent studies have shown that individuals who have both the classic and hypermobile types are at increased risk for dilatation or rupture of the ascending aorta.

3- It is recommended that joint hypermobility be determined

using the Beighton criteria. A score of 5/9 or greater is necessary to diagnose hypermobility using the following maneuvers/observations:
1) Passive dorsiflexion of the 5th fingers beyond 90 degrees from the horizontal plane (1 point for each hand)
2) Passive apposition of the thumb to the flexor aspect of the forearms (1 point for each hand)
3) Hyperextension of the elbow beyond 10 degrees (1 point for each elbow)
4) Hyperextension of the knee beyond 10 degrees (1 point for each knee)
5) Forward flexion of the trunk with knees fully extended so that the palms of the hand rest flat on the floor (1 point).

ANSWER 56

1- The boy described has nasal polyps associated with poor weight gain, chronic otitis media, and nasal congestion. Any child who presents with nasal polyps should be evaluated for cystic fibrosis (CF) with a sweat chloride test.
2-Allergic fungal sinusitis, allergic rhinitis, aspirin sensitivity (Samter triad), chronic sinusitis, Kartagener syndrome, non-allergic rhinitis, and Churg-Strauss syndrome.
3- Therapy for nasal polyps includes an initial investigation for the underlying cause. Medical and surgical interventions have included topical and systemic glucocorticoids, functional endoscopic sinus surgery, and aspirin desensitization.

ANSWER 57

1- The most common endocrinologic reason for growth attenuation is hypothyroidism.
2- Symptoms and signs of hypothyroidism include pallor, fatigue, goiter, dry skin, hypochromic anemia, hair loss, carotenemia, easy bruising or menorrhagia, edema, and hyperlipidemia. Rarely,

pericardial and pleural effusions may occur.
3- Celiac disease, Cushing disease, growth attenuation before puberty, and growth hormone deficiency.

ANSWER 58

1- Cholesteatomas are saclike structures within the middle ear or on the surface of the tympanic membrane. They consist of trapped epithelial tissue and squamous debris that grow beneath the surface of the tympanic membrane.
2- The treatment is surgical removal. If they are not removed, they will continue to enlarge, becoming locally destructive and possibly invading the inner ear and intracranial cavity. Approximately 50% of patients have associated hearing loss at the time of diagnosis.

ANSWER 59

1- Urticaria pigmentosa (UP) is one of four clinical manifestations of mastocytosis that may be observed in childhood: solitary mastocytoma, UP, and less commonly, bullous mastocytosis and telangiectasia macularis eruptive perstans.
2- Stroking of pigmented lesions results in an erythematous flare surrounding tense edema within the lesion (Darier sign).

ANSWER 60

1- The girl described presents with painless rectal bleeding, and findings on the nuclear medicine study are consistent with a Meckel diverticulum.
2-Surgicalconsultation should be obtained for resection of the Meckel diverticulum.
3- Less common presentations include Meckel diverticulitis (which can mimic appendicitis), intestinal obstruction from intussusception or herniation, and (rarely) perforation from an ingested foreign body trapped in the diverticulum.

ANSWER 61

1- Henoch-Schönlein purpura (HSP).
2- Nephritis is seen in up to 50% of affected children and is the primary cause of long-term morbidity.

ANSWER 62

1- The boy described has a hyphema, a collection of blood between the cornea and iris that occurs after severe ocular trauma.
2- Treatment generally includes the use of a cycloplegic agent such as atropine or homatropine to minimize iris movement and decrease discomfort. In addition, topical steroids frequently are used to minimize inflammation. Restricted activity is critical, which is why most children are admitted initially to the hospital and placed at bedrest, with the head of the bed elevated 45 degrees. The eye is shielded, but not patched, to minimize the likelihood of further trauma.

ANSWER 63

1- Hypohidrotic ectodermal dysplasia.
2- Because of the inability to sweat, affected children often have heat intolerance and unexplained high fevers.
3- Calcium deficiency, hypopituitarism, and hypothyroidism.

ANSWER 64

1- Ankylosing spondylitis, one of the diseases categorized as spondyloarthropathies, or more recently, enthesitis-related arthritides.
2- Other features, including anterior uveitis, renal involvement, and rarely aortic insufficiency, have been described in adolescents who have this disease.
3- Hip radiographs show evidence of sacroiliitis.

ANSWER 65

1- Gianotti–Crosti syndrome is a distinct, self-limiting rash, commonly associated with viral infections in children between 2 and 6 years of age. It presents as multiple, pink to red−brown papules or papulovesicles, which may be pruritic and can become confluent. Gianotti and Crosti initially described the exanthema as associated with hepatitis B virus, and they termed it papular acrodermatitis of childhood. It can occur in several viral diseases, e.g. hepatitis A, B and C, coxsackie viruses and cytomegalovirus.

2- Hepatitis B.

3- Patient and family education with consideration of antiviral agents.

PART 1

B- CASE STUDIES WITHOUT IMAGES

QUESTION 1

A 3-year-old girl presents with a 4- to 5-day history of diarrhea, increased fussiness, and decreased urine output over the previous day. On physical examination, her temperature is 37.5°C, heart rate is 120 beats/min, respiratory rate is 24 breaths/min, and blood pressure is 126/84 mm Hg. In addition, she has slightly pale, moist mucous membranes and a II/VI flow murmur, but no gallop or edema. Laboratory evaluation shows:

- White blood cell count, $24.2x10^3$/mcL
- Hemoglobin, 6.1 g/dL
- Hematocrit, 18.5%
- Platelet count, $68x10^3$/mcL
- Blood urea nitrogen, 60 mg/dL
- Creatinine, 2.9 mg/dL

1-What is the most likely diagnosis?
2-What is the most useful diagnostic test in this clinical setting?
3-Enumerate 3 indications for dialysis in this case?
4-What are the indications for platelet transfusions?

QUESTION 2

You are caring for a 15-year-old girl who has been hospitalized for 3 months for treatment of burns over 65% of her body suffered in a house fire. For several weeks, she has required hyperalimentation because of problems in consuming food. Routine laboratory studies reveal a serum calcium of 12.1 mg/dL (3.0 mmol/L) and phosphorus of 4.6 mg/dL (1.5 mmol/L). Serum electrolyte values are normal.

1-What is the most likely cause of this girl's hypercalcemia?
2-Enumerate other 3 causes for hypercalcemia?
3-How a low-magnesium hyperalimentation formula affects serum calcium?

QUESTION 3

You are evaluating a 7-week-old infant for persistent jaundice. She was born at term, following an uncomplicated pregnancy and delivery, weighed 3.2 kg at birth, and has been exclusively breastfed. She was first evaluated for jaundice at 3 weeks of age. The total bilirubin concentration was 16.0 mg/dL (273.7 mcmol/L), and abdominal ultrasonography demonstrated "a collapsed gall bladder without dilatation of the intrahepatic or extrahepatic bile ducts." You diagnosed breast milk jaundice and on follow-up visits every few days you noted a gradual reduction in total bilirubin. Physical examination demonstrates an alert, icteric infant whose weight is 4.2 kg. She has a firm liver edge palpable 1.5 cm below the right costal margin and a spleen tip palpable 2 cm below the left costal margin. You obtain the following laboratory data:

- Hemoglobin, 9.5 mg/dL
- White blood cell count, $10.5x10^3$/mcL
- Total bilirubin, 8.5 mg/dL
- Direct bilirubin, 4.5 mg/dL
- Alanine aminotransferase, 140 units/L
- Aspartate aminotransferase, 70 units/L
- Alkaline phosphatase, 450 units/L

1-What is the most appropriate next diagnostic test?
2- Define direct hyperbilirubinemia?
3- At what age you get the best surgical outcomes for infants who have biliary atresia?
4- Mention 2 drugs which enhance bile flow in the postoperative period of Kasai procedure

QUESTION 4

A 14-year-old boy in the 9th grade presents with a complaint of abdominal pain. He describes the pain as being in both the right and left upper quadrants and explains that it occurs at any time of the day or night. He also complains of recent left hip and leg pain. Physical examination demonstrates a cooperative, alert adolescent whose height is 137 cm and weight is 28 kg. A firm liver edge is palpable 4 cm below the right costal margin, and the spleen is palpable 6 cm below the left costal margin.

Initial laboratory data include:

- Hemoglobin, 10.4 g/dL
- White blood cell count, $2.5x10^3$/mcL
- Platelet count, $75x10^3$/mcL
- Aspartate aminotransferase, 110 units/L
- Alanine aminotransferase, 85 units/L
- Alkaline phosphatase, 650 units/L

1-What is the most likely diagnosis?
2-How you confirm it?

QUESTION 5

A 4-month-old male infant presents with abdominal distention, vomiting, and poor weight gain. His temperature is 37.3°C, heart rate is 110 beats/min, respiratory rate is 32 breaths/min, and blood pressure is 96/56 mm Hg. On physical examination, you note abdominal distention, with a palpable mass above the pubic symphysis.

Results of laboratory studies include:

- Sodium, 136 mEq/L
- Potassium, 7.2 mEq/L
- Chloride, 110 mEq/L
- Bicarbonate, 16 mEq/L

- Blood urea nitrogen, 25 mg/dL
- Creatinine, 1.3 mg/dL
- Calcium, 9.5 mg/dL
- Magnesium, 1.8 mg/dL
- Phosphorus, 5.5 mg/dL

1-What is the most likely diagnosis?
2-What is the next best step in the management of this patient's electrolyte abnormality?
3- Enumerate 2 causes of pseudohyperkalemia?

QUESTION 6

A 3-year-old boy presents with abdominal discomfort and occasional vomiting. The only finding of note on physical examination is a blood pressure of 104/58 mm Hg.

Urinalysis reveals:

- Specific gravity, 1.020
- pH, 6
- 3+ blood
- Negative for protein, nitrite, and leukocyte esterase
- 10 to 20 red blood cells/high-power field (hpf)
- Fewer than 5 white blood cells/hpf

Upon further questioning, the mother states that she has a history of "blood in her urine" and two maternal uncles required dialysis in their teenage years.

1-What is the most likely cause for this patient's urinary findings?
2-What is the mode of inheritance which you conclude from the above scenario?
3- Mention 2 differential diagnoses?

QUESTION 7

You are caring for a 16-year-old girl who has juvenile idiopathic arthritis. Her musculoskeletal symptoms have come under good control using naproxen sodium. Recently, however, she has been complaining of vague abdominal pain and occasional loose bowel movements. Physical examination demonstrates an alert, cooperative adolescent in no distress whose vital signs are normal for her age. She has mild, direct tenderness in the epigastric region, and rectal examination produces a scant amount of brown stool that is positive on fecal occult blood test.

Laboratory data include:

- Hemoglobin, 10.5 g/dL
- White blood cell count, $4.5x10^3$/mcL
- Erythrocyte sedimentation rate, 25 mm/hr
- Albumin, 3.4 g/dL

1-What is the most likely diagnosis?

2-What is the most appropriate additional medication for this patient?

QUESTION 8

You are called to see a 16-year-old girl who underwent scoliosis surgery 6 days ago. She is receiving parenteral nutrition via peripheral vein and morphine for pain. This morning she began complaining of severe upper abdominal pain and vomiting. Physical examination demonstrates a well-developed adolescent in moderate distress whose temperature is 38.7°C, heart rate is 90 beats/min, and blood pressure is 130/66 mm Hg. Her abdomen is mildly distended, with moderate fullness and tenderness in the right upper quadrant and epigastrium.

Laboratory data include:

- Hemoglobin, 11.5 g/dL
- White blood cell count, $15.5x10^3$/mcL

- Aspartate aminotransferase, 100 units/L
- Alanine aminotransferase, 120 units/L
- Gamma-glutamyl transpeptidase, 180 units/L
- Amylase, 70 units/L
- Lipase, 80 units/L

1-What is the most likely cause of these findings?
2- What is the most appropriate diagnostic test?

QUESTION 9

A previously healthy 11-year-old girl has had a dry hacking cough for 3 months associated with fatigue, occasional fevers (temperature of 38.4°C), and a 4-kg weight loss. On physical examination, the tired-appearing child has multiple firm, nontender posterior cervical, axillary, and inguinal nodes; her respiratory rate is slightly elevated; and she has occasional wheezes. Small nodules are visible along the iris-pupil margin, and an ophthalmologist recently diagnosed anterior uveitis.

Laboratory findings of note include:

- Hemoglobin, 10.9 g/dL
- White blood cell count, 16.0×10^3/mcL
- Erythrocyte sedimentation rate, 32 mm/hr
- Calcium, 12.3 mg/dL
- Serum angiotensin converting enzyme, 110 units/L (normal, 5 to 89 units/L)

A purified protein derivative test is negative. Chest radiography shows bilateral hilar adenopathy but no obvious parenchymal disease

1-What is the most likely diagnosis?
2-What is the most useful test(s) for establishing the diagnosis?

QUESTION 10

The mother of a 6-year-old girl reports during a health supervision visit that her daughter has nighttime wetting and occasional daytime accidents with urgency. She has no history of constipation, and no one else in the family has suffered enuresis.

Her urinalysis reveals:

- Specific gravity, 1.020
- pH, 7
- 2+ blood
- Trace protein
- Positive for nitrites
- 3+ leukocyte esterase
- 5 to 10 red blood cells/high-power field (hpf)
- 20 to 50 white blood cells/hpf

1-What is the most likely cause of her symptoms?
2-What is the best diagnostic test to perform for this patient and why?
3-What is your suggested treatment?

QUESTION 11

A 15-year-old girl presents to the emergency department with right upper quadrant pain for 2 days that is severe enough to keep her out of school. Her appetite is decreased and she has nausea but no vomiting or diarrhea. She has mild discomfort with urination but no vaginal discharge. The only medication she is taking is combined oral contraceptive pills. Her last menstrual period was heavier than usual. Laboratory tests reveal:

• White blood cell count, 7.4×10^3/mcL with 64% segmented neutrophils and 26% lymphocytes
• Total bilirubin, 0.4 mg/dL
• Alanine aminotransferase, 14 units/L
• Aspartate aminotransferase, 16 units/L

Her urine has 7 white blood cells per high-power field.
Abdominal ultrasonography reveals a normal liver, spleen, gallbladder, and kidneys.

1-What is the most likely diagnosis?
2-What is the cause of her pyuria?
3-What are the most likely recovered organisms?

QUESTION 12

A 14-year-old girl presents with a 2-month history of joint pain that is responding poorly to over the-counter anti-inflammatory medications. She reports some sores in her mouth and mild swelling around her eyes and ankles. On physical examination, her temperature is 37.0°C, heart rate is 76 beats/min, respiratory rate is 14 breaths/min, and blood pressure is 130/86 mm Hg.
She has oral ulcers, mild periorbital and pretibial edema, and mild swelling of her wrists and knee joints. Laboratory findings include:

- Sodium, 136 mEq/L
- Potassium, 4.8 mEq/L
- Chloride, 100 mEq/L
- Bicarbonate, 22 mEq/L
- Blood urea nitrogen, 24.0 mg/dL
- Creatinine, 1.3 mg/dL
- Albumin, 2.5 g/dL
- Hemoglobin, 10.1 g/dL
- White blood cell count, $3.0x10^3$/mcL
- Platelet count, $190x10^3$/mcL
- Urinalysis: 3+ blood, 3+ protein, with 20 to 50 red blood cells/high-power field
- Antinuclear antibody titer: 1:1,280
- Anti-double-stranded DNA titer: 1:640

1-What is the most likely diagnosis?
2-What is the next best step in management?
3-What tests are used to monitor the patient?

QUESTION 13

You are called to the emergency department to evaluate a 1-year-old girl who was rescued from a house fire by paramedics. She was found unconscious at the scene and had soot around her nares. On arrival to the emergency department, she is able to open her eyes but still appears sleepy. Her temperature is 37.0°C, heart rate is 150 beats/min, respiratory rate is 30 breaths/min, and blood pressure is 90/60 mm Hg. Her oxygen saturation by pulse oximetry is 97% on 100% oxygen administered at 8 L/min via a nonrebreathing facemask. The nurse asks if you would like to reduce the oxygen because the girl's oxygen saturation is greater than 95%. You explain to the nurse that the pulse oximetry findings are unlikely to be reliable in this patient.

1-What is the most likely reason for inaccurate pulse oximetry results in this patient?
2-Mention 3 conditions in which pulse oximetry can yield falsely low saturations?
3-How pulse oximetry works?

QUESTION 14

A 3½-week-old male infant presents to your office with a history of 2 to 3 days of vomiting. He was born at term and his birth weight was 3,250 g. He is breastfed. He has been exhibiting no bilious vomiting after each feeding, and according to his mother, the emesis now appears to "shoot out of his mouth." After vomiting, he seems eager to resume feeding. Over the past 24 hours, his mother has noted fewer wet diapers and fewer stools than usual. The baby has experienced no diarrhea or upper respiratory tract

symptoms. Physical examination demonstrates an alert, afebrile infant who weighs 3,550 g and is sucking vigorously on a pacifier. His skin turgor is normal. The remainders of the examination findings are unremarkable, except for slight abdominal distention. You refer the baby to the local emergency department and order measurement of serum electrolytes. Results include:

- Sodium, 132 mEq/L
- Potassium, 3.2 mEq/L
- Chloride, 95 mEq/L
- Bicarbonate, 30 mEq/L

1-What is the most likely diagnosis?
2-Mention 3 differentials diagnoses?
3- What is the most appropriate initial treatment for this infant?

QUESTION 15

A 5-year-old girl has a 2-year history of intermittent, poorly localized abdominal pain. She now presents with a recurrence of crampy pain, and she has vomited after each meal for the past 24 hours. She has no history of fever or diarrhea. The child woke frequently last night because of pain, and she seemed more comfortable lying on her side in a knee-chest position. The family history is negative for gastrointestinal disease. Both parents are 42 years of age, and the child's father underwent a coronary artery bypass procedure last year. The girl is difficult to examine, complaining of pain wherever her abdomen is palpated. Initial laboratory data include:

- White blood cell count, 10.4×10^3/mcL
- Hemoglobin, 12.5 g/dL
- Sodium, 135 mEq/L
- Chloride, 100 mEq/L
- Potassium, 4.5 mEq/L
- Amylase, 240 units/L

• Lipase, 700 units/L
• Aspartate aminotransferase, 60 units/L
• Alanine aminotransferase, 70 units/L

1-What is the most likely diagnosis?
2-What is the test that most likely demonstrates the underlying cause of this girl's illness?

QUESTION 16

A 6-year-old child presents for a health supervision visit. On physical examination, his weight is 18 kg, height is 102 cm (<3rd percentile), pulse rate is 90 beats/min, respiratory rate is 18 breaths/min, and blood pressure is 134/88 mm Hg. Of note, he has pale conjunctivae and mild edema. Among the results of laboratory evaluations are:

• Hemoglobin, 7.5 g/dL
• White blood cell count, 6.0 $x10^3$/mcL
• Platelet count, $275x10^3$/mcL
• Mean cell volume, 82 fL
• Reticulocyte count, 0.4%
• Blood urea nitrogen, 94 mg/dL
• Serum creatinine, 12.1 mg/dL

The stool is negative for occult blood.

1- What is the most likely explanation for this patient's anemia?
2-What are the causes of low reticulocyte count and anemia?

QUESTION 17

An 18-month-old female presents with failure to thrive, polydipsia, and photophobia. Her weight is 8 kg and height is 70 cm (both <5th percentile). On physical examination, she appears pale and small for stated age, and she closes her eyes when you attempt to perform ophthalmoscopy.

She has tacky mucous membranes and capillary refill of 2 to 3 seconds. Pertinent findings on laboratory evaluation include:

- Sodium, 135 mEq/L
- Potassium, 2.3 mEq/L
- Chloride, 109 mEq/L
- Bicarbonate, 14 mEq/L
- Blood urea nitrogen, 15 mg/dL
- Creatinine, 0.3 mg/dL
- Calcium, 8.4 mg/dL
- Phosphorus, 2.1 mg/dL
- Magnesium, 1.4 mg/dL
- Hemoglobin, 10.5 g/dL

Glucose, 102 mg/dL

1- Mention the abnormal laboratory findings in this case?
2-What is the most likely diagnosis?
3-What is the best clinical test to establish the diagnosis?

QUESTION 18

A mother brings in her 3-year-old daughter because of daytime urinary incontinence and abdominal pain. The mother explained that the girl was toilet trained at 2 years of age. On physical examination, growth parameters and vital signs are normal, although the girl has mild suprapubic tenderness without associated costovertebral angle tenderness or sacral dimples.

Urinalysis shows a urine specific gravity of 1.025, pH of 6.5, 2+ blood, 1+ protein, 3+ leukocyte esterase, and positive nitrite. Urine microscopy demonstrates 5 to 10 red blood cells/high-power field, 20 to 50 white blood cells/high-power field, and 3+ bacteria.

1-What is the most likely etiologic agent?
2-Mention 2 conditions in which nitrite test may be negative even in the presence of a UTI?

QUESTION 19

A 4-year-old female presents with fever, chills, and vomiting. She has had abdominal pain and dysuria for 3 days. Her temperature is 104.2°F (40.1°C), and she has left-sided costovertebral angle tenderness. Laboratory evaluation reveals a white blood cell count of 18.7 x 10^3/mcL with 85% neutrophils, 5% bands, 7% lymphocytes, and 3% monocytes. On urinalysis, the urine specific gravity is 1.025 and pH is 6.5, and there is 2+ blood, 1+ protein, 3+ leukocyte esterase, and positive nitrite. Urine microscopy demonstrates 5 to 10 red blood cells/high-power field, 50 to 100 white blood cells/high-power field, and 3+ bacteria. Findings on renal/bladder ultrasonography are normal. After a 3-day hospitalization for administration of intravenous antibiotics, discharge with a prescription for oral antibiotics is planned.

1-What is your diagnosis?
2-What is the most appropriate study to complete this child's evaluation?
3-What are the anatomic abnormalities which can be detected by renal/bladder ultrasonography in this patient?

QUESTION 20

A 3,200-g term infant has an abnormal finding on newborn screening that was obtained at 36 hours of age. The thyroxine (T4) value was 3.5 mcg/dL (45.2 nmol/L) (normal, >7 mcg/dL [90.3 nmol/L]). The thyroid-stimulating hormone (TSH) value was reported by the screening laboratory as within the normal range.

1-What is the most likely reason for the low T4 value?
2-How it is inherited?
3-How it is diagnosed?
4-How it is treated?

QUESTION 21

A term newborn is delivered by emergent cesarean section because of intrauterine growth restriction, oligohydramnios, and non reassuring fetal heart rate monitoring in labor. Delivery room resuscitation includes endotracheal intubation and assisted ventilation with 100% oxygen, chest compressions, intravenous epinephrine, and volume expansion. Apgar scores are 1, 2, and 3 at 1, 5, and 10 minutes, respectively. An umbilical cord arterial blood gas measurement documents a pH of 6.9 and a base deficit of 20 mmol/L. At 12 hours of age, the infant demonstrates tonic-clonic convulsive activity of the arms and legs with a concomitant decrease in heart rate and bedside pulse oximetry saturation.

1-What is the most likely cause for this infant's seizure?
2- What you conclude from the umbilical cord arterial blood gas measurement?
3-Enumerate other 5 causes for neonatal seizure?

QUESTION 22

A worried grandmother brings her 2-year-old grandchild to the emergency department immediately upon finding the boy with an open bottle of 81-mg chewable aspirin (which is used by the grandfather for coronary artery disease prophylaxis). She is unsure of the number of tablets in the bottle prior to ingestion, but the original number was 30, and there are now three remaining. The child has vomited once and is fussy and lethargic. Physical evaluation reveals a 12-kg child who has tachypnea and tachycardia. Laboratory results include a pH of 7.45, carbon dioxide of 25 mEq/L (25 mmol/L), and bicarbonate of 18 mEq/L (18 mmol/L). A salicylate measurement result is pending.

1-What is the next best step in the management of this child?
2- What are the toxic effects of salicylates?
3- Is syrup of ipecac indicated for this patient?

QUESTION 23

An 11-year-old Caucasian boy who has no significant past medical history presents to the emergency department with a 3-day history of brown urine. He reports no dysuria, urgency, frequency, or abdominal or flank pain. His vital signs reveal: temperature, 99°F (37.2°C); blood pressure, 141/84 mm Hg; heart rate, 92 beats/min; and respiratory rate, 24 breaths/min.

Significant findings on physical examination include moderate periorbital and leg edema. His urinalysis reveals moderate blood and 4+ protein. The serum complement 3 (C3) and C4 concentrations are both low.

1-What is the most likely cause of his hematuria?
2-Enumerate 5 other causes of gross hematuria?

QUESTION 24

You are asked to review a case for morbidity and mortality conference. The infant was born at term to a 19-year-old gravida 1, para 1 woman by normal spontaneous vaginal delivery. The mother was known to be group B Streptococcus-negative, but she did have genital warts. The Apgar scores were 9 at 1 minute and 10 at 5 minutes. On the seventh postnatal day, the infant developed a temperature of 103°F (39.4°C) and was brought to the emergency department. At this time, the infant was in shock and required mechanical ventilation. Physical examination revealed scleral icterus and hepatosplenomegaly but no skin lesions. A lumbar puncture could not be performed. Laboratory results include:

• White blood cell count of 2.34x10^3/mcL, with 32% lymphocytes, 41%neutrophils, 8% bands, 15% monocytes, 3% eosinophils, and 1% basophils
• Hemoglobin of 7.1 g/dL
• Hematocrit of 21%
• Platelet count of 40x10^3/mcL
• Prothrombin time of 41.2 seconds
• Activated partial thromboplastin time of >106 seconds
• Aspartate aminotransferase concentration of 3,086 U/L
• Alanine aminotransferase concentration of 456 U/L
• Total bilirubin of 4.4 mg/dL

The chest radiograph demonstrated diffuse interstitial infiltrates bilaterally. The patient did poorly over the next 3 days and died despite aggressive management in a pediatric intensive care unit.

1- What is the most likely cause of this patient's death?
2-How you treat?
3- What are the causes of neonatal shock like symptoms during the first 7 to 10 days after birth?

QUESTION 25

An obese 14-year-old boy who has been receiving a course of prednisone for asthma is brought to the emergency department comatose and responding only to pain. His mother states that he has been drinking juice and carbonated beverages to quench his thirst. This morning he became increasingly lethargic, refused fluids, and finally became unresponsive. On physical examination, his blood pressure is 120/50 mm Hg, pulse is 100 beats/min, and respiratory rate is 20 breaths/min. His lungs are free of wheezes, with good air exchange. He appears 10% dehydrated.

Initial laboratory studies reveal:
• Glucose, 1,200 mg/dL
• Sodium, 128 mEq/L

• Chloride, 90 mEq/L
• Potassium, 4.3 mEq/L
• Bicarbonate, 15 mEq/L
• Blood urea nitrogen, 32 mg/dL
• Serum osmolality, 334 mOsm/kg H2O

1-What is the most likely diagnosis?
2-What serious complication the patient may develop if he is resuscitated rapidly?
3-What is the cause of his hyponatremia?
4-What is your general plan for fluid therapy in this patient?

QUESTION 26

A 3-week-old breastfed infant presents to the emergency department with irritability, fever, jaundice, and hepatomegaly. A laboratory evaluation shows a normal complete blood count and a bilirubin concentration of 6.5 mg/Dl. A urinalysis is positive for reducing substances. A blood culture is positive for Escherichia coli.

1-What is the most likely diagnosis?
2- What is the most appropriate dietary management of this patient?
3- What is the cause of positive urinary reducing substances?

QUESTION 27

A 4-year-old boy presents to the emergency department with a 3-week history of daily abdominal pain and vomiting. His mother states that he also has appeared pale. On physical examination, the boy is quiet and has a soft abdomen. The stool is dark and guaiac-positive. The boy's pulse is 130 beats/min, and his blood pressure is 90/60 mm Hg. Among the laboratory findings are:
• Hematocrit, 23%

- Platelet count, 275 x 10^3/mcL
- White blood cell count, 6.7 x 10^3/mcL
- Alanine aminotransferase, 25 U/L
- Amylase, 50 U/L

1- What is the most likely diagnosis?
2- What is the most appropriate diagnostic procedure?

QUESTION 28

You are evaluating a newborn in whom intrauterine renal ultrasonography results were abnormal. The child appears very edematous but requires resuscitation with fluids for initial respiratory distress and hypotension. One day later, the child appears more edematous. He has excellent urine output.
Measurement of serum electrolytes reveal:

- Sodium, 127 mEq/L
- Potassium, 4.6 mEq/L
- Chloride, 92 mEq/L
- Bicarbonate, 27 mEq/L
- Blood urea nitrogen, 10 mg/dL
- Creatinine, 0.7 mg/dL

Albumin concentration is 0.9 g/dL. His urinalysis reveals no blood and 4+ protein, with a random urine protein-to-creatinine ratio of 43.5.

1- What is the most likely cause of this child's clinical status?
2-Why they are at risk for malnutrition and failure to thrive during infancy?

QUESTION 29

A 17-year-old girl presents with a 5-day history of jaundice. She has a 3-year history of anxiety and depression and has seen a neurologist because of tremor and slurred speech. On physical

examination, the girl is responsive but withdrawn and has scleral icterus. Her liver is slightly enlarged, but there is no splenomegaly. Her total serum bilirubin is 12.0 mg/dL, direct bilirubin is 1.0 mg/dL, and hematocrit is 25%.
Serum albumin is 3.0, and total protein is 6.5 g/dL. The peripheral blood smear demonstrates schistocytes and burr cells.
The prothrombin time is 23 seconds, partial thromboplastin time is 60 seconds, and serum ammonia concentration is 80 mcg/dL.

1-What is the most likely diagnosis?
2- What laboratory test most likely identifies the cause of this girl's liver dysfunction?
3-What clinical test help to establish the diagnosis?

QUESTION 30

You are asked to evaluate a 1-year-old boy who has failure to thrive and whose weight is at the 5th percentile and height is below the 5^{th} percentile. On physical examination, you find a blond, blue-eyed, fair-skinned boy who does not bear weight on his legs and never has walked. His legs appear markedly bowed, and the mother reports that the bowing has been worsening over the past several months.
Laboratory tests reveal:
- Sodium, 141 mEq/L
- Potassium, 4.3 mEq/L
- Chloride, 103 mEq/L
- Bicarbonate, 13 mEq/L
- Blood urea nitrogen, 8 mg/dL
- Creatinine, 0.6 mg/dL
- Serum calcium, 9.6 g/dL
- Serum phosphate, 1.7 g/dL

Urinalysis reveals glucose, no blood, and 2+ protein.

1- What is the most likely cause of the boy's leg bowing?
2- What is the cause of rickets in this patient?
3-Is there any role for medical treatment?

QUESTION 31

A 14-year-old girl presents with a 2-month history of joint pain that is responding poorly to over the-counter anti-inflammatory medications. She reports some sores in her mouth and mild swelling around her eyes and ankles. On physical examination, her temperature is 37.0°C, heart rate is 76 beats/min, respiratory rate is 14 breaths/min, and blood pressure is 130/86 mm Hg.

She has oral ulcers, mild periorbital and pretibial edema, and mild swelling of her wrists and knee joints. Laboratory findings include:

- Sodium, 136 mEq/L
- Potassium, 4.8 mEq/L
- Chloride, 100 mEq/L
- Bicarbonate, 22 mEq/L
- Blood urea nitrogen, 24.0 mg/dL
- Creatinine, 1.3 mg/dL
- Albumin, 2.5 g/dL
- Hemoglobin, 10.1 g/dL
- White blood cell count, $3.0x10^3$/mcL
- Platelet count, $190x10^3$/mcL
- Urinalysis: 3+ blood, 3+ protein, with 20 to 50 red blood cells/high-power field
- Antinuclear antibody titer: 1:1,280
- Anti-double-stranded DNA titer: 1:640

1-What is the most likely diagnosis?
2- What is the next best step in management?
3- How you monitor renal progression in this patient?

QUESTION 32

You are evaluating a 14-year-old girl during a health supervision visit. On physical examination, her weight is at the 50th percentile, height is at the 75th percentile, temperature is 36.8°C, pulse is 72 beats/min, respiratory rate is 14 breaths/min, and blood pressure is 160/96 mm Hg.

Laboratory evaluation reveals:

- Normal urinalysis findings
- Sodium, 140 mEq/L
- Potassium, 3.2 mEq/L
- Chloride, 100 mEq/L
- Bicarbonate, 28 mEq/L
- Blood urea nitrogen, 14.0 mg/dL
- Creatinine, 0.8 mg/dL

Renal ultrasonography shows a normal right kidney that is 10.5 cm in length and a left kidney that is 7.0 cm in length (greater than 2 standard deviations below the mean for age). Both kidneys are of normal echotexture and have no cysts, calculi, or masses. Echocardiography reveals moderate left ventricular hypertrophy but an otherwise structurally normal heart.

1-What abnormalities you noticed in his laboratory results?
2-What is the most likely cause for this patient's elevated blood pressure?

QUESTION 33

A 3-year-old girl presents with a 2-day history of vomiting and diarrhea. Her mother explains that although the girl has difficulty keeping down fluids, she has managed to take sips of water and eat popsicles. On physical examination, her temperature is 37.0°C, heart rate is 140 beats/min, respiratory rate is 14 breaths/min, blood pressure is 106/60 mm Hg, and weight is 15 kg. She has dry

mucous membranes and a capillary refill of 3 seconds. Laboratory evaluation reveals:

- Sodium, 131 mEq/L
- Potassium, 3.5 mEq/L
- Chloride, 94 mEq/L
- Bicarbonate, 16 mEq/L
- Glucose, 70.0 mg/dL
- Blood urea nitrogen, 44.0 mg/dL
- Creatinine, 1.1 mg/dL

Urinalysis reveals a specific gravity of 1.030, pH of 5.5, 3+ ketones, and no blood or protein.

1-What is your conclusion of the patient laboratory evaluation?
2-What is the most likely cause of the patient clinical condition?
3-What is the most appropriate intravenous fluid order for immediate management?

QUESTION 34

A 10-day-old boy presents to the emergency department with a 1-day history of lesions on his lips. He was born at 38 weeks by Caesarean section because his mother had previously had a Caesarean section. The pregnancy was uneventful; in particular there was no history of Group B Streptococcus or herpes simplex virus infection. The baby was discharged home on day 2, feeding well. He developed sticky eyes on day 4, which his mother treated with over the-counter medication. Otherwise, there had been no concerns and he continued to feed well. On the morning of presentation, his mother had noticed yellow crusty lesions on his upper lip and at the angle of his mouth.

At triage, his observations were as follows:

- Axillary temperature 36.4 ^{0}C
- Heart rate 140 beats per minute
- Central capillary refill time less than 2 s

- Respiratory rate 35 breaths per minute.

Clinical assessment revealed the baby to be unsettled, and he disliked being examined. Cardiovascular, respiratory and abdominal examination was unremarkable. He had a yellow crusty lesion at the angle of his mouth and a small one on his central upper lip. There was yellow discharge from both eyes, but his conjunctivae were normal. His skin was diffusely erythematous and seemed to be tender. He was well hydrated.

1-What is the most likely diagnosis?
2-What is the most likely pathogen?
3-What would be the most appropriate treatment?
4-What is the usual natural progression of this condition if treated appropriately and promptly?

QUESTION 35

A 19-year-old primiparous woman develops toxemia in her last trimester of pregnancy and during the course of her labor is treated with magnesium sulfate. At 38 weeks' gestation, she delivers a 2100-g (4-lb, 10-oz) infant with Apgar scores of 1 at 1 minute and 5 at 5 minutes. Laboratory studies at 18 hours of age reveal a hematocrit of 79%, platelet count of 100,000/µL, glucose 41 mg/dL, magnesium 2.5 mEq/L, and calcium 8.7 mg/dL. Soon after, the infant has a generalized convulsion.

1-What is the most likely cause of the infant's seizure?
2-What is the mechanism behind the seizure?
3-How you treat?

QUESTION 36

A previously normal newborn infant in a community hospital nursery is noted to be cyanotic at 14 hours of life. She is placed on a face mask with oxygen flowing at 10 L/min. She remains cyanotic,

and her pulse oximetry reading does not change. An arterial blood gas shows her PaO2 to be 23 mm Hg. Bilateral breath sounds are present, and she has no murmur. She is breathing deeply and quickly, but she is not retracting.

1-What is the most likely cause of this infant deterioration?
2- While you are waiting for the transport team, what urgent intervention you should do?

QUESTION 37

You are asked to evaluate a 4-year-old boy admitted to your local children's hospital with a diagnosis of pneumonia. The parents state that the child has had multiple, intermittent episodes of fever and respiratory difficulty over the past 2 years, including cyanosis, wheezing, and dyspnea; each episode lasts for about 3 days. During each event he has a small amount of hemoptysis, is diagnosed with left lower lobe pneumonia, and improves upon treatment. Repeat radiographs done several days after each event are reportedly normal. His examination on the current admission is significant for findings similar to those described above, as well as digital clubbing.

1-What is the most likely diagnosis?
2-What is the most appropriate primary recommendation and what you expect to find?
3-Is there any place for diet modification?

QUESTION 38

A 15-year-old girl is admitted to the hospital with a 6-kg weight loss, bloody diarrhea, and fever that have occurred intermittently over the previous 6 months. She reports cramping abdominal pain with bowel movements. She also reports secondary amenorrhea during this time. Stool cultures in her physician's office have shown

only normal intestinal flora. A urine pregnancy test was negative, while an erythrocyte sedimentation rate (ESR) was elevated. Her examination is significant for the lack of oral mucosal ulcerations and a normal perianal examination. Anti-Saccharomyces cerevisiae antibodies (ASCA) are negative, while anti-neutrophil cytoplasm antibodies (p-ANCA) are positive.

1-What is the most likely diagnosis?
2- What is the most serious complication of her disease and how it is presented?

QUESTION 39

An 11-month-old boy has a hematocrit of 24% on a screening laboratory done at his well-child checkup. Further testing demonstrates: hemoglobin 7.8 g/dL; hematocrit 22.9%; leukocyte count 12,200/µL with 39% neutrophils, 6% bands, 55% lymphocytes; hypochromia on smear; free erythrocyte protoporphyrin (FEP) 114 µg/dL; lead level 6 µg/dL whole blood; platelet count 175,000/µL; reticulocyte count 0.2%; sickle-cell preparation negative; stool guaiac-negative; and mean corpuscular volume (MCV) 64 fL.

1-What is the most likely diagnosis?
2-What is the most appropriate recommendation?
3-Mention another type of anemia with increased free erythrocyte protoporphyrin (FEP) level?

QUESTION 40

The parents of a 1-month-old infant bring him to the emergency center in your local hospital for emesis and listlessness. Both of his parents wanted a natural birth, so he was born at home and has not yet been to see a physician. On examination, you find a dehydrated, listless, and irritable infant. Although you don't have a

birth weight, the parents do not feel that he has gained much weight. He has significant jaundice. His abdominal examination is significant for both hepatomegaly and splenomegaly. Laboratory values include a total bilirubin of 15.8 mg/dL and a direct bilirubin of 5.5 mg/dL. His liver function tests are elevated and his serum glucose is 38 mg/dL. Serum ammonia is normal. A urinalysis is negative for glucose, but it has a “mouse-like” odor.

1-What is the most likely diagnosis?
2-what other features you expect to see in this infant?
3-What simple test can be of help in the diagnosis?
4-What is your treatment?

QUESTION 41

A 20-week anomaly scan was performed on a 20-year-old woman and revealed exomphalos, macroglossia, bilateral enlarged kidneys and an umbilical cord cyst in the fetus. Amniocentesis confirmed a normal male karyotype. The baby was delivered at 38 weeks. He was found to be macrosomic, with a birthweight of 5.34 kg, and had macroglossia and transient hypoglycaemia.

1. What is the most likely diagnosis?
2. What other associated features maybe noted in infancy?
3. What long-term follow-up would you arrange for an infant with this condition?

QUESTION 42

A 14-month-old child presented with a 2-week history of diarrhoea and vomiting but no fever. She had not been drinking well and had dry nappies so was taken to the emergency department by her mother. Mum said that the baby had had a distended abdomen since birth but that it had become increasingly distended, especially on the left side. The baby had not been eating

well and had lost some weight over the previous 2 months. On examination, she was noted to be pale. She had no dysmorphic features. She had a temperature of 37.6 ^{0}C, a mild tachycardia and a blood pressure of 147/ 97 mmHg. On palpation, a left-sided abdominal mass was evident, and a CT scan showed an intrarenal mass with calcification and a single pulmonary nodule.
The results of the investigations were as follows:

- Haemoglobin 10.2 g/dl
- White cell count 31X10^{9}/l (neutrophilia)
- Platelet count 899X10^{9}/l
- Urea and electrolytes Normal
- Liver function tests Normal
- Prothrombin time Normal
- APTT Prolonged
- D-dimers Normal
- Fibrinogen Normal
- Urine noradrenalin Normal
- Urine dopamine: DOP Normal
- Urine HMMA Normal
- Urine HVA Normal

1. What is the most likely diagnosis?
2. What is the cause of her prolonged APTT?
3. Which is the most appropriate treatment for her hypertension?

QUESTION 43

A term male is delivered by Caesarean section for a prolonged second stage of labour. This is his mother's fifth pregnancy and she has had no antenatal care. His APGARS are 6 at 1 min and 8 at 5 min. At 35 min of life he is tachypnoeic and occasionally grunting. On admission to the neonatal unit some dysmorphic features are

noted. He has low set ears, broad epicanthic folds, abundant neck skin folds and bilateral simian creases. Examination of his cardiovascular system is unremarkable. A 5 cm liver and 2 cm spleen are palpable. A chest X-ray shows bilateral perihilar markings, with some fluid visible in the horizontal fissure.

A full blood count shows:

- Haemoglobin (Hb) 12 g/dl
- White Cell Count (WCC) $58X10^9$/l
- Platelets $27X10^9$/l

1-What is the most likely explanation for the above findings?
2-What first-line investigation should be performed to elucidate the aetiology of the leucocytosis?
3-What is the management of choice in this case?

QUESTION 44

A 6-year-old boy is admitted with a 5-day history of fever, lethargy, anorexia, jaundice and dark urine. On examination he is pyrexial, pale, mildly icteric with lymphadenopathy and tender hepatosplenomegally.

Initial investigations show:

- Hb 5.5 g/dl
- WBC 12.0 × 10^9/l (N 41%, L 47%, M 11%, atypical lymphocytes 1%)
- Platelets 212 × 10^9/l
- Bilirubin 37 mmol/l
- Transaminases normal
- A coagulation screen is normal

1-What is the most likely diagnosis?
2- Which specific complications should be considered?
3-What further investigations may be considered?

QUESTION 45

A 9-year-old girl is referred by her general practitioner because of a progressive deterioration in speech and gait. She is usually fit and well, but her parents report that she has become increasingly unsteady on her feet for the past 4 weeks. Although usually a shy girl, they also say that she is more reluctant to talk and often appears to have difficulty getting her words out.

Examination in clinic reveals a shy, pale child, with no jaundice or skin rashes. Her pulse is 70 beats/min, blood pressure 110/65mmHg, and temperature 37.3 1C. She has a 2 cm liver edge, fine intention tremor, difficulty in articulating her speech and a rather ataxic gait.

Blood tests reveal:

- Hb 9.6 g/dl
- WCC 11.8×10^9/l
- Platelets 413×10^9/l
- Na 141 mmol/l
- K 3.9 mmol/l
- Urea 3.5 mmol/l
- Albumin 17 g/l
- AST 600 U/l
- GGT 92 U/l
- Alkaline phosphatase 310 U/l

1-What is the most likely diagnosis?
2- Which single investigation is diagnostic?
3- What treatment options are there?

QUESTION 46

A 7-year-old boy who has a history of seizures presents with headaches and increased confusion. His complex partial seizures are being treated with carbamazepine. Physical examination

reveals a weight of 34 kg (50th percentile), with all other findings within normal limits, including results of the neurologic examination and funduscopy.
Laboratory tests reveal:
• Sodium, 126 mEq/L
• Potassium, 4.6 mEq/L
• Chloride, 90 mEq/L
• Bicarbonate, 24 mEq/L
• Blood urea nitrogen, 14.0 mg/dL
• Creatinine, 0.7 mg/dL
Urinalysis shows a specific gravity of 1.030; pH of 5.5; and negative findings for blood, protein, ketones, nitrite, and leukocyte esterase.

1-What is the most likely diagnosis?
2-What is the cause?
3-What is the most appropriate treatment for the patient's condition?

QUESTION 47

A 6-month-old boy is brought to the emergency department for evaluation of a 2-day history of a temperature to 39.8°C, increasing irritability, constant crying, decreased activity, and emesis. His mother states that everyone in the house has been ill with colds and that the baby has had a runny nose and nasal congestion for the past week. He has only had his 2-month set of immunizations because he has been ill each time he is brought in for his vaccines. On physical examination, the infant has a temperature of 40.0°C, appears ill, and is extremely irritable. His anterior fontanelle is full, and he has a stiff neck. Studies obtained on his cerebrospinal fluid show:
• Glucose, 5.0 mg/dL
• Protein, 170.0 mg/dL
• White blood cell count, 550/mm3

• 2 red blood cells

Gram stain is positive for many white blood cells and gram-positive cocci.

1-What is the most likely organism?

2- What is the most appropriate empiric antibiotic regimen for the treatment of this patient?

QUESTION 48

A1-year-old boy was referred to the hospital by his GP with a short history of polyuria and 'drinking the bathwater'. His mother also suffered with similar symptoms and received treatment for this. On examination, the child appeared very well apart from a sticky left eye. Initial blood and urine results showed:

- Serum Sodium 154mmol/l
- Potassium 3.9mmol/l
- Bicarbonate 27mmol/l
- Urea 2.1mmol/l
- Creatinine 25 mmol/l
- Glucose 4mmol/l
- Osmolality 309mOsm/kg
- Urine Osmolality 283mOsm/kg

1- What are the two most likely diagnoses?

2- What investigation is required to confirm the diagnosis and reliably distinguish the two?

3- What are the modes of inheritance?

QUESTION 49

A 12-year-old girl presents with a 4-month history of feeling tired with headaches, nausea and stomach cramps. Over the past month she has struggled to get to school and she is generally only able to

attend school 1 or 2 days a week. She finds it hard to get off to sleep at night but denies that worries keep her awake.
Her mother says it takes her over an hour to wake her up in the morning. She is not on any medication. There is no past medical history of note. In the family, her mother has myalgic encephalitis (ME) and has been unwell for about 8 years.
Examination including full neurological examination is entirely normal. The results of the following tests (FBC, U&E. LFTs, CRP, ESR/viscosity, thyroid function, coeliac screen, calcium, ferritin, creatine kinase, random glucose. Urine for protein, blood and glucose) were normal.

1- What is the most likely diagnosis?
2-What other symptoms you expect to find in this patient?
3- How should you manage this patient?

QUESTION 50

Salwa is 4.5-year-old girl who has been complaining of headaches. They are recurrent and occur every 10 weeks almost to the day. Her mother is able to predict the recurrence of her headache by looking at the diary. She always wakes up at around midnight with the headache, says she feels nauseous and then proceeds to lose her colour, have dark rings around her eyes and commences to vomit. She will wake up, call her mum, complain of a spinning head, a distaste in her mouth and then she will go very quiet, prefer to lie in a dark room with photophobia. She often describes seeing 'coloured smarties' in front of her eyes. The headaches are occipital in nature and thought to be very severe as she will hold her head and thrash about. She vomits profusely and then remains bed-bound for up to several days. She does not have any eye-watering or redness. On examination there were no abnormalities to find whatsoever, she was not ataxic and did not have any nystagmus.

She has no neck stiffness, her blood pressure is normal for her age and her height, weight and head circumference are within normal limits. In between her bouts of headache she is fit and well, attends school and is making developmental progress. She is prone to car sickness. There is no family history of migraines.

1- What is the most important diagnosis to exclude initially?
2- What investigation would you aim to do urgently?
3- What is the most likely diagnosis?
4- What are the differential diagnoses?

QUESTION 51

A term male infant born to consanguineous parents is assessed at 24 h of age due to poor feeding, profuse yellow watery diarrhoea and irritability. He weighed 3.2 kg at birth and delivery was uneventful. There was no polyhydramnios. He has been breastfed since birth. On examination he is pale with a non tender, but distended abdomen and reduced bowel sounds.

His weight is 2.75 kg and he looks dehydrated. Examination is otherwise normal.

Initial investigations (normal values in parentheses) showed:

- Sodium 149 mmol/litre (135–145)
- Potassium 3.7 mmol/litre (3.5–5.0)
- Urea 6.5 mmol/litre (2.5–7.5)
- Creatinine 147 μmol/litre (40–110)
- Chloride 119 mmol/litre (95–105)
- Haemoglobin 17.2 g/dl (14.0–20.0)
- White blood cell count 8.0×10^9/litre (10.0–26.0)
- Platelet count 302×10^9/litre (150–400)

Arterial blood gas:

- pH 7.20 (7.30–7.45)
- PCO2 2.3 kPa (4.6–6.0)

- Bicarbonate 6.8 mmol/litre (22.0–26.0)
- Base excess −18.6 mmol/litre (−2.0 to +2.0)
- Lactate 5.9 mmol/litre (0.6–2.4)

An abdominal X-ray shows distended bowel loops, with no intramural thickening or pneumoperitoneum.
He was given nil by mouth and received intravenous fluids and antibiotics. His dehydration improved but the metabolic acidosis and diarrhoea persisted despite receiving no enteral feeds and the commencement of total parenteral nutrition. Blood and stool cultures were negative.

1- Describes the results of the lab. Investigations?
2- What is the most likely diagnosis?
3- What is the investigation of choice?

QUESTION 52

A 10-month-old boy presents with 3 weeks of vomiting and constipation , he is passing hard stools every 2–3 days. He has fallen from the 9th to below the 0.4th centile in the last 6 weeks. He passed meconium within the first 24 h of life.

On examination, he looks pale and there are some dysmorphic features , a short nose, long philtrum and wide mouth. He has normal heart sounds with a grade 3 ejection systolic murmur, loudest at the upper right sternal edge. Examination is otherwise normal.

Initial investigations are as follows:

- Haemoglobin 9.1 g/dl (11.3–14.1)
- Total white blood cell count 12.4 × 10^9/litre (6.0–17.0)
- Platelet count 407 × 10^9/litre (150–400)
- Sodium 144 mmol/litre (135–145)
- Potassium 3.7 mmol/litre (3.5–5.0)
- Urea 7.8 mmol/litre (2.5–7.5)

- Creatinine 78 µmol/litre (45–120)
- Albumin 52 g/litre (35–50)
- Corrected calcium 3.84 mmol/litre (2.38–2.63)
- Phosphate 1.67 mmol/litre (0.99–1.57)

1. What is the most likely diagnosis?
2- Which investigation would be most useful in establishing the diagnosis?
3-How you treat such patient?

QUESTION 53

A 10-week-old baby presented with 1 week's history of vomiting. He was born at 32 weeks gestation, needed ventilator support with oxygen for 1 day after birth, two doses of surfactant and 2 days of phototherapy for moderate jaundice of prematurity. He was formula fed from birth (the first 2 weeks via nasogastric tube). He tended to vomit after feeds and was started on formula milk at 4 weeks of age. The health visitor had advised a change of milk the week before.

The baby's weight was on the 9th centile, length on the 50th centile and head circumference on the 75th centile. Ward urine test showed a trace of proteinuria, but was otherwise normal.

Investigations showed:

- Hb 149 g/L
- white count 12.8×10^9/L (30% neutrophils)
- platelets 301×10^9/L
- Na 137 mmol/L
- K 3.5mmol/L
- urea 6.0 mmol/L
- Creatinine 50 mmol/L
- Chloride 95 mmol/L
- CRP 7 mg/L

- pH 7.43
- pO2 7.9 kPa
- pCO2 4.7 kPa
- HCO3 29.6 mmol/L (capillary sample)

1- What is the most likely cause of the vomiting?
2- What is the next step in diagnosis?
3-What management strategy should be used next?

QUESTION 54

A very concerned mother brings a 2-year-old child to your office because of two episodes of a brief, shrill cry followed by a prolonged expiration and apnea. You have been following this child in your practice since birth and know the child to be a product of a normal pregnancy and delivery, to be growing and developing normally, and to have no chronic medical problems. The first episode occurred immediately after the mother refused to give the child some juice; the child became cyanotic, unconscious, and had generalized clonic jerks. A few moments later the child awakened and had no residual effects. The most recent episode (identical in nature) occurred at the grocery store when the child's father refused to purchase a toy for her. Your physical examination reveals a delightful child without unexpected physical examination findings.

1-What is the most likely diagnosis?
2-How you treat such child?
3-What is the prognosis of such condition?

QUESTION 55

A child has a 2-week history of spiking fevers, which have been as high as 40°C (104°F). She has spindle-shaped swelling of finger joints and complains of upper sternal pain. When she has fever, the

parents note a faint salmon-colored rash that resolves with the resolution of the fever. She has had no conjunctivitis or mucositis, but her heart sounds are muffled and she has increased pulsus paradoxus.

1-What is the most likely diagnosis?
2-What is the cause of the upper sternal pain?

QUESTION 56

You are asked to evaluate an infant born vaginally 3 hours previously to a mother whose only pregnancy complication was poorly controlled gestational diabetes. The nursing staff noticed that the infant was breathing abnormally.

On examination, you find that the infant is cyanotic, has irregular, labored breathing, and has decreased breath sounds on the right side. You also note decreased tone in the right arm. You provide oxygen and order a stat portable chest radiograph, which is normal.

1-What is the most likely cause of the irregular, labored breathing in this patient?
2- What is the most likely cause of the decreased tone in the right arm?
3- Which study most likely confirms your diagnosis?

QUESTION 57

A 6-week-old child arrives with a complaint of “breathing fast” and a cough. On examination you note the child to have no temperature elevation, a respiratory rate of 65 breaths per minute, and her oxygen saturation to be 94%. Physical examination also is significant for rales and rhonchi.

The past medical history for the child is positive for an eye discharge at 3 weeks of age, which was treated with a topical antibiotic drug.

1-What is the most likely diagnosis?
2-What is the most likely organism?
3-What is the best treatment option and its complication at this age group?

QUESTION 58

A 3-year-old boy's parents complain that their child has difficulty walking. The child rolled, sat, and first stood at essentially normal ages and first walked at 13 months of age. Over the past several months, however, the family has noticed an increased inward curvature of the lower spine as he walks and that his gait has become more "waddling" in nature. On examination, you confirm these findings and also notice that he has enlargement of his calves.

1-What is the most likely diagnosis?
2-Which clinical test helps you in the diagnosis?
3-What other features you expect to see?

QUESTION 59

A newborn infant has respiratory distress and trouble feeding in the nursery. The mother has no significant medical history, but the pregnancy was complicated by decreased fetal movement. On physical examination, you note that aside from shallow respirations and some twitching of the fingers and toes, the infant is not moving, and is very hypotonic. In the mouth there is pooled saliva and you note tongue fasciculations. Deep tendon reflexes are absent. Spinal fluid is normal.

1-What is the most likely diagnosis?
2-Where is the defect in this disease?
3-What is the current available treatment?

QUESTION 60

An 18-month-old child presents to the emergency center having had a brief, generalized tonic-clonic seizure. He is now postictal and has a temperature of 40°C (104°F). During the lumbar puncture (which ultimately proves to be normal), he has a large, watery stool that has both blood and mucus in it.

1-What is the most likely diagnosis in this patient?
2-What is meant by Ekiri syndrome?
3-How you manage such patient?

QUESTION 61

A 16-year-old boy presents to the emergency center with a 2-day history of an abscess with spreading cellulitis. While in the emergency center, he develops a high fever, hypotension, and vomiting with diarrhea. On examination you note a diffuse erythematous macular rash, injected conjunctiva and oral mucosa, and a strawberry tongue. He is not as alert as when he first arrived.

1-What is the most likely diagnosis?
2-What is the etiology?
3-How you manage such a patient?

B- CASE STUDIES WITHOUT IMAGES

ANSWER 1

1- Hemolytic-uremic syndrome (HUS).

2- Peripheral blood smear, which should demonstrate schistocytes and burr cells and minimal platelets.

3- Severe oligoanuria, hyperkalemia or severe uremia (blood urea nitrogen >100 mg/dL [35.7 mmol/L]).

4-Platelet transfusions usually are avoided to prevent the theoretical risk of exacerbating the thrombotic microangiopathic process and microthrombi deposits.

ANSWER 2

1- Immobilization leads to osteoclast activation and relative bone resorption.

2- Hyperparathyroidism, hypervitaminosis A, and hypervitaminosis D.

3- A low-magnesium hyperalimentation formula could lead to hypocalcemia because magnesium is necessary for the release of preformed parathyroid hormone from the parathyroid gland.

ANSWER 3

1- Percutaneous liver biopsy.

2- Direct hyperbilirubinemia is a serum direct bilirubin concentration of more than 1.0 mg/dL (17.1 mcmol/L) with total bilirubin values of less than 5.0 mg/dL (85.5 mcmol/L) or greater than 20% of the total bilirubin for values greater than 5.0 mg/dL (85.5 mcmol/L).

3- Recent studies have shown the best surgical outcomes for infants who have biliary atresia when the diagnosis is established by 30 to 45 days of age.

4- Corticosteroids and ursodeoxycholic acid have been suggested as means to enhance bile flow in the postoperative period.

ANSWER 4

1- Gaucher disease.

2- This diagnosis may be confirmed by demonstrating a deficiency in the activity of blood leukocyte glucocerebrosidase (acid beta-glucosidase).

ANSWER 5

1- The most likely diagnosis is obstructive uropathy (probably from posterior urethral valves) with resultant type IV renal tubular acidosis and hyperkalemia.

2- Intravenous calcium gluconate, which counteracts the effects of hyperkalemia on the altered membrane excitability. The effect is short-lived but very effective. It is considered the first-line approach to severe hyperkalemia.

3- The most common cause for pseudohyperkalemia results from hemolysis of a difficult sample collection (which is common in newborns and young children) and marked leukocytosis or thrombocytosis due to clot retraction.

ANSWER 6

1- Alport syndrome (AS).

2- X-linked recessive disorder.

3- Glomerular basement membrane (GBM) disease and autosomal dominant polycystic kidney disease (ADPKD).

ANSWER 7

1- Nonsteroidal anti-inflammatory drugs (NSAID)-induced gastroenteropathy.

2- Misoprostol, a PGE-2 analog, exerts its gastrointestinal cytoprotective effects by directly countering a primary mechanism responsible for the damaging effects of naproxen and other COX-1 inhibitors. Among pediatric patients receiving NSAIDs, coadministation of misoprostol has been shown to be an effective

strategy to reduce gastrointestinal symptoms and increase hemoglobin concentrations.

ANSWER 8

1- The adolescent described in the vignette, who recently underwent spine surgery, has developed a febrile illness associated with right upper quadrant fullness and tenderness. Laboratory studies show elevations in the white blood cell count, gamma-glutamyl transpeptidase, and aspartate and alanine aminotransferases but near-normal pancreatic enzyme values. Acute calculous or acalculous cholecystitis is the most likely cause of these findings.

2- The diagnostic study of first choice is abdominal ultrasonography. Typical ultrasonographic findings in acute cholecystitis include identification of gallstones (in calculous cholecystitis) or biliary sludge; evidence of bile ductular dilatation; and a distended, thick-walled gallbladder.

ANSWER 9

1- Sarcoidosis.

2- The diagnosis of sarcoidosis is based on clinical suspicion and confirmed by biopsy material demonstrating noncaseating granulomas.

ANSWER 10

1- Nonmonosymptomatic enuresis secondary to urinary tract infection (UTI).

2- Renal/bladder ultrasonography. This study can help screen for hydronephrosis and renal stones, which could increase the risk for a UTI.

3- Treatment of the underlying organic cause often results in marked improvement. Once a UTI is treated, the urinary symptoms and enuresis should resolve.

ANSWER 11

1- Fitz-Hugh-Curtis syndrome or perihepatitis presents as right upper quadrant pain that result from inflammation of the liver capsule from ascending pelvic infection.
2- Pyuria raises the possibility of urethritis.
3- Neisseria gonorrhoeae and Chlamydia trachomatis.

ANSWER 12

1- Systemic lupus erythematosus (SLE).
2- Refer the patient for a renal biopsy.
3- The patient can be monitored by periodic assessment of urinary protein excretion as well as measurement of serologic markers such as complement components and anti-ds DNA titers.

ANSWER 13

1- Elevated concentration of carboxyhemoglobin. Pulse oximetry cannot distinguish carboxyhemoglobin from oxyhemoglobin, resulting in a falsely high reading.
2- Pulse oximetry can yield falsely low saturations in critically ill patients who have vasoconstriction, poor perfusion, hypothermia, or arrhythmias.
3- Pulse oximetry uses red and infrared light to measure the level of oxygenated and deoxygenated hemoglobin. The amplitudes of the light signals are measured and mathematically calculated to express the percentage of oxygen saturation.

ANSWER 14

1- Infantile hypertrophic pyloric stenosis (HPS).
2- Other, less common causes of gastric outlet obstruction include duodenal stenosis, gastric duplication, antral web, and annular pancreas.
3- Based on the serum electrolyte data, fluid therapy should be

initiated with 5% dextrose and 0.45% sodium chloride at approximately 1.5 times the calculated maintenance rate (~400 mL per 24 hours, based on the infant's hydrated weight) or 25 mL/hr.

ANSWER 15

1- Recurrent pancreatitis.
2- Serum lipid measurement.

ANSWER 16

1- Erythropoietin deficiency is expected in the presence of reduced nephron mass, as is seen in the renal failure exhibited by the child. His renal failure most likely is chronic because of his poor growth.
2- Reduced substrate for red blood cell synthesis (folate, vitamin B12, or iron), bone marrow failure, selective red cell aplasia, or erythropoietin deficiency.

ANSWER 17

1- Hypokalemia, metabolic acidosis, and hypophosphatemia.
2- Fanconi syndrome (nephropathic cystinosis).
3- Ophthalmologic examination reveals cystine accumulation within the cornea results in intense photophobia.

ANSWER 18

1- Escherichia coli is the causative organism in 80% to 90% of first-time urinary tract infections (UTIs) in children.
2- Organisms such as E coli, K pneumoniae, and Proteus sp can reduce dietary nitrate to nitrite, so a positive urine dipstick test for nitrite, is virtually diagnostic of gram-negative bacteruria. If the test result is negative in an older child in whom a UTI is suspected, the infection may be caused by a gram-positive organism such as Enterococcus sp or S saprophyticus. Of note, the nitrite test is much less helpful in infants. Conversion of nitrate to nitrite may take up to 4 hours. Because infants and young children have small

bladder volumes and urinate frequently, there may be insufficient time for nitrites to be formed and, therefore, the nitrite test may be negative even in the presence of a UTI caused by a gram-negative organism.

ANSWER 19

1- Acute pyelonephritis.
2- Voiding cystourethrography.
3- Hydronephrosis, renal cysts, nephrolithiasis, urolithiasis, ureteral dilatation, duplex collecting system, bladder wall thickening, and ureteroceles.

ANSWER 20

1- Congenital deficiency of thyroxine-binding globulin (TBG).
2- Sex-linked disorder is expressed more completely in males. Females who are carriers have slightly lower concentrations of TBG, but they may not be identified as having a low thyroxine value on newborn thyroid screening.
3- TBG deficiency can be diagnosed by obtaining a normal free thyroxine value, a low TBG value, or both.
4- It is important to identify individuals who have TBG deficiency because they require no further evaluation or treatment.

ANSWER 21

1- Hypoxic-ischemic encephalopathy (HIE).
2- Severely acidotic umbilical cord arterial pH (<7.0), with evidence of metabolic acidemia.
3- Other causes of neonatal seizure include intracranial hemorrhage, cerebrovascular accidents (stroke), or hemorrhagic infarction (10% to 15%); intracranial malformation (<10%); transient hypoglycemia or hypocalcemia (<10%); drug withdrawal (<5%); and inborn errors of metabolism (<5%).

ANSWER 22

1- The next best step in the management of the child is the administration of activated charcoal. Multiple doses of activated charcoal adsorb salicylates from both the intestinal tract and the systemic circulation.

2- Toxic effects of salicylates can include gastritis, anticoagulant effects, increased metabolism, hyperventilation and respiratory alkalosis, and hepatitis. Reye syndrome, which is characterized by hepatitis and encephalopathy, may occur if aspirin is given during certain viral infections. Signs and symptoms include lethargy or coma, vomiting, tachypnea, and tachycardia.

3- Syrup of ipecac is not indicated because the child described is fussy and lethargic.

ANSWER 23

1- Membranoproliferative GN (MPGN).

2- Post infectious AGN (PIAGN), immunoglobulin A nephropathy, viral cystitis, nephrolithiasis, hypercalciuria, and sickle cell disease or trait.

ANSWER 24

1- Neonatal infections with the herpes simplex virus (HSV).

2- All neonatal HSV infections should be treated with intravenous acyclovir. The dosage is 60 mg/kg per day in three divided doses given intravenously for 14 days for disease localized to the skin, eye, or mouth (SEM) and for at least 21 days for disseminated or central nervous system disease.

3- Neonates presenting with shock like symptoms during the first 7 to 10 days after birth are a diagnostic challenge. The differential diagnosis includes five major categories:

1) Bacterial sepsis
2) Inborn errors of metabolism
3) Ductal-dependent complex congenital heart disease

4) Nonaccidental trauma
5) Viral sepsis

ANSWER 25

1-Hyperosmolar coma due to type 2 diabetes.
2-Symptomatic cerebral edema.
3-The relatively lower sodium concentration seen in the patient is a physiologic adaptation to severe hyperglycemia. Intracellular water is drawn osmotically into the extracellular space in response to the hyperglycemia. For each 100 mg of glucose above 100 mg/dL (5.5 mmol/L), the sodium should be lowered about 1.7 mEq (1.7 mmol) or occasionally, slightly more.
4-Initial volume expansion with relatively isotonic fluids (0.9% NaCl) followed by continued slow rehydration over 36 to 48 hours is the most rational approach to fluid restoration.

ANSWER 26

1- The clinical features of jaundice, hepatomegaly, and invasive Escherichia coli infection suggests the possible diagnosis of galactosemia.
2- Soy protein formulas are the first choice of nutrition for infants who have suspected or proven galactosemia because the carbohydrate source in these formulas is sucrose or corn syrup rather than lactose.
3- The reducing substances in the urine represent the accumulation of galactose.

ANSWER 27

1- Bleeding ulcer or severe gastritis.
2- Best test to identify and treat the suspected lesion is esophagogastroduodenoscopy with biopsy.

ANSWER 28

1- Congenital nephrotic syndrome (NS).

2- Children who have congenital NS lose massive quantities of essential proteins required for growth and development and are at risk for malnutrition and failure to thrive during infancy.

ANSWER 29

1- The presence of neurologic disease, liver failure, and hemolysis strongly suggests fulminant Wilson disease.

2- Serum ceruloplasmin concentrations typically are low in Wilson disease.

3- The other tests that help establish a diagnosis of Wilson disease include slit lamp examination of the eyes for Kayser-Fleischer ring.

ANSWER 30

1- The failure to thrive, blond hair, blue eyes, fair skin, markedly bowed legs, acidosis, and hypophosphatemia reported for the boy in the vignette represent the classic presentation of nephropathic cystinosis.

2- The loss of bicarbonate results in acidosis, and the loss of phosphate results in demineralization of the bones and rickets.

3- The recent use of oral and optic cysteamine, medications designed to increase the movement of cystine out of the lysosome, has proven effective in some children who have cystinosis.

ANSWER 31

1- The adolescent girl in the vignette meets the diagnostic criteria for systemic lupus erythematosus (SLE).

2- Because of the need to classify the form of nephritis prior to the institution of corticosteroids, the standard of care is to obtain a renal biopsy prior to treatment. Some forms of lupus nephritis, including diffuse proliferative nephritis, are treated with cyclophosphamide as an adjunctive agent, but this medication

should not be used for renal indications without a kidney biopsy. Results of the renal biopsy can provide both prognostic and treatment information.
3- Once the renal disease is classified histologically and initial treatment is instituted, the patient can be monitored by periodic assessment of urinary protein excretion as well as measurement of serologic markers such as complement components and anti-ds DNA titers. Patients who exhibit worsening proteinuria, decreasing concentrations of complement components, or rising anti-ds DNA titers require assessment for a disease flare, which may necessitate increasing immunosuppressive therapy (including corticosteroids).

ANSWER 32

1- Hypokalemic, metabolic alkalosis which is explained via an activated renin-angiotensin-aldosterone system (RAAS).
2- An additional clinical feature of the patient is renal asymmetry. Taken together with the hypokalemic, metabolic alkalosis, the most likely explanation is unilateral renal artery stenosis. Activation of the RAAS results in elevated concentrations of angiotensin II, a potent vasoconstrictor, which causes high systemic vascular resistance.

ANSWER 33

1- Laboratory evaluation demonstrates hyponatremia, increased anion gap metabolic acidosis, and azotemia (elevated blood urea nitrogen and creatinine values).
2-The patient's clinical evaluation are consistent with hypovolemia and prerenal failure.
3- 0.9% sodium chloride at a volume of 300 mL over 1 hour.

ANSWER 34

1- Staphylococcal scalded skin syndrome. Clinically, the lesions described are characteristic of Staphylococcus infection. Yellow

crusting is commonly described. Staphylococcal scalded skin syndrome is an exfoliative dermatosis that initially presents with diffuse erythema and skin tenderness. There is usually an isolated minor local infection, which in this case was the lip.
2- Staphylococcus aureus epidermolytic toxins A and B.
3- Intravenous benzylpenicillin and flucloxacillin.
4- Drying of the erosions followed by desquamation and healing within 14 days.

ANSWER 35

1- Polycythemia.
2- Manifestations of the "hyperviscosity syndrome" include tremulousness or jitteriness that can progress to seizure activity because of sludging of blood in the cerebral microcirculation or frank thrombus formation.
3- Therapy by partial exchange transfusion with saline or lactated Ringer solution is preferred, and may be more likely to be useful if performed prophylactically before significant symptoms have developed.

ANSWER 36

1- The infant has a ductal-dependant cyanotic congenital heart lesion. In this example, the child had pulmonary atresia without a corresponding VSD; another example would have been transposition of the great vessels without a septal defect to allow mixing of oxygenated and nonoxygenated blood.
2- The ductus arteriosis typically closes in the first few hours of life; thus, these children will develop their cyanosis in the same time frame. Prostaglandin E1 will help keep the ductus patent until a surgical procedure can be performed.

ANSWER 37

1- Idiopathic pulmonary hemosiderosis (IPH).

2- Bronchoalveolar lavage will reveal hemosiderin-laden macrophages and would be most likely to make the diagnosis.
3- A distinct subset of patients with pulmonary hemosiderosis have hypersensitivity to cow's milk (the association is called Heiner syndrome) and may improve with a diet free of cow's milk products.

ANSWER 38

1- Ulcerative colitis.
2- The most serious complication of ulcerative colitis is toxic megacolon, a medical and surgical emergency in which patients develop fever, tachycardia, dehydration, leukocytosis, and electrolyte abnormalities associated with a markedly dilated colon.

ANSWER 39

1- Iron-deficiency anemia.
2- Administration of an oral preparation of ferrous sulfate.
3- Levels of erythrocyte protoporphyrin (EP) are also elevated in lead poisoning. Iron-deficiency anemia can be differentiated from lead intoxication by measuring blood lead, which should be less than 10 µg/dL.

ANSWER 40

1- The patient has classic findings of galactosemia.
2- Cataracts, ascites, and increased risk for E coli sepsis.
3-Benedict test for reducing substances will be positive while routine urinalysis will be negative, as the urine strips do not react with galactose.
4- Prompt removal of galactose from the diet usually reverses the symptoms, including cataracts.

ANSWER 41

1. Beckwith–Wiedemann syndrome.
2. Hemi-hypertrophy.

3. Renal ultrasound and serum alpha fetoprotein level.

ANSWER 42

1. Wilms' tumour.

Wilms' tumours are the most common genitourinary malignancy of childhood, affecting 1 in 10 000 children, 75% of children being under the age of 4 and 90% under the age of 7. Clinical presentation is generally with a well child and 74% of children present with the finding of an incidental mass. Fever is unusual, occurring in 1% of patients, and pain occurs in 44%.

Wilms' tumours are associated with a number of genetic syndromes such as WAGR syndrome (Wilms' tumour, aniridia, genitourinary malformations and mental retardation), Denys–-Drash syndrome (pseudohermaphroditism, nephrotic syndrome and Wilms' tumour) and Beckwith–Wiedemann syndrome (exomphalos, macroglossia, neonatal hypoglycaemia, visceromegaly, hemihypertrophy, characteristic facial features and linear indentations of the ear lobe). It is therefore important to look for dysmorphic features. The most common site of metastasis is to the lungs.

2. Von Willebrand's disease.

A rare but important complication of Wilms' tumour is the development of acquired von Willebrand's disease, which occurs in up to 8% of those with Wilms' tumour.

3. ACE inhibitors.

Hypertension in Wilms' tumour is caused by a number of factors, including excess renin production, vascular compression and pre-existing renal disease. The administration of an ACE inhibitor in this situation would therefore be an appropriate first line treatment for Wilms'-induced hypertension.

ANSWER 43

1- Down's syndrome with transient myeloproliferative disorder (TMD).

2- Blood film will show blast cells. The leucocytosis should have sufficient blasts to perform IHC on cells. The blasts cells are of megakaryoblastic lineage. Although they are morphologically indistinguishable from AML blasts, there are subtle cytochemical and immunohistochemical differences.

3- Close observation and ensuring the leukaemia resolves is the management of choice.

ANSWER 44

1- Epstein-Barr virus infection (glandular fever/infectious mononucleosis) with associated acute haemolysis.

2- Severe haemolysis and splenic haemorrhage.

Neurological complications (e.g. seizures, ataxia, and meningitis), airway obstruction (from tonsillar hypertrophy) and hepatitis are among other problems associated with EBV infections but were not apparent in this case.

3- Monospot and EBV antibodies. An ultrasound scan should be performed to exclude splenic haemorrhage. Other causes of haemolysis should be considered especially if this boy is to be transfused.

ANSWER 45

1- The neurological symptoms and liver dysfunction in this child can 'best' be explained by Wilson's disease.

2- Evidence of excess copper deposition on liver biopsy is diagnostic.

3- Treatment entails copper chelation with D-penicillamine or EDTA and is most effective if commenced early. For this reason, prompt screening of siblings is essential.

ANSWER 46

1- The child described in the vignette presents with confusion, hyponatremia, and a urinalysis featuring a high specific gravity, all findings consistent with a diagnosis of the syndrome of inappropriate antidiuretic hormone secretion (SIADH).
2- His antiepileptic medication, carbamazepine, is associated with the development of SIADH.
3- The preferred treatment of the child who has SIADH is free water restriction.

ANSWER 47

1- The patient has meningitis that most likely is due to S pneumoniae.
2-Appropriate empiric therapy for a person who has suspected meningitis is a combination of vancomycin and a third-generation parenteral cephalosporin (cefotaxime or ceftriaxone).

ANSWER 48

1-Nephrogenic diabetes insipidus, central diabetes insipidus.
2- Water deprivation test with desmopressin.
3- Primary nephrogenic diabetes insipidus is usually inherited as an X-linked recessive disease.
Central diabetes insipidus may be inherited as an autosomal dominant or autosomal recessive disease.

ANSWER 49

1- Chronic fatigue syndrome (CFS/ME).
2- Other symptoms such as headache, nausea and abdominal pain are common as are recurrent sore throats, tender lymph nodes, muscle aches and pains, dizziness and problems with memory and concentration.
3- Explain to her about what is wrong; give advice about symptoms, sleep, diet and activity.

ANSWER 50

1- Brain tumor.
2- CT scan of the brain.
3- Cyclical vomiting.
4- Migraine with aura
Occipital epilepsy
Poisoning
Benign paroxysmal vertigo

ANSWER 51

1- Hypernatraemia, hyperchloraemic metabolic acidosis with increased anion gap.
2- Microvillus inclusion disease. It is a severe autosomal recessive enteropathy that is typically apparent within hours or days after birth. It is the second most common cause of protracted diarrhoea in the newborn, after infectious causes. It is characterized by severe yellow watery diarrhoea and malabsorption due to hypoplasia and/or atrophy of the villi of the small intestine, secondary to an inherited defect in the brush border membrane. This results in severe dehydration, malnutrition and metabolic acidosis due to bicarbonate loss from the gut.
3- Diagnosis of microvillus inclusion disease is made on small bowel biopsy.

ANSWER 52

1- Williams syndrome.
2- Fluorescent in-situ hybridization for 7q11.23 deletion.
3- Treatment of Williams syndrome may include rehydration with normal saline, forced diuresis with saline infusion and furosemide, a low calcium diet (including low calcium milk) or, rarely, bisphosphonates.

1-ANSWER 53

1- Pyloric stenosis.
2- Test feed then ultrasound of abdomen.
3- Intravenous infusion of 0.45% saline and 5% dextrose then pyloromyotomy.

ANSWER 54

1- Breath-holding spell. Two forms exist.
Cyanotic spells consist of the symptoms outlined and are predictable upon upsetting or scolding the child.
Pallid breath-holding spells are less common and are usually caused by a painful experience (such as a fall). With these events, the child will stop breathing, lose consciousness, become pale and hypotonic, and may have a brief tonic episode. Although the family may be concerned that these “tonic episodes” are seizures, the temporal relationship with an inciting event make this diagnosis highly unlikely.
2- Avoidance of reinforcing this behavior is the treatment of choice.
3- They are rare before 6 months of age, peak at about 2 years of age, and resolve by about 5 years of age.

ANSWER 55

1- Juvenile rheumatoid arthritis (JRA, or Still disease).
2- Arthritis of sternoclavicular joint.

ANSWER 56

1- Phrenic nerve paralysis.
2- Erb-Duchenne paralysis.
3- An ultrasound or fluoroscopy of the chest would reveal asymmetric diaphragmatic motion in a seesaw manner.

ANSWER 57

1- Afebrile pneumonia.

2- Chlamydiae organisms, sexually transmitted among adults, are spread to infants during birth from genitally infected mothers. The sites of infection in infants are the conjunctivae and the lungs, where chlamydiae cause inclusion conjunctivitis and afebrile pneumonia, respectively, in infants between 2 and 12 weeks of age.

3- Early treatment with oral macrolides is, however, associated with an increased incidence in the development of idiopathic hypertrophic pyloric stenosis; their use in a neonate is with caution.

ANSWER 58

1- Duchenne muscular dystrophy. It is inherited as an X-linked recessive trait. Male infants are rarely diagnosed at birth or early infancy since they often reach gross milestones at the expected age. Soon after beginning to walk, however, the features of this disease become more evident.

2- Gower sign (use of the hands to “climb up” the legs in order to assume the upright position) is seen by 3 to 5 years of age, as is the hip waddle gait.

3- Associated features include mental impairment and cardiomyopathy.

ANSWER 59

1- Spinal muscular atrophy (SMA) type I, also referred to as Werdnig-Hoffman disease, or infantile progressive spinal muscular atrophy.

2- The defect is found in the survivor motor neuron (SMN) gene that stops apoptosis of motor neuroblasts.

3- The only currently available treatment is supportive care, and infants with SMA I usually die of respiratory complications by the second or third year of life.

ANSWER 60

1- Shigellosis.
2- Fatal “toxic encephalopathy” seen with Shigella infection.
3- Supportive care, including adequate fluid and electrolyte support, is the mainstay of therapy. Antibiotic treatment is problematic; resistance to trimethoprim-sulfamethoxazole and ampicillin is common, necessitating therapy with third-generation cephalosporins in many cases. As always, knowledge of the susceptibility patterns of the bacteria in your area is the key to using the right antibiotic.

ANSWER 61

1- Toxic shock syndrome (TSS).
2- Toxic shock syndrome (TSS) is usually caused by S aureus, but a similar syndrome (sometimes called toxic shock-like syndrome [TSLS]) may be caused by Streptococcus sp. The strains of S aureus responsible secrete toxic shock syndrome toxin 1 (TSST-1), and can cause “menstrual” TSS (associated with intravaginal devices like tampons, diaphragms, and contraceptive sponges) or“nonmenstrual” TSS associated with pneumonia, skin infection (as in this patient), bacteremia, or osteomyelitis.
3- Treatment includes blood cultures followed by aggressive fluid resuscitation and antibiotics targeting S aureus.

PART 2

History taking and management station

The aim of this station is to assess your ability to take a focused history and then summaries back to the examiner the main issues pertinent to the case.

This station closely reflects an outpatient or ward review setting. Children could have a new diagnosis or complaint, or you may be asked to address a specific problem in a child with a known diagnosis. You will never be asked to examine a patient but may be given additional information, e.g. results of investigations.

You will be given instructions that provide information about your role and these are often in the form of a referral letter. The parents and child will also have been briefed; in many cases the clinical scenario or at least the child's background problem is real. In some cases a role player, health care professional or member of the public may be used.

In order to pass this station, the following key areas are assessed

1. CONDUCT OF INTERVIEW

- Greet parents and child appropriately and introduce yourself
- Clarify your role and agree aims and objectives
- Maintain appropriate eye contact/body language throughout
- Remain attentive throughout; give verbal and non-verbal signs to the effect

- Make sure you are fully understood by patients, parents, and examiner
- Be confident yet empathetic
- Patient and parent(s) should be at ease with you

2. HISTORY TAKING

Doing this well involves:

- Phrasing questions clearly and making sure they are not all closed
- Avoiding medical phrases that may not be understood by patient/parent
- Allowing patient/parent time to speak
- Developing a problem list as you go on
- Exploring the main problems fully, including psychological, social and family issues as these may be what you are asked about
- Ensuring your history is focused to getting maximum information
- Exploring feelings of the patient and parents

ALL THIS NEED PRACTICE

3. INTERPRETATION AND MANAGEMENT PLANNING

- Demonstrate a good understanding of different problems raised in the history
- Discuss the differential diagnosis listing the most likely first
- Outline the essential points in the management: be sensible and pragmatic, i.e. do not suggest any experimental or controversial treatments unless asked about them directly
- Discuss referral to other agencies and be aware of providing further contact information

HISTORY TAKING OSCE STATIONS

QUESTION 1

Take a detailed history from this 4- year- old child?

QUESTION 2

A 14-month-old boy has started vomiting and has loose watery stools up to eight times a day. He has a low grad fever and is rather quiet. Other mothers at the nursery report similar findings in their children.

Task

Take a focused history and suggest 2 diagnoses.

QUESTION 3

Thuha is a one year old child who present to your clinic because of chronic cough (more than one month). On examination temp: 37.5^0 C, respiratory rate: 34 breaths/min with no signs of respiratory distress.

Task

Take a focused history and suggest to the examiner three helpful investigations.

QUESTION 4

Noor is a 7-year-old child who has been brought in by her father to your same-day/urgent session with an exacerbation of her asthma.

Task

Which aspects of history do you need to get from Noor's father?

QUESTION 5

Zainab is a 7-year-old child who has been brought in by her mother to your same-day/urgent session with an exacerbation of her asthma.

Task

What red flags for asthma you would look for?

QUESTION 6

Layla brought her two and a half year old son, Ali, to the emergency because he just had fever and fit. The ER team managed Ali is in the next room and he is stable now. Mrs. Layla is waiting in this room. You are the physician on duty now. In the next minutes enter the room and talk to her.

Task

Take a focused history and suggest 3 helpful investigations.

QUESTION 7

A young primi mother said, my 3-day-old baby has had a fit**.** She was a healthy term infant who is breast-fed. She has a nasty infected umbilical cord stump.

Task

Take a focused history and suggest 3 differential diagnoses.

QUESTION 8

A young pregnant mother brought her 18-month-old child with a fever and rash.

Task

Take a focused history and mention your next step for this worried mother.

QUESTION 9

A 6-year-old boy was seen in the pediatric outpatient department. His parents complained that he was the shortest boy in his class. On examination, the child's height was 106 cm (3rd centile).

Task

Take a focused history and suggest a single valuable available investigation.

QUESTION 10

A 7- year- old child presented with purpura and easy bruising for the last few days.

Task

Take a focused history and suggest 3 helpful investigations.

QUESTION 11

A 2-year-old girl who is otherwise developing normally does not say any words which are recognizable. She is a third child, and her siblings' speech development was normal.

Task

Take a focused history and give 3 differential diagnoses.

QUESTION 12

After a normal birth and delivery, the mother said, my baby is now 12 hours old and has blue lips and tongue.

Task

Take a focused history and suggest 3 differential diagnoses.

QUESTION 13

An 8-year-old girl has started to get recurrent symmetrical headaches. They are of gradual onset and are described thus'… like a band around my head'. She is having problems coping with the demands made by her school and has missed a third of her schooling this term.

Task

Take a focused history and what are the indications of C/T scan in this patient.

QUESTION 14

A 6-month-old child has developed sudden onset episodes of screaming and drawing up his legs; he has not opened his bowels recently, and looks very pale.

Task
Take a focused history and give 3 differential diagnoses.

QUESTION 15

An 8-year-old boy presents to his GP with acute abdominal pain. The pain is lower abdominal and constant. He has been off his food for about 10 days, and has lost some weight. There has been no vomiting. In addition, he recently had fever with a sore throat. His urine looks 'smoky' and red, as if there is blood in it.

Task
Take a focused history and what clinical examination would you like to perform?

QUESTION 16

A 3-week-old girl was noted by his mother to have persisting jaundice. She is still breast-fed, but has not yet regained her birth weight.

Task
Take a focused history and suggest 3 helpful investigations.

QUESTION 17

An 18-month-old boy, who is otherwise well, has just started climbing upstairs. He is very adventurous, and recently his mother has noticed more bruises on his legs.

Task
Take a focused history and suggest 3 differential diagnoses.

QUESTION 18

A 4-year-old and her friends have mistaken iron tablets for sweets, and eaten a number of them. The mother is uncertain how many were in the bottle, but there are quite a few left.

Task
Take a focused history and suggest 3 helpful investigations.

QUESTION 19

An anxious mother telling you, my 6-year-old boy is disruptive in class, has no friends, and is aggressive.

Task

Take a focused history from the mother and suggest 3 differential diagnoses to the examiner.

QUESTION 20

My 3-year-old boy doesn't play with other children, isn't speaking, and seems to be in a world of his own. This is the complaint of a young mother.

Task

Take a focused history and suggest 3 differential diagnoses to the examiner.

HISTORY TAKING OSCE STATIONS

ANSWER 1

Suggested checklist of detailed history

1	Introduce yourself and greet the parent and child
2	Explain that you are going to ask some questions and obtain consent to do this
	The history
3	Ask the age, sex, and preferred name of the child
4	Confirm the relationship of the accompanying adult
5	Chief complaint & duration
6	History of present illness
	Systems review
7	**General questions** :Activity, tiredness, mood, sleep, school absences
8	**Gastro-intestinal system:** Appetite , feeding habits , composition of foods , any weight loss , stools , abdominal pain , how many teeth?
9	**Respiratory system:** Cough, pain, shortness of breath, sputum
10	**Cardiovascular system:** Palpitation, cyanosis at rest or exertion, sweating day or night
11	**Nervous system:** Headache , head injury, convulsion ,loss of consciousness at any time, eye problems, hearing, speech, any weakness of limbs, abnormal movements
12	**Genito- urinary system:** Pain (site) , frequency of micturation, enuresis (day or night) , color of urine , dysuria , menses in girls above 10 years
13	**Locomotor system:** pain or stiffness of joints, weakness or unsteadiness

14	**Blood:** Shortness of breath, tiredness, bruising, bleeding, change in skin color
15	**Skin:** Rashes, jaundice, dryness, scaling, eczema, impetigo, bruising, birthmarks, pigment change, hemangiomas, warts
	Prenatal history (pregnancy)
16	Mother age, previous pregnancies, miscarriages, and abortions
17	Pregnancy duration
18	Maternal health before and during pregnancy
19	Specific illnesses related to or complicated by pregnancy like diabetes , hypertension and infectious diseases
20	Drugs taken
21	X-ray exposure
22	Antenatal care
23	Smoking and drinking alcohol
	Birth history (Natal history)
24	Nature of labor and delivery
25	Degree of difficulty and length of labor
26	Whether the baby breathed & cried spontaneously or required resuscitation
27	Analgesia given
28	Complications encountered
29	Birth order and birth weight
30	Gestational age
31	Apgar score
	Neonatal history
32	Onset of respiration
33	Resuscitation efforts
34	Cyanosis
35	Jaundice
36	Convulsions

37 38	Congenital anomalies Infections
39 40 41 42	**Previous history** Specific illnesses experienced such as childhood communicable diseases or recent contact with them (chicken pox, measles, mumps, rubella, whooping cough) Operations , injuries or hospitalization Allergies Current medications
43	**Vaccination** Exact date of each immunization. The following table shows the Iraqi protocol of vaccination

Age	Type of vaccination
First week	O P V + Hepatitis B vaccine + B C G
2 months	O P V + (Hepatitis B vaccine + D T P+Hib)+RV
4 months	O P V +(D T P +Hib) + RV
6 months	O P V +(Hepatitis B vaccine + D T P+Hib) + RV
9 months	Measles vaccine
15 months	M M R
18 months	O P V + D T P

		4 – 6 years	O P V + D T P
44 45 46	**Feeding** Infant feeding method: breast or formula, if breast-fed; duration & any associated problem. For formula – fed infant; formula type, its dilution, any formula changes, feeding frequency, the amount taken at each feed. • for older infant ; age at introduction of solid foods , the current diet composition , problems like difficulty feeding , regurgitation or vomiting • Vitamin supplements are taken or not? Record the dose.		
47	**Development** • Smiling (4 – 6weeks) • First vocalization (12 weeks) • Head control (16 weeks) • Reach out & get objects (28 weeks) • Baby turn over (28 weeks) • Sit with support on the flour (28 weeks) • Sit up unsupported (40 weeks) • Single word with meaning (12 months) • Walk without help (15 months) • Feed self using cup with no help (15 months) • Sentences not in imitation (21 – 24 months) • Sphincter control by day (2 years) • Sphincter control by night (3 years) • Dress self apart from rear buttons & shoe laces (3 – 4 years)		
48	**Family history** Father & mother age, consanguinity & condition of health		

49 50	Sibling's ages & condition of health Asthma, eczema, hay fever, tuberculosis, cardiovascular disease & others
51 52	**Social history** **Parents:** - Father & mother occupation -Type of housing (overcrowded or not) - Extended family or single parent - Family – urban or rural **Child:** - Nursery - Preschool - School & progress
	After taking the history
53	Ask the parent if there is anything that he might add that you have forgotten to ask about
54	Thank the parent and child

The above checklist can be used when you are asked to take a detailed history from any patient in OSCE or long case examination.

ANSWER 2

Suggested checklist of a 14-month-old child with vomiting and diarrhea

1	Greet the mother and Introduce himself
2	Ask about age and residence?
3	Ask about frequency of bowel motion per day, amount, and character?
4	Ask if there is any blood in the stools?
5	Ask about associated fever, vomiting, or abdominal pain?
6	If the vomiting is bile-stained, consider obstruction?
7	Ask about similar condition in the family?
8	Ask about recent travel and drug history?
9	Ask about type of feeding?
10	Ask about previous attack and past medical history?
11	Ask about vaccination?
12	Thank the mother and tell her if she has any question
	D.D.
13	Food poisoning
14	Gastro-enteritis

ANSWER 3

Suggested checklist of a 1-year-old child with chronic cough

1	Greet the parents , child ,and Introduce himself
2	Check for vaccination (BCG, DTP, and Measles)?
3	Check for consanguinity?
4	Check for history of contact with T.B. or pertussis?
5	Check for history of foreign body inhalation?
6	Check for congenital heart disease?
7	Check for family history of asthma or atopy?
8	Check for past history of meconium ileus and chronic diarrhea?
9	Type of cough (nocturnal ,productive ,exercise induced , followed by a whoop)?
10	Ask about history of previous similar attacks?
11	Ask if the mother wants to add anything or has any question?
12	Thanks the mother
	INVESTIGATIONS
13	CXR
14	CBP
15	Sweat test

ANSWER 4

Suggested checklist of a 7-year-old child asthma exacerbation

1	Greet the father , child ,and Introduce himself
2	Ask about time of onset of attack?
3	Was it gradual or acute onset?
4	How has she been treated so far?
5	Has there been any relief?
6	Has she a history of severe asthma attacks/ hospital admissions?
7	How her asthma is normally managed?
8	Has there been any change in Noor's asthma medication or delivery device?
9	Does Noor have any other medical problems, such as a recent respiratory tract infection?
10	Does she have a cough?
11	If so, when does it occur? Nocturnal? Productive?
12	Is she short of breath on exertion?
13	Is she taking any new or other medications – including over-the-counter medication?
14	Has she been in contact with any triggers, e.g. pets, smoke or other known allergens?
15	Have there been any recent events in Noor's life that might have upset her?
16	Thanks the father

ANSWER 5

Suggested checklist of red flags of asthma in a 7-year-old girl

1	Cyanosis
2	Too breathless to talk or feed
3	Silent chest
4	Pulse rate above 120
5	Respiratory rate above 30
6	Oxygen saturation < 92%
7	Use of accessory muscles of respiration
8	Poor response to relief medication
9	Weak respiratory effort
10	Exhaustion
11	Confusion
12	Coma
13	Previous recent hospital admissions

ANSWER 6

Suggested checklist of a 2.5-year-old child with febrile seizure

1	Greet the mother and Introduce himself
2	Ask the attendant to recreate the seizure?
3	Did the attendant noticed the fever and for how long before the attack?
4	Ask about previous seizure?
5	Ask about family history of febrile seizure?
6	Ask about family history of epilepsy?
7	Ask about headache and photophobia?
8	Ask about diarrhea?
9	Ask about skin rash?
10	Ask if the seizure was focal or generalized?
11	Ask about duration of seizure?
12	Ask about developmental history?
13	Thanks the mother
	INVESTIGATIONS
14	Lumbar puncture
15	CBC
16	Blood sugar
17	Serum calcium

ANSWER 7

Suggested checklist of a 3-day-old neonate with seizure

1	Greet the mother and Introduce himself
2	Ask about history of difficult labor, i.e. prolonged, forceps (perinatal hypoxia, intracranial trauma)?
3	Ask about history of prolonged rupture of the membranes (sepsis)?
4	Ask about maternal history of drug abuse (drug withdrawal)?
5	Is there a family history of stillbirths or neonatal deaths (some inborn errors)?
6	Ask about poor feeding?
7	Is the baby irritable or drowsy?
8	Ask the mother to describe the fit?
9	Ask about a flare around the umbilicus with bad smell?
10	Ask about consanguinity?
11	Ask about family history of neonatal seizures?
12	Thanks the mother
	D.D.
13	Meningitis
14	Low serum levels of glucose, calcium, magnesium or sodium
15	Inborn errors of metabolism
16	Perinatal hypoxia/ischaemia, intracranial trauma or haemorrhage

ANSWER 8

Suggested checklist of an18-month-old child with a fever and rash

1	Greet the mother and Introduce himself
2	Ask about vaccination?
3	Ask about contact with childhood exanthems?
4	Does the child have a sore throat (pharyngitis), or red eyes (conjunctivitis)?
5	Is there any evidence of arthralgia?
6	Is there any evidence of swollen glands in the neck?
7	Ask about fever, high or low?
8	Does the child look mildly unwell, or miserable, toxic, and unwell-looking child?
9	Ask about cough?
10	Ask about desquamation of the skin round the nails, and peeling of the skin?
11	Ask about way of rash progress?
12	Ask about missed periods?
13	Is the rash itchy?
14	Thanks the mother
15	Next step for this worried mother is rubella serology?

ANSWER 9

Suggested checklist of a 6-year-old child with short stature

1	Greet the mother and Introduce himself
2	Has he always been short or small?
3	Is there any history of chronic illness? (e.g. celiac disease, heart or kidney disease)
4	Was he a product of normal birth and delivery? (ask about birth weight)
5	Was he born premature or growth restricted? (constitutional short stature)
6	What ethnic group is the family from? (ethnic differences in height)
7	How tall are his parents? (familial short stature)
8	What is the social background and family relationships? (emotional neglect or other forms of child abuse are causes of psychosocial short stature)
9	Is he falling behind his peers? (height falling off centiles as in growth hormone deficiency)
10	Thanks the mother
11	Single valuable available investigation is bone age

ANSWER 10

Suggested checklist of a7- year- old child with purpura and easy bruising

1	Greet the mother and Introduce himself
2	Ask about bleeding from other sites (mucus membrane)?
3	Ask about preceding ARI?
4	Ask about previous similar attack?
5	Ask about fever and mouth ulcers?
6	Ask about family history of same presentation?
7	Ask about consanguinity of parents?
8	Ask about associated café eu lait spots?
9	Ask about stature and skin color?
10	Ask about any bleeding after circumcision or tooth extraction?
11	Ask about associated eczema?
12	Thanks the mother
	INVESTIGATIONS
13	CBP
14	Factor Assay
15	Bone marrow study

ANSWER 11

Suggested checklist of a 2-year-old child with delayed speech

1	Greet the mother and Introduce himself
2	Ask about pregnancy?(congenital infections)
3	Ask about birth history? (birth asphyxia, sepsis)
4	Ask about early development including responses to sounds and voices?
5	Ask about infant illnesses, especially meningitis and recurrent ear infections? (e.g. otitis media)
6	Ask about exposure to ototoxic drugs? (e.g. gentamicin)
7	Is she socially responsive and does she attempt to copy sounds?
8	Ask about family history of deafness and/or language delay?
9	Enquire about potential psychosocial stresses within the family?
10	Is there a failure of comprehension; e.g. can she follow a command?
11	Is there a problem with the production of sounds?
12	Can her parents understand her?
13	Does she use non-verbal communication to demonstrate her needs?
14	Thanks the mother
	D.D.
15	Maturational language delay
16	Hearing impairment
17	Mental retardation
18	Psychosocial deprivation
19	Autism

ANSWER 12

Suggested checklist of newborn with cyanosis

1	Greet the mother and Introduce himself
2	Is the cyanosis central (of the lips and tongue) or peripheral (hands and feet)?
3	Does the infant get breathless on feeding?
4	Any respiratory distress?
5	Ask about hypothermia?
6	Ask if the infant ever looked pink?
7	Is there a family history of congenital heart disease?
8	Are there any other signs of systemic illness, e.g. poor feeding or rashes?
9	Are there any dysmorphic features, e.g. Down's syndrome? (associated with increased incidence of congenital heart lesions)
10	Thanks the mother
	D.D.
11	Cyanotic congenital heart disease
12	Respiratory causes
13	Metabolic causes
14	Hypothermia

ANSWER 13

Suggested checklist of an 8-year-old child with headache

1	Greet the mother and Introduce himself
2	Ask about aura of migraine like nausea, vomiting, pallor?
3	Ask about family history of migraine?
4	Ask about symptoms of raised intracranial pressure: worsening school progress, behavioral change, and early morning headaches?
5	Ask whether the headache is recurrent or progressive in nature?
6	Ask about hypertension?
7	Ask about signs and symptoms of sinusitis?
8	Ask about visual acuity and problems of vision?
9	Ask about history of school problems?
10	Thanks the mother
	Indications for C/T scan
11	Altered consciousness
12	Focal neurological signs
13	Papilloedema
14	Headaches worsening (e.g. waking at night)
15	Change in behavior or personality
16	Worsening school performance

ANSWER 14

Suggested checklist of a 6- month- old child with intestinal obstruction

1	Greet the mother and Introduce himself
2	Is it first attack and the baby was previously well?
3	What relieves the pain?
4	Ask about any vomiting and diarrhea?
5	What color are the stools? (i.e. is there blood present)
6	Ask about pallor or any recent viral infection?
7	Ask about testicular torsion (in boys)?
8	Ask about inguinal hernia?
9	Ask about dysurea and frequency?
10	Ask about trauma?
11	Thanks the mother
	D.D.
12	Acute intussusception
13	Acute infantile colic
14	Acute gastroenteritis
15	Testicular torsion (in boys)
16	Strangulated inguinal hernia
17	Other cause of intestinal obstruction
18	Urinary tract infection

ANSWER 15

Suggested checklist of an 8-year-old child with red urine

1	Greet the mother and Introduce himself
2	Ask about unexplained low-grade fever or dysurea? (Urinary tract infection)
3	Ask about history of sore throat in the previous 3 weeks?
4	Ask about reduced urine output, and peri-orbital oedema in the days preceding presentation?
5	Ask about history of trauma?
6	Ask about skin rash ?(Henoch–Schonlein purpura)
7	Ask about colicky loin pain ?(Renal calculi)
8	Ask about history of bloody diarrhea .pallor, and ecchymosis ?(Haemolytic uraemic syndrome)
9	Ask about history of sickle cell disease?
10	Ask about history of bleeding disorder?
11	Thanks the mother
	Clinical examination to be performed
12	Blood pressure
13	Examine the abdomen for tenderness and masses

ANSWER 16

Suggested checklist of a 3-week-old neonate with prolonged jaundice

1	Greet the mother and Introduce himself
2	Ask about feeding activity?
3	Ask about abdominal distension and umbilical hernia?
4	Ask about weight gain in more detail?
5	Ask about baby pyrexia?
6	Ask about excessively sleepy or lethargic neonate?
7	Ask about constipation?
8	Enquire about the color of urine and stool?
9	Is the urine smelly? (a fishy smell may occur with UTI)
10	Enquire about previous babies?
11	Enquire about family history of jaundice?
12	Thanks the mother
	INVESTIGATIONS
13	Liver function tests
14	TORCH screen
15	α-1- antitrypsin
16	Urine for Benedict and glucose
17	Radionucleotide excretion scan to assess biliary excretion

ANSWER 17

Suggested checklist of an 18-month-old child with bruising

1	Greet the mother and Introduce himself
2	Enquire about walking activity and frequency of falls?
3	Ask about painful swollen joints (haemarthroses)? which occur in coagulation disorders (e.g. haemophilia)
4	Ask about abdominal pain, painful joints, and preceding coryzal illness? (e.g. as in HSP)
5	Ask about lethargy, pallor, mucosal bleeding or other features of ill health? (e.g. as in leukaemia)
6	Take a social history and enquire about carers and family dynamics?
7	Does the history fit the pattern of bruising observed, and was appropriate medical attention sought?
8	Are the histories of different care-givers consistent?(if suspicious of NAI)
9	Are there any suspicious lesions which might suggest NAI? (e.g. slap or grip marks, burns or wheals, suspected fractures)
10	Is the bruising localized to the lower limbs (accidental bruising or HSP) or generalized (coagulopathy or leukaemia)?
11	Thanks the mother
	DIFFERENTIAL DIAGNOSES
12	Normal toddler bruising
13	Non-accidental injury (NAI)
14	Henoch–Schonlein purpura (HSP)
15	Clotting disorder (e.g. idiopathic thrombocytopaenic purpura, haemophilia)
16	Leukaemia (or other conditions causing thrombocytopaenia

ANSWER 18

Suggested checklist of an 8-year-old girl with iron poisoning

1	Greet the mother and Introduce himself
2	Ask about specific iron compound and the iron content of each tablet?
3	Ask about the maximum number of tablets in a full bottle, and how many are left?
4	Ask about number of tablets found on the floor, or in the children's clothing?
5	Have any of the children vomited since the ingestion?
6	Have any of the children had any other symptoms which may suggest iron toxicity, e.g. diarrhoea, abdominal pain or haematemesis?
7	Ask about drowsiness, convulsions?
8	Check the body weight of each child ?(so maximum dose per kilogram can be established)
	The minimum toxic dose of iron in children is estimated to be anywhere from 20 to 60 mg/kg
9	Thanks the mother
	I**NVESTIGATIONS**
10	Plain abdominal X-ray
11	Serum iron level
12	Blood glucose
13	Plasma electrolytes, including chloride and bicarbonate (for anion gap)
14	Full blood count

ANSWER 19

Suggested checklist of a 6-year-old child with ADHD

1	Greet the mother and Introduce himself
2	Can he maintain attention or easily distracted?
3	Can he follow instructions?
4	Does he complete a task or easily moves from one incomplete task to the next?
5	Is his physical activity appropriate to the situation?
6	Can he sit quiet easily?
7	Ask about excessive fidgeting and talking?
8	Ask about social skills, e.g. turn-taking?
9	Ask about family history of hyperactivity?
10	Ask about early childhood stresses such as abuse or hospitalization?
11	Ask about ear nose and throat problems?
12	Thanks the mother
	DIFFERENTIAL DIAGNOSES
13	Attention deficit hyperactivity disorder (ADHD)
14	Normal, but very active child
15	Specific learning disability
16	Hearing or visual problem
17	Autistic spectrum disorder

ANSWER 20

Suggested checklist of a 3-year-old child with ASD

1	Greet the mother and Introduce himself
2	Can he make eye contact?
3	Does he come for comfort when hurt or upset?
4	Does he have marked routines or rituals, which produce violent temper tantrums if disrupted?
5	Does he have unusual motor features (e.g. flapping hands, walking on tiptoe)
6	Does he have fears or phobias?
7	Does he have sleeping and eating disturbances?
8	Does he have self-injury and abnormal sensory responses (e.g. highly sensitive to noise)?
9	Ask about history of hearing or visual impairment?
10	Thanks the mother
	DIFFERENTIAL DIAGNOSES
11	Pervasive developmental disorder (autism)
12	Hearing or visual impairment
13	Learning disability
14	Physical or sexual abuse

PART 3

The communication skills station

This section of the exam is intended to look at how you communicate in your everyday clinical practice and has been designed to mimic that closely. Remember it is not enough just to be a good listener, your job is to address patient's and their family's concerns appropriately and to provide them with reliable information about the child's condition and the management plan. This requires a broad knowledge of common pediatric conditions.
You are being marked in three areas:
1. Conduct of interview
2. Appropriate explanation and negotiation
3. Accuracy of information given

The patterns of communication scenario described could be
1. Information giving
2. Breaking bad news
3. Consent
4. Critical incident
5. Ethics
6. Education

The scenarios are realistic and commonly seen in everyday clinical practice.
Make a shortlist of conditions that you plan to know in details.
No conditions should be considered too serious or too trivial to come up in the exam.

COMMUNICATION SKILLS OSCE STATIONS

QUESTION 1

Ali has been presented with limping and pallor for the last 2 weeks. His CBC had shown marked thrombocytopenia 22000/cmm, marked elevation of WBC 47000/cmm, and low Hb 7g/dl,
blood film had shown many blast cells.
Yesterday, after consent, bone marrow aspiration was done. This morning, the result came with the diagnosis of leukemia.
Ali's father is upset because no one talks to him until now about the diagnosis.
The doctors are planning to transfer Ali to the tertiary center of pediatric oncology.

Task

Identify Ali's father current concerns about Ali's clinical condition and your future plan of management and prognosis?

QUESTION 2

Zahraa, a young mother tells you, my child has a rash and I am pregnant. What if it is German measles?

Task

Convince the mother and alleviate her worry.
Discuss the problem with mother and tell her your suggestions.

QUESTION 3

Karar was born at term after an uncomplicated pregnancy to a prime mother .Routine newborn examination revealed a cardiac murmur. Echo scan confirmed small muscular VSD .The mother is upset about the diagnosis, and also about the fact that this was not picked up on the antenatal scans. Karar's mother is asking to speak to someone. You are the resident on call.

Task

Explain to the mother the diagnosis and the planned management.

QUESTION 4

A young mother tells you. My infant child has had his first febrile convulsion, what does it mean?

Task

Counsel the mother about the disease and its management.

QUESTION 5

A young mother tells you .My toddler keeps having frightening breathholding attacks.

Task

Counsel the mother about the disease and its management.

QUESTION 6

A young mother consults you saying, my baby vomits after feeds, I am changing clothes all the time, what should I do?

Task

Counsel the mother about the problem and its management.

QUESTION 7

My child cries all the time with colic, she is 45 days old, her birth weight was 3 Kg and now she is 4.3 Kg, what shall I do?

Task

Convince the mother and alleviate her worry.

Answer the mother questions.

QUESTION 8

My baby is always wheezy with a cough and cold. Does this mean she has asthma?

Task

Alleviate the mother's worry.

Answer her questions

QUESTION 9

Ali brought his 7-year-old child saying, why is my child overweight? Ali is asking to speak to someone. You are the resident on call.

Task

Explain to the father the size of the problem and the planned management.

QUESTION 10

A young, anxious, and worried mother telling you, my newborn baby has been diagnosed with Down's syndrome.

Task

Alleviate the mother worry and explain to her what does Down's syndrome mean for her?

QUESTION 11

Hawraa, an 8 months old female with history of frequent bowel motion for 2 days associated with 1 attack of vomiting; on examination the patient has some dehydration.

Task

Explain to the mother, her child's condition and its management.

QUESTION 12

A young mother telling you, all my friends are advising me not to give my child MMR vaccine.

Task

Convince the mother, alleviate her worry, and answer her questions.

QUESTION 13

A teacher consult you seeing, my son has been diagnosed with cystic fibrosis, what does this mean for him?

Task

Explain to him everything you know about cystic fibrosis and answer his questions.

QUESTION 14

An 11-year-old boy has recurrent headaches which are throbbing, over his left eye, and are associated with a visual aura. They are worsening in severity and frequency, but his school progress is good. His mother gets migraines that respond to treatment. Clinical assessment suggests that the boy also has migraine.

The mother and the child require verbal and written information about migraine.

Task

Arrange and introduce these informations for them.

QUESTION 15

A pharmacist tells you, my 7-year-old son keeps getting tummy ache on the way to school.

Task

Discuss the problem of recurrent abdominal pain and answer her questions.

QUESTION 16

An anxious mother telling you, my 10-year-old daughter is constipated, and this is very distressing. Can you give her something?

Task

Discuss the problem of constipation and its remedy.

QUESTION 17

A young mother brought her 3-week-old baby, who is still jaundiced? The baby is well, afebrile and breast feeding well with

good weight gain. Examination is normal and the stool and urine are normal colour. The serum bilirubin is all unconjugated.

Task

Discuss the problem with the mother and alleviate her worry.

QUESTION 18

A young mother telling you. I am worried that there has been a case of meningococcal disease at my child's school. Please could you tell me about meningococcal disease and the symptoms, including looking for skin rashes?

Task

Discuss the problem with her and answer all her questions.

QUESTION 19

An old mother brought her young daughter saying. My 14-year-old daughter has deliberately taken a paracetamol overdose. What treatment does she need?

Task

Discuss with mother the problem of deliberate paracetamol overdose ingestion and what is your advice to prevent this in the future?

QUESTION 20

A father consults you about his 9-year-old boy who wets his bed. It seems that this boy has always wet his bed at night. His bowel habit is normal, and he is otherwise in good health. His father wet the bed until he was quite old. The physical examination, including abdominal, spine, lower limb neurology and urinalysis, is normal.

Task

Discuss the problem with them and suggest your options of management.

COMMUNICATION SKILLS OSCE STATIONS

ANSWER 1

Suggested communication skill checklist of an 8-year-old child with leukemia

1	Introduced himself friendly and greet the father and child
2	Explained the purpose of the clinical setting
3	Maintained good eye contact
4	Showed sympathy &empathy to the situation
5	Listened attentively
6	Asked for background information (Address and education level of the father)
7	Revised with the father the results of the investigations & bone marrow aspiration
8	Tried to explain the diagnosis to the father & simplify it in an easy understandable way
9	Asked the father if he had any background information about the disease
10	Explained to the father that the disease is not untreatable depending on its type, compliance & attachment to doctor advice, and patience
11	Tried to explain the plane of treatment in simplified brief way (type of treatment, duration, prognosis…)
12	There is a need for the use of blood and blood products at different time of treatment
13	Explained the complications of the disease if not treated
14	Explained the complications of the treatment
15	Asked the father if there is any question or any subject to be discussed
16	Ability to convince the father and ends the consultation nicely

ANSWER 2

Suggested communication skill checklist of pregnant mother in contact with suspected German measles

1	Introduced himself friendly and greet the mother
2	Maintained good eye contact
3	Showed sympathy &empathy to the situation
4	Listened attentively
5	Asked for background information (education level of the mother and immunization status of the child and mother)
6	Rubella is a rare childhood exanthema in Iraq due to uptake of the MMR vaccine
7	The child is likely to have a rash from some other infection if he has been immunized
8	Take blood from mother and child for rubella serology if the vaccination status is unknown
9	Asked about gestational age of fetus
10	If the child has rubella infection and the mother is non-immune, the highest risk to the fetus is in the first trimester
11	Asked the mother if there is any question or any subject to be discussed
12	Ability to convinces the mother and ends the consultation nicely

ANSWER 3

Suggested communication skill checklist of mother with cardiac murmur in her son

1	Introduced himself friendly and greet the mother
2	Maintained good eye contact
3	Listened attentively
4	Explain the diagnosis of hole in heart with diagrams
5	Hole in heart is the commonest heart problem in newborn
6	Karar remains well, no treatment is required now, and it may close spontaneously
7	Antenatal scan can't detect a small hole in the heart
8	She can take Karar home and care for him like any other baby
9	Advise them to contact a doctor if he has any difficulty at home with feeding ,breathing, color change etc
10	Ascertain the parent's understanding
11	Asked the mother if there is any question or any subject to be discussed
12	Ability to convinces the mother and ends the consultation nicely

ANSWER 4

Suggested communication skill checklist of first simple febrile seizure

1	Introduced himself friendly and greet the mother
2	Maintained good eye contact
3	Listened attentively
4	Explain that febrile convulsions are common, and affect about 3 per cent of all children
5	The commonest ages to be affected are between 6 months and 6 years
6	The convulsions are usually brief, lasting under 15 minutes, and generalized tonic–clonic
7	The precipitant is commonly a viral upper respiratory tract infection
8	Febrile convulsions often run in families
9	In about 15 per cent of cases, another febrile convulsion will occur during the same episode of illness
10	The risk of a further febrile convulsion with another illness is about 30 per cent
11	The risk for epilepsy after febrile convulsion is only about 2–4 percent.
12	The immediate management is to reduce the temperature, e.g. anti-pyretic medication (paracetamol) and tepid sponging
13	Do not place anything in your child's mouth
14	Call an ambulance if; the convulsion is atypical (i.e.prolonged more than 15 minutes), one-sided, your child has a rash
15	Asked the mother if there is any question or any subject to be discussed
16	Ability to convinces the mother and ends the consultation nicely

ANSWER 5

Suggested communication skill checklist of a toddler with frightening breathholding attacks

1	Introduced himself friendly and greet the mother
2	Maintained good eye contact
3	Listened attentively
4	Explain that blue breath-holding attacks are common and benign
5	They can be set off by crying, upset, pain
6	Your child may go blue and lose consciousness, but will rapidly recover
7	No drug treatment is necessary, although these episodes have been linked to iron deficiency and it would be worth checking your child Hb
8	Attacks will resolve by themselves
9	Behaviour modification therapy with avoidance of confrontation may help
10	Asked the mother if there is any question or any subject to be discussed
11	Ability to convinces the mother and ends the consultation nicely

ANSWER 6

Suggested communication skill checklist of a baby with gastresophageal reflux

1	Introduced himself friendly and greet the mother
2	Maintained good eye contact
3	Listened attentively
4	Explain that Gastro-oesophageal reflux is common, and usually harmless
5	It involves lots of washing and makes the house smell
6	It happens when food in the stomach gets pushed back up the gullet, due to immaturity of the muscle at the base of the gullet that should stop this reflux
7	The acid that comes up with the food may irritate the baby and cause discomfort
8	Simple measures may help: nurse the baby upright or at 30 degrees after feeds
9	Try adding a proprietary thickener to bottle feeds
10	If necessary, there are drugs that will help
11	Please let me know if there is blood in the refluxed milk
12	If it persists, further investigation and treatment may be necessary
13	Asked the mother if there is any question or any subject to be discussed
14	Ability to convinces the mother and ends the consultation nicely

ANSWER 7

Suggested communication skill checklist of an infant with colic

1	Greeting the mother and introducing him/her self
2	Gives the mother a chance to explain her point of view and concerns and justify them
3	Colic is very common in infancy, and consists of paroxysmal, inconsolable crying or screaming together with drawing up of the knees
4	This can occur several times a day, but it is more common in the evening
5	Colic affects almost all babies at some point
6	The cause is unknown, but is benign, and it is not associated with other disease
7	Colic is completely harmless and goes away by itself, usually by the age of 3 months
8	Proprietary remedies may help some, but not all babies
9	Management is by swaddling the child up for comfort, and cuddling
10	If you just can't cope any longer, please seek help from family and friends, or your health visitor or GP
11	Uses listening techniques and verbal & non verbal technique to express concern & understanding
12	Ability to convinces the mother and ends the consultation nicely

ANSWER 8

Suggested communication skill checklist of a child with cough and wheezy chest

1	Greeting the mother and introducing him/her self
2	Gives the mother a chance to explain her point of view and concerns and justify them
3	Shows understanding of the patients point of view and extent of her suffering
4	Wheezing during the first few years of life is very common
5	As long as the baby remains centrally pink and continues to feed well, this will be a self-limiting problem and no specific treatment is necessary
6	Some babies with more severe wheeze may benefit from treatment with inhaled bronchodilator therapy
7	Wheezing in infancy is very common, and about 50 per cent will experience some wheezing, particularly after viral respiratory infections
8	Not all of these wheezy infants will develop asthma, and two-thirds of children who have wheeze less than 3 years of age will be wheeze-free at 9 years
9	Ability to convinces the mother and ends the consultation nicely
10	Ready to explain and answer any question

ANSWER 9

Suggested communication skill checklist of a 7-year overweight child

1	Greeting the father and introducing him/her self
2	Maintained good eye contact
3	Gives the father a chance to explain his point of view and concerns
4	Take short history to see if there is any indication of pathology such as, tiredness and lethargy in hypothyroidism, growth failure in Cushing's syndrome
5	Look at the phenotype of the parents (are the parents overweight)
6	Enquire about diet and exercise
7	Ask about fat distribution (uniform in exogenous obesity)
8	Ask about abdominal striae and acanthosis nigricans
9	Tell the father that the most likely diagnosis is exogenous obesity
10	Exogenous obesity frequently induces more rapid growth
11	The father needs to be reassured that there is no underlying pathology
12	Explain that weight is determined by the balance of calorie intake and energy expenditure
13	Give dietary advice to reduce the fat content in the diet, reduce salt and increase fibre
14	Give exercise advice and suggest 30 minutes of exercise that makes the child breathless, every day
15	Set realistic targets for weight, and give positive encouragement
16	Ready to explain and answer any question

ANSWER 10

Suggested communication skill checklist of a mother who gave birth to a newborn with Down syndrome

1	Introduced himself friendly and greeting the mother
2	Maintained good eye contact
3	Showed sympathy &empathy to the situation
4	Listened attentively
5	Down's syndrome (DS, Trisomy 21) is the commonest chromosomal abnormality
6	Individuals with DS have an extra chromosome 21. This happened at some stage prior to fertilization. Although it is more common in older mothers, the precise cause is not known
7	Sometimes not all of the cells have an extra chromosome; this is called mosaicism
8	DS is not preventable, but there are tests that can be done during pregnancy
9	Individuals with DS have certain physical characteristics which are usually recognizable at birth. These include: characteristic facies (upslanting eyes, wide palpebral fissure, prominent tongue); hypotonia; flattened occiput; single palmar creases, curved fifth finger, wide space between first and second toes (sandal gap); white spots on the iris (Brushfield spots)
10	Associated with a degree of developmental delay (although most milestones are reached eventually)
11	Mild to moderate learning difficulties (IQ variable, but usually > 80)
12	Early feeding difficulties may be encountered
13	There is an increased incidence of congenital anomalies

	(particularly cardiac lesions and duodenal atresia)
14	Life expectancy is reduced (particularly if there are associated congenital anomalies), but people with DS can now live into their fifties
15	Asked the mother if there is any question or any subject to be discussed
16	Ability to convinces the mother and ends the consultation nicely

ANSWER 11

Suggested communication skill checklist of an infant with diarrhea and some dehydration

1	Introduce himself and greet the mother
2	Eye contact with the mother
3	Explain that based on history and examination the child has lost fluid and salt from body and she have some dehydration
4	Explain that the condition is not dangerous if treated correctly and your cooperation is very important
5	The main line of treatment is ORS
6	Explain to the mother how ORS prepared and should given by spoon not by bottle
7	Not used after 24 hour , and should prepare other packet
8	Ask the mother to repeat information and if she have any question
9	Should avoid tea and cola
10	No need for antibiotics
11	Indication of antibiotics
12	Mention to the mother the danger sign and symptom
13	Ask if there is any question
14	Give her telephone number if she need any help
15	Thank her

ANSWER 12

Suggested communication skill checklist of a mother refuses giving MMR vaccine to her baby

1	Introduced himself friendly and greet the mother
2	Maintained good eye contact
3	Measles infection is a childhood killer and a cause of considerable mortality (1 in 1000 under 1 year of age)
4	It is also responsible for a rare fatal, degenerative disease, subacute sclerosing panencephalitis (SSPE)
5	MMR is part of the IRAQ immunization schedule
6	Measles vaccination rarely causes complications, including death in about 1 per million cases
7	Recently, concern has been expressed regarding a possible association between MMR vaccination and autism in children. Several large-scale epidemiological studies have found no evidence for such an association
8	There is no documented risk of developing autism due to MMR vaccination
8	Some parts of the world where the vaccination rate has fallen below 70 per cent are facing a measles epidemic
10	Ask if there is any question
11	Give telephone number for any consultation or help
12	Thank the mother

ANSWER 13

Suggested communication skill checklist of a child with cystic fibrosis

1	Introduced himself friendly and greet the father
2	Maintained good eye contact
3	Cystic fibrosis (CF) primarily affects the lungs and the digestive system
4	When a person has CF there is a problem with the movement of salt across the lining of certain important cells in the lungs, pancreas and reproductive system. This causes a build up of thick, sticky mucus which can block the tubes in these parts of the body
5	The consequence of this build up of mucus is that the small airways of the lungs can become blocked; this makes breathing difficult and the lungs more susceptible to infection. The blockage in the pancreas means that important enzymes, which are necessary to digest fats, cannot get into the intestines and so fats in the diet are poorly absorbed
6	Common symptoms include poor growth ; fatty stools; cough, wheeze ; chronic chest infections ; difficulty passing stool from birth; and sterility
7	There is no cure for this condition
8	The mainstay of treatment is chest physiotherapy ,regular antibiotics, and enzyme supplements
9	CF is an inherited condition. Both parents are 'carriers' for the disease. There is a one in four risk of this occurring with each pregnancy
10	Ask if there is any question
11	Give telephone number for any consultation or help
12	Thank the father

ANSWER 14

Suggested communication skill checklist of a young boy with migraine

1	Introduced himself friendly and greet the mother and the boy
2	Maintained good eye contact
3	Discuss how their symptoms fit the diagnosis of migraine
4	Alleviate their fear of brain tumor, your careful and thorough assessment has excluded this, and provided the reasons why
5	The cause of migraine is not known
6	Consider triggers as important factors ▪ diet (e.g. chocolate, cheese) ▪ environment (e.g. smoke, bright lights) ▪ medication (e.g. the pill) ▪ hormones (e.g. menstruation, anxiety)
7	Prompt treatment of early symptoms with an analgesic such as paracetamol, which may be combined with an antiemetic
8	Discuss prophylaxis (reduced frequency of headaches)
9	Discuss biobehavioral evaluation and therapy as essential effective migraine management
10	Indication of preventive therapy and the duration of treatment
11	Ask if there is any question
12	Give telephone number for any consultation or help
13	Thank them

ANSWER 15

Suggested communication skill checklist of a 7-year- old child with recurrent abdominal pain

1	Introduced himself friendly and greet the mother
2	Maintained good eye contact
3	Recurrent abdominal pain occurs in at least 10 per cent of school-age children
4	Less than 10 per cent of affected children will have a definable organic cause. In 90 per cent the cause is functional abdominal pain
5	Functional abdominal pain is characteristically peri-umbilical, worse on waking, associated with a family history of abdominal pain or migraine, and not accompanied by any other features of ill health
6	It is important that a full history and examination are performed to exclude other causes, such as threadworms or constipation
7	It may be helpful to explain the pain to the child and parent as 'the intestine becoming so sensitive that it is as if the child can feel the food going round the bends'
8	About half of affected children have a rapid resolution of their symptoms, following referral
9	About one-quarter resolve gradually
10	About one-quarter go on to develop irritable bowel syndrome as adults
11	No medical treatment is required
12	Ask if there is any question
13	Give telephone number for any consultation or help
14	Thank the mother

ANSWER 16

Suggested communication skill checklist of a 10-year-old girl with constipation

1	Introduced himself friendly and greet the mother
2	Maintained good eye contact
3	Constipation is the infrequent painful passage of hard stools
4	It is common in children, and is sometimes precipitated by a superficial perianal tear
5	Sometimes it is exacerbated by stress, and children may withhold stool for fear of the associated pain. The rectum then becomes full and distended and the sensation of needing to defecate is lost. Involuntary soiling usually follows as the full rectum overflows
6	Examination may reveal an abdominal mass which is indentable
7	It is important to explain to the child and parents that constipation is common, soiling is involuntary, and recovery of normal bowel habit takes as long as the constipation took to develop
8	Mild cases of constipation may respond to mild laxatives (e.g. lactulose) and extra fluids
9	In more severe cases, treatment begins with stool softeners for 2–3 weeks (e.g. docusate), followed by large doses of powerful oral laxatives (picosulphate or senna) until the stools are liquid
10	Relapse is common, and positive encouragement by the child's family and doctor are essential
11	Ask if there is any question
12	Give telephone number for any consultation or help
13	Thank the mother

ANSWER 17

Suggested communication skill checklist of a 3-week-old newborn with prolonged neonatal jaundice

1	Introduced himself friendly and greet the mother
2	Maintained good eye contact
3	The commonest cause for prolonged jaundice is breast milk jaundice
4	There is no specific test that we can do to confirm this, so we need to consider other important causes
5	Bilirubin forms bile which is normally broken down in the intestines, and it is this that make stools a yellow color
6	The combination of pale stools (like putty) and dark urine should alert us that there is a problem(biliary atresia)
7	It is important that this condition is treated as soon as possible before irreversible damage occurs in the liver
8	That your baby's stools and urine are normal color and the bilirubin (unconjugated) is very reassuring
9	Sometimes an infection (particularly of the urine) can cause jaundice. The fact that your baby is well, does not have a fever, is feeding well and thriving makes this unlikely
10	By far the most likely cause is jaundice from breast milk. This is common, harmless and needs no treatment. It usually resolves in 2–3 weeks
11	There is no need to stop breast feeding to confirm the diagnosis. This will only deprive your baby of the important nutrients and substances which improve immunity that breast milk contains
12	Ask if there is any question
13	Give telephone number for any consultation or help
14	Thank the mother

ANSWER 18

Suggested communication skill checklist of a child was in contact with meningococcemia

1	Introduced himself friendly and greet the mother
2	Maintained good eye contact
3	Meningococcal disease is a serious infection caused by certain bacteria which may cause (septicaemia) or inflammation of the lining of the brain and spinal cord (meningitis)
4	Neisseria meningitidis (meningococci) is the bacterium responsible. It is found in the noses and throats of 5–10 percent of the population, but rarely causes serious disease unless it enters the bloodstream or spinal fluid
5	Meningococci can spread among people through the exchange of saliva and other respiratory secretions during activities such as coughing and kissing
6	Common symptoms of meningococcal disease include high temperature, headache, drowsiness and vomiting. A stiff neck can occur with the meningitis
7	Unusual rash occurs with the septicaemia. Typically, this rash is dark red and does not blanch when pressure is applied
8	If these symptoms occur – or if you are in any doubt at all – it is very important that medical advice is sought urgently, because if the disease has developed it is very important to administer antibiotics directly into a vein or a muscle
9	Close contacts and people in the same house should be given antibiotics to prevent this occurring (antibiotic prophylaxis). These antibiotics can be taken by mouth
10	Ask if there is any question
11	Give telephone number for any consultation or help
12	Thank the mother

ANSWER 19

Suggested communication skill checklist of a14-year-old girl with paracetamol overdose intake

1	Introduced himself friendly and greet the mother and patient
2	Maintained good eye contact
3	The risk from paracetamol overdose occurs as a result of hepatotoxicity
4	If a significant quantity has been ingested, then treatment with intravenous N-acetylcysteine is warranted
5	Deliberate poison ingestion is a common presentation in older children, and can often be in response to precipitating factor
6	Individuals who attempt to self harm have a much greater risk of psychiatric illness, and are therefore at risk of repeating the attempt
7	In view of this, all patients taking a deliberate overdose should undergo social, psychological and/or psychiatric assessment prior to discharge
8	This assessment can offer an opportunity for difficulties between adolescents and parents to be discussed
9	Ask if there is any question
10	Give telephone number for any consultation or help
11	Thank the mother

ANSWER 20

Suggested communication skill checklist of a 9-year–old boy with nocturnal enuresis

1	Introduced himself friendly and greet the father and patient
2	Maintained good eye contact
3	Bedwetting is common at this age; 3 per cent of normal 10-year-olds wet the bed once a week, or more
4	There is often a family history of bedwetting
5	Usually, children who wet the bed do not have physical or emotional problems
6	Bedwetting can become a problem for many children and their families, particularly once children go to junior school
7	Bedwetting happens during a type of sleep in which sleep-walking and sleep-talking occur in younger children
8	Because it happens during sleep, the child has no conscious control over it
9	Reassure your child, especially if they are upset
10	Try absorbent pads. The pads go under the bottom sheet to keep the bed drier and more comfortable
11	Encourage your son to shower before he goes to school. The smell of urine is very strong and can hang around
12	Establish a suitable reward systems (e.g. star charts) and a reward after a preset number of stars have been earned
13	Certain medications may help, but the problem often occurs again when the medications finish
14	Most children grow out of the problem, even without treatment
15	Ask if there is any question
16	Give telephone number for any consultation or help
17	Thank the father and the patient

PART 4
Clinical stations

Preparation and technique are intertwined. The well-prepared candidate will give themselves many opportunities to pick up marks, just as the poorly prepared candidate will inevitably drop marks. In particular if your examination technique is poor you will fail.

Three key areas are usually assessed:

- **Conduct of examination** - Introduce oneself, puts parent and child at ease. Displays an appropriate level of confidence. Appropriate pace without rushing. Acknowledge child fully and explain intended examination if deemed appropriate. Adjusts language and behavior to suit age of child.
- **Clinical examination** - Systemic and uncluttered technique. Able to identify clinical signs and interpret their meaning.
- **Discussion with examiners** – Sensible differential diagnosis. Able to suggest a sensible management plan, including investigations. Demonstrate an understanding of impact of findings on patient and family unit.

It is essential to be completely clear about how to examine any system. Decide on your own method, learn it and practice it. Use this method throughout the preparation period when seeing short cases. Try not to change your approach in the run up to the exam.
Remember there is no definitive way to examine any system; you need to find your own scheme. Whichever scheme you use, remember that the examiner is unlikely to tolerate imprecise or

clumsy clinical examination and this should be avoidable with proper preparation.
Remember that confidence in the exam comes from knowing that your examination technique is not only correct but it is also reproducible in a highly stressful environment. This comes from relentless practice of examination and presentation in the company of several different examiners. It is important to be mock-examined by a range of colleagues, some whom you know and some of whom you don't. This reflects the different examiners who will soon be assessing you in the clinical stations with no prior knowledge of your performance in a previous station, or indeed your performance in the work place.

During the examination itself there are many pitfalls:

- Poor engagement with the child. Including failure to look at a child to judge whether you may be eliciting pain.
- Failure to talk your way through an examination when it has been requested/is appropriate
- Lack of conviction in your findings, enabling an examiner to place doubt in your mind throw you off balance. For example, a candidate was asked to examine an abdomen with bilateral masses and then asked to present her findings. She presented the patient as having an enlarged spleen and liver. The examiner was able to change the candidate's mind twice as to whether the masses were kidneys or liver and spleen in the subsequent discussion.
- Stopping the examination when you have identified the organ in question. For example, there is a set routine for examining an enlarged liver you must continue with your examination until you are stopped.
- Excluding a clear physical sign if you feel it does not fit in with other signs.

BASIC FORMAT FOR CLINICAL EXAMINATION

- Introduce yourself to the child and parent
- Be prepared to talk about your findings as you proceed
- Observe and be prepared to comment on:
- General appearance and health – well or unwell? Ward patients are occasionally used
- Dysmorphic features – syndromic or otherwise
- Growth and nutrition – note obvious abnormalities. You may be asked to assess pubertal status
- Development – neurodevelopment abnormalities may be noted during examination of other systems
- Hands – color, clubbing, nail abnormalities, poor perfusion
- Face – cyanosis, anemia, jaundice
- General observations such as presence of a nasogastric tube
- Palpate
- Auscultate
- Ask for permission to examine any other relevant part of the body
- Describe your findings
- Answer questions about your findings until the bell rings for the end of the station

CARDIOVASCULAR SYSTEM STATION

Suggested Check list for cardiovascular system examination

	Before starting
1	Introduce yourself **AND** greet the child and parent
2	Explain the examination and ask for consent to carry it out
3	Wash hands thoroughly and dry them
4	Stand by the right side of the patient
	General inspection
5	inspect the child carefully, looking for any obvious abnormalities in his general appearance
6	Is he breathless or cyanosed
7	Inspect the precordium and the chest for any scars and pulsations
	Inspection and examination of the hands
	Take both hands and assess them for:
8	Color and temperature
9	Clubbing
10	Nail signs
11	Determine the rate, rhythm, and character of both radial pulses and femoral pulses
12	Record the blood pressure in both arms
	Inspection and examination of the head and neck
13	Inspect the conjunctiva for signs of anemia
14	Inspect the mouth and tongue for signs of central cyanosis
15	Assess the jugular venous pressure (difficult in very young infants)
16	Locate the carotid pulse and assess its character
	Palpation of the heart
17	Determine the location and character of the apex beat
18	Palpate the precordium for thrills and heaves

	Auscultation of the heart
19	listen for heart sounds, additional sounds, and murmurs in The aortic area The pulmonary area The tricuspid area The mitral area
20	Any murmur heard must be classified according to: Timing Grading Site Radiation
21	Ask the patient to sit Expose the back Auscultate between the scapula Auscultate the bases of the lungs and check for sacral edema
22	Palpate the abdomen to exclude ascitis and/or an enlarged liver
23	Cover the child and thank the child and parent

Don't suggest the pulse character is abnormal unless it is very obviously abnormal. If you are unsure, it is less likely to be significant and you should move on

As a rough guide a systolic blood pressure should be no more than 90 plus double the child's age

RESPIRATORY SYSTEM STATION

Suggested Check list for respiratory system examination

	Before starting
1	Introduce yourself **AND** greet the child and parent
2	Explain the examination and ask for consent to carry it out
3	Wash hands thoroughly and dry them
4	Stand by the right side of the patient
	General examination
5	Conscious state
6	Dyspneic or not
7	Cyanosed or not
8	Examine for clubbing and capillary refill
9	Expose the chest well. Examine the chest wall from front, sides and from foot end
10 11 12	Comment on: Symmetry of the chest wall Respiratory rate Contraction of accessory muscles of respiration
13	Palpate the trachea if central or not
14	Localize the apex beat
15	Assess for chest expansion
16	Assess for vocal fremitus (always compare both sides and axilla)
17	Percussion (always compare both sides and axilla)
18	Auscultation (always compare both sides and axilla)
19	Assess for vocal resonance (always compare both sides and axilla)
20	Examine for liver span
	Ask the patient to sit

21 22 23	Expose the back Always compare both sides Comment on : Symmetry of the chest wall Deformity of the spine (kyphosis, lordosis or scoliosis)
24	Assess for chest expansion
25	Assess for vocal fremitus (always compare both sides and axilla)
26	Percussion (always compare both sides and axilla)
27	Auscultation (always compare both sides and axilla)
28	Assess for vocal resonance (always compare both sides and axilla)
29	Examine ear and throat
30	Cover the back and thanks the patient

Signs of respiratory distress

Severe signs in bold are very unlikely to be seen in the exam situation but you may be asked about them:

Audible wheeze
Tachypnoea
Tachycardia
Nasal flaring
Intercostal/subcostal/sterna recession
Tracheal tug
Abdominal respiration/see-sawing of abdomen
Drowsiness and confusion
Cyanosis

Hyperexpanded chest plus clubbing implies cystic fibrosis or other chronic suppurative lung disease
Hyperexpanded chest without clubbing implies asthma or bronchopulmonary dysplasia

GASTROINTESTINAL SYSTEM STATION

Suggested Check list for gastointestinal system examination

1	**Before starting** Introduce yourself **AND** greet the child and parent
2	Explain the examination and ask for consent to carry it out
3	Wash hands thoroughly and dry them
4	Position the child so that he is lying flat and expose his abdomen as much as possible
5	Stand by the right side of the patient (unless you are left handed)
6	**General inspection** Inspect the abdomen noting any: • Distension ,umbilicus, and pulsations •Localized masses •Scars and distended veins •Any bulge elicited by flexion of the trunk
7	**Inspection and examination of the hands for** Clubbing Koilonychia Palmar erythema Pulse (at least 15 seconds)
8	**Inspection and examination of the head, neck, and upper body** Inspect the sclera and conjunctivae for signs of jaundice or anemia Inspect the mouth, looking for ulcers ((Crohn's disease), angular stomatitis (nutritional deficiency), atrophic glossitis (iron deficiency, vitamin B_{12} deficiency, folate deficiency), furring of the tongue (loss of appetite), and the state of the dentition

	Examine the neck for lymphadenopathy.
9	**Palpation of the abdomen** Ask the child if he has any tummy pain and keep your eyes on his face as you begin palpating his abdomen. **Light palpation** - begin by palpating furthest from the area of pain or discomfort and systematically palpate in the four quadrants and the umbilical area. Look for tenderness, guarding, and any masses **Deep palpation** - for greater precision. Describe and localize any masses.
10	**Palpation of the organs** **Liver**- starting in the right lower quadrant, feel for the liver edge(regular or irregular)using the flat of your hand, surface (smooth or nodular) , texture (firm or hand) , and tenderness
11	**Spleen** - palpate for the spleen as for the liver, starting in the right lower quadrant
12	**Kidneys** - position the child close to the edge of the bed and ballot each kidney using the technique of deep bimanual palpation
13	**Percussion** Percuss the liver area. also remembering to detect its upper border Percuss the suprapubic area for dullness (bladder distension) If the abdomen is distended, test for shifting dullness (ascites)
14	**Auscultation** Auscultate in the mid-abdomen for abdominal sounds. listen for 30 seconds at least before concluding that they are hyperactive, hypoactive or absent
15	**Examination of the groins and genitalia** Inspect the groins for hernias and, in boys, examine the testes (this is particularly important in younger infants)
16	Cover the abdomen and thank the patient

COMMON EXAM QUESTIONS

- How you differentiate between a liver, spleen, and kidney?
- Why is it a liver?
- Why is it a spleen?

Liver

- Right hypochondrium
- Cannot get above it
- Moves with respiration
- Dull to percussion

Spleen

- Left hypochondrium
- Cannot get above it
- Moves with respiration
- Dull to percussion
- Has a notch

Kidney

- Can get above it
- Doesn't move with respiration
- Resonant
- Ballotable

The classic triad of colicky abdominal pain, vomiting, and bloody stools only occurs in 10% of children with intussusceptions

Imaging studies in patients with suspected appendicitis are most helpful when the diagnosis is unclear, especially in female adolescent patients in whom it is often difficult to clinically differentiate RLQ pain from appendicitis versus ovarian pathology

If an inflamed appendix presses on the bladder, the bladder can become inflamed and urinalysis may demonstrate WBCs and RBCs—don't let a "positive" urinalysis fool you if everything else points to appendicitis

- **Murphy's sign: pain with inspiration when pressure is placed on RUQ**
- **Charcot's triad: fever, jaundice, and right upper quadrant pain**
- **Reynold's pentad: fever, jaundice, right upper quadrant pain, hypotension, and altered mental state**
- **Gallstones are much rarer in children than in adults and are usually associated with an identifiable risk factor such as hemolytic disease, hypercholesterolemia, obesity, CF, and biliary tract malformations**
- **42% of patients with sickle cell disease will have gallstones by the age of 18**
- **Patients with distal obstructions from gallstones can have concomitant pancreatitis**

Suggested Check list for examination of the back

1	**Before starting** Introduce yourself **AND** greet the child and parent
2	Explain the examination and ask for consent to carry it out
3	Wash hands thoroughly and dry them
4	Stand by the right side of the patient
5	Ask the patient to sit
6	Inspect for any swellings, deformities or scars
7	Palpate for edema over the sacrum
8	Palpate for the tenderness in the renal angles
9	Palpate for tenderness over vertebrae
10	Auscultate the renal angles for bruit
11	Percuss the renal angle (posteriorly)
12	Cover the back and thank the patient

NEUROLOGY STATIONS

Suggested check list for examination of cranial nerve (I-VI)

1	**Before starting** Introduce yourself **AND** greet the child and parent
2	Explain the examination and ask for consent to carry it out
3	Wash hands thoroughly and dry them
	The olfactory nerve (CN I)
4	Ask the patient to smell different scents, e.g. orange ,soap, coffee
	The optic nerve (CN II)
5	Test visual acuity on a Snellen chart
6	Test near vision by asking the patient to read a page in a book
7	Test color vision
8	Test the visual fields by confrontation
9	Examine the eyes by direct fundoscopy
	The oculomotor, trochlear, and abducens nerves (CN III, IV, and VI)
10 11	Inspect the eyes, paying particular attention to the size and symmetry of the pupils Look for visible ptosis (Horner's syndrome) or squint
12	Test the direct and consensual pupillary light reflexes Explain that you are going to shine a bright light into the patient's eye and that this may feel uncomfortable
13 14	Perform the cover test. Ask the patient to fixate on a point and cover one eye Observe the movement of the uncovered eye Repeat the test for the other eye
15	Examine eye movements. Ask the patient to keep his head still and to follow your finger with his eyes and to tell you if he sees double at any point

	Look out for nystagmus at the extremes of gaze
16	Test the accommodation reflex. Ask the patient to follow your finger in to his nose
	The trigeminal nerve (CN V)
	SENSORY PART
17 18	Test light touch in the three branches of the trigeminal nerve Compare both sides
19	Indicate that you could test the corneal reflex
	MOTOR PART
20 21	Test the muscles of mastication (the temporalis, masseter, and pterygoid muscles) by asking the patient to: •Clench his teeth (palpate his temporalis and masseter muscles bilaterally) •Open and close his mouth against resistance (place your fist under his chin)
22	Test the jaw jerk Ask the patient to let his mouth fall open slightly. Place your fingers on his chin and tap them lightly with a tendon hammer
	After the examination
23	Thank the patient

Suggested check list for examination of cranial nerve (VII-XII)

1	Introduce yourself **AND** greet the child and parent
2	Explain the examination and ask for consent to carry it out
3	Wash hands thoroughly and dry them
	The facial nerve (CN VII)
4	Look for facial asymmetry
	SENSORY PART
5	Indicate that you would test the anterior two-thirds of the tongue for sensation
	MOTOR PART
	Test the muscles of facial expression by asking the patient to:
6	Lift his eyebrows as far as they will go
7	Close his eyes as tightly as possible. (Try to open them)
8	Blow out his cheeks
9	Purse his lips or whistle
10	Show his teeth
	The acoustic nerve (CN VIII)
11	Test hearing by confrontation test
12	Carry out the Rinne and Weber tests
13	Examine the ears by auroscope
	The glossopharyngeal nerve (CN IX)
14	Test the gag reflex by touching the tonsillar fossae on both sides
	The vagus nerve (CN X)
15	Ask the patient to phonate (say "aaah~) and, aided by torch, look for deviation of the uvula
	The accessory nerve (CN XI)
16	Look for wasting of the sternocleidomastoid and trapezius muscles
	Ask the patient to:
17	Shrug his shoulders against resistance

18	Turn his head to either side against resistance
	The hypoglossal nerve (CN XII)
19	Aided by a pen torch, inspect the tongue for wasting and fasciculation
20	Ask the patient to stick out his tongue and to wiggle it from side to side
	After the examination
21	Thank the patient

Asymmetric crying facies, a relatively common finding in the newborn nursery, is caused by hypoplasia of the depressor anguli oris. It is considered a minor congenital anomaly and has only cosmetic consequences. This is in contrast to a congenital facial nerve paralysis, which can be associated with trauma or developmental causes (and potentially associated with a number of syndromes), which can lead to difficulty with eyelid closure (leaving the cornea susceptible to damage) and to feeding difficulties.

Suggested check list for examination of motor system of the lower limbs

1	Introduce yourself **AND** greet the child and parent
2	Explain the examination and ask for consent to carry it out
3	Wash hands thoroughly and dry them
4	Position him and ask him to expose his legs
	Inspection
5	Look for deformities of the foot
6	Look for abnormal posturing
7	Look for fasciculation
8	Assess the muscles of the legs for size, shape, and symmetry
	Tone
9	Ensure that the patient is not in any pain
10	Test the tone in the legs by rolling the leg on the bed, by flexing and extending the knee
	Power
11	Test muscle strength for hip flexion, extension, abduction and adduction
12	Knee flexion and extension
13	Plantar flexion and dorsiflexion of the foot and big toe
14	Compare muscles strength on both sides, and grade it
	Reflexes
15	Test the knee jerk with a tendon hammer
16	Test the ankle jerk with a tendon hammer
17	Test for clonus of knee and ankle
	Test for the Babinski sign
	Cerebellar signs
18	Carry out the heel·to-shin test.
	Gait
19	If he can. ask the patient to walk to the end of the room and to turn around and walk back
20	Thank the patient

Suggested check list for examination of sensory system of the lower limbs

	Before starting
1	Introduce yourself **AND** greet the child and parent
2	Explain the examination and ask for consent to carry it out
3	Wash hands thoroughly and dry them
4	Position him on a couch and ask him to expose his legs
	Examination
5	inspect the legs before you start
	light touch
6 7	Ask the patient to close his eyes and apply a wisp of cotton wool to the sternum and then to each of the dermatomes of the leg Compare both sides
	Pain
8 9	Ask the patient to close his eyes and apply a sharp object to the sternum and then to each of the dermatomes of the leg Compare both sides
	Vibration
10 11	Ask the patient to close his eyes and apply a vibrating tuning fork on the sternum and then over the bony prominences of the leg Compare both sides
	Proprioception
12 13	Ask the patient to close his eyes. Hold one of his toes by its sides and move it at the interphalangeal joint. asking him to identify the direction of each movement Compare both sides
	After the examination
14	Thank the patient

Suggested check list for examination of motor system of the upper limbs

	Before starting
1	Introduce yourself **AND** greet the child and parent
2	Explain the examination and ask for consent to carry it out
3	Wash hands thoroughly and dry them
4	Position him and ask him to expose his arms
	Inspection
5	Look for abnormal movements such as tremor, fasciculation, dystonia, and athetosis
6	Assess the muscles of the hands, arms, and shoulder girdle for size, shape. and symmetry
	Tone
7	Test the tone in the upper limbs by holding the patient'S hand and simultaneously pronating and supinating and flexing and extending the forearm
	Power
8	Shoulder abduction
9	Elbow flexion and extension
10	Wrist flexion and extension
11	Finger flexion, extension, abduction and adduction
12	Thumb abduction and opposition
13	Compare muscle strength on both sides, and grade it
	Reflexes
14	Test biceps, supinator, and triceps reflexes with a tendon hammer
15	Compare both sides
16	If a reflex cannot be elicited, ask the patient to clench his teeth and re-test (reinforcement)
	Cerebellar signs
17	Test for intention tremor, dysynergia, and dysmetria by

	asking the patient to carry out the finger-to-nose test
18	Test for dysdiadochokinesis
	After the examination
19	Thank the patient

Suggested check list for examination of sensory system of the upper limbs

	Before starting
1	Introduce yourself **AND** greet the child and parent
2	Explain the examination and ask for consent to carry it out
3	Wash hands thoroughly and dry them
4	Position him so that he is comfortably seated and ask him to expose his arms
	The examination
5 6	**Light touch**. Ask the patient to close his eyes and apply a wisp of cotton wool to the sternum and then to each of the dermatomes of the arm Compare both sides as you go along
7 8	**Pain**. Ask the patient to close his eyes and apply a sharp object - ideally a neurological pin - to the sternum and then to each of the dermatomes of the arm Compare both sides as you go along
9 10	**Vibration**. Ask the patient to close his eyes and apply a vibrating tuning fork to the sternum and then over the bony prominences of the upper arm Compare both sides as you go along
11 12	**Proprioception**. Ask the patient to close his eyes. Hold one of his fingers by its sides and move it at the distal interphalangeal joint, asking him to identify the direction of each movement Compare both sides as you go along
	After the examination
13	Thank the patient

Suggested check list for cerebellar examination

1	Introduce yourself AND greet the child and parent
2	Explain the examination and ask for consent to carry it out
3	Wash your hands
4	Ask the patient to stand up. Ensure that he is steady on his feet and inspect his posture from both front and side
5	Ask him to walk to the end of the room and to turn around and walk back
6	Walk heel-to-toe in a straight line
7	Ask him to do Romberg's test
8	Sit the patient and check finger – nose test
9	Intention tremor. Ask the patient to do something, e.g. remove his watch or write a sentence
10	Examine muscle tone in the elbow (flexion and extension) and wrist (flexion and extension, abduction and adduction) joints. Compare both sides
11	Dysdiadochokinesis
12	Heel-to-shin test
13	Test the knee jerk and ankle jerk
14	Thank the patient

NEONATAL EXAMINATION STATION

Suggested check list for neonatal examination

	Before starting
1	Introduce yourself to the mother, explain the examination, and ask her for her consent to carry it out
2	Wash your hands
	General inspection
3	Note color, position, tone, movements, skin abnormalities, and any other obvious abnormalities
	Head
4	Palpate the anterior and posterior fontanelles
5	Measure the head circumference
	Face
6	Inspect the face for dysmorphological features
7	Check the patency of the ears and nostrils
8	Using an ophthalmoscope, test the red reflex and pupillary reflexes
9	Test eye movements (squint)
10	Elicit the rooting reflex by lightly touching a corner of the baby's mouth
11	Introduce a finger into the baby's mouth and feel the palate (cleft palate) Examine the palate using a torch and spatula
	Chest
12	Take the radial and femoral pulses, one after the other and then both at the same time (radio femoral delay)
13	Listen to the heart using the bell of your stethoscope
14	Listen to the lungs using the diaphragm of your stethoscope
15	Turn the infant over and listen over the back
16	Count the respiratory rate

17	Count the heart rate
	Back
18 19	Examine the spine, focusing on the sacral pit (neural tube defects) Check the position and patency of the anus
	Abdomen
20 21 22	Inspect the abdomen and the umbilical cord Palpate the abdomen Palpate specifically for the spleen, liver, and kidneys (thumb in front, finger in the loin) Examine the genitalia, in male infants note the position of the urethral meatus (hvpospadias), ask about the urine stream, and feel for the testicles (undescended testes)
	Hips
23 24	Abduct the hips (Ortolani test, detects relocation of a dislocated hip) Next, adduct them whilst applying pressure with your thumbs (Barlow test, detects a dislocated hip)
	Arms and hands
25 26	Inspect the arms and hands, paying particular attention to the palmer creases (trisomy) Count the number of fingers on each hand
	Feet
27 28	Inspect the feet and test their range of movement Count the number of toes on each foot
	Posture and reflexes
29 30	Test head lag by lying the baby supine and pulling up his upper body by the arms Test the Moro reflex by lifting the head and shoulders and then suddenly dropping them back - the arms and legs should

31	abduct and extend symmetrically, and then adduct and flex Test the grasp reflex by placing a finger in the baby's hand
32	Measure the length and weigh the baby
	After the examination
33	Thank the mother

PART 5

Development stations

The development station can be a very challenging section of the exam and each candidate should have a well-practiced approach to avoid nerves and fear affecting their performance. We advise that you team up with a colleague and start with as many normal healthy children as you can. Be observed and timed.

The following are some practical points about how your style and approach can reassure the examiner and the parents that you know what you are doing.

- Structured systemic approach (start at just below estimated age and work up until just above expectation)
- Keep to the examiner's instruction
- Ask questions but keep to the bare minimum to accomplish the task. As a general rule you will be able to ask questions but not where clinical exam will suffice. The examiner will want to know that you have chosen your questions carefully and in a structured way
- Start by getting down to the child's height and begin playing with child and observing/commenting. Opportunistic observations and comments are the key to a well rounded performance
- When directing them to an activity, start with easy tasks and progress to more difficult ones
- Find something the child can do and something they can't do, so that you have a minimum and maximum age. Aim to assess

developmental age to within 2-3 months up to 2 years, and within 4-6 months for 2- to 5- year-olds

CONDITIONS COMMONLY SEEN IN THE EXAM

- Down syndrome
- Non-mobile toddler
- Global delay
- Hypotonia
- Hemiplegia/diplegia
- Normal children
- Autism/autistic spectrum

SUGGESTED SCHEME FOR DEVELOPMENTAL EXAMINATION IN INFANTS

Gross motor examination (posture and movement)

Remember muscle control progresses from the head down. Suggested system for a baby could be:

- Lie the child supine and assess their general tone/limb positions and movements(you could comment on vision at this stage)
- Pull on the hands or arms until the baby is in sitting position (for 3- to 6-month-old children): look for head lag, assess straightness of spine, upper limb and truncal tone, grasp reflex
- Hold the child in ventral suspension: comment on truncal tone, head lifting, position of limbs
- Place the child prone and observe their ability to lift their head/torso/roll over or crawl away
- Finish by assessing the presence of primitive reflexes

PRIMITIVE REFLEXES

- Asymmetric tonic reflex: disappear around 4 months
- Grasp: disappear around 4-6 months
- Moro: becomes less dramatic then disappear by 3-6 months
- Stepping: disappear by 2-3 months, reappear as child start walking at 10-15 months voluntarily
- Downward parachute: protective responsive, develops around 4-6 months
- Forward parachute response(7-10 months)

Fine motor (vision and manipulation)

- In a baby, try to ascertain whether the baby can fix and follow. Remember you must be silent when you are doing this as babies will turn their heads to sound and this can be misleading
- Use a toy or interesting object and watch how the baby grasps and explores the object
- Look for passing from one hand to another and mouthing. Ensure that both hands can grasp equally well. In older infants could comment on their ability to let go of a toy, and object permanence
- Use something small (e.g. tiny piece of paper) to assess pincer grasp
- Comment on pointing

Speech

- Comment on any vocalization you hear

Hearing

- Normal practice would be to ask the parents whether they have any concerns about a baby's hearing; the examiner may be happy for you to do this.
- There are other key questions that provide evidence of hearing development, for example, recognizing their own name/Mama and dada sounds, etc. Be familiar with these so you can ask them if you are given the opportunity

Social

- Watch the interactions with you and with its parents

- Comment on smiling; comment on what games the parents plays with their child and how the child responds
- Look for the presence or absence of stranger awareness
- Make sure the child and parent are comfortable with you before you try waving/clapping/playing peek-a-boo, etc

And finally

- Have some questions prepared in case the examiner lets you ask them. If allowed then concentrate on social and hearing questions as these are difficult to assess fully in an exam environment
- Be prepared to order your findings in a logical sequence; this will put the examiner at ease
- Think about the next investigation or referral if any abnormality is found

Suggested check list for development of 3-month-old infant

1	Introduced yourself friendly and greet the mother
2	Ask the name of the child
3	Prone: Lifts head and chest with arms extended; head above plane of body on ventral suspension (do it)
4	Supine: Tonic neck posture predominates; reaches toward and misses objects; waves at toy (do it)
5	Sitting: Head lag partially compensated when pulled to sitting position; early head control with bobbing motion; back rounded (do it)
6	Reflex: Typical Moro response has not persisted; makes defensive movements or selective withdrawal reactions (do it)
7	Social: Sustained social contact; listens to music; says “aah, ngah” (ask the mother)
8	Thanks the mother

Suggested check list for development of 7-month-old infant

1	Introduced yourself friendly and greet the mother
2	Ask the name of the child
3	Make relationship with the child
4	Prone: Rolls over; pivots; crawls or creep-crawls (Knobloch) (do it)
5	Supine: Lifts head; rolls over; squirms (do it)
6	Sitting: Sits briefly, with support of pelvis; leans forward on hands; back rounded (do it)
7	Standing: May support most of weight; bounces actively (do it)
8	Adaptive: Reaches out for and grasps large object; transfers objects from hand to hand; grasp uses radial palm; rakes at pellet (do it)
9	Language: Forms polysyllabic vowel sounds (ask the mother)
10	Social: Prefers mother; babbles; enjoys mirror; responds to changes in emotional content of social contact (ask the mother)
11	Thanks the mother

Suggested check list for development of 10-month-old infant

1	Introduce yourself friendly and greet the mother
2	Ask the name of the child
3	Make relationship with the child
4	Sitting: Sits up alone and indefinitely without support, with back straight (do it)
5	Standing: Pulls to standing position; “cruises” or walks holding on to furniture (do it)
6	Motor: Creeps or crawls (do it)
7	Adaptive: Grasps objects with thumb and forefinger; pokes at things with forefinger; picks up pellet with assisted pincer movement; uncovers hidden toy; attempts to retrieve dropped object; releases object grasped by other person (do it)
8	Language: Repetitive consonant sounds (“mama,” “dada (ask the mother)
9	Social: Responds to sound of name; plays peek-a-boo or pat-a-cake; waves bye-bye (do it)
10	Thanks the mother

Suggested check list for development of 12-month-old infant

1	Introduce yourself friendly and greet the mother
2	Ask about the name of the child
3	Make relationship with the child
4	Sits up alone and indefinitely without support, with back straight (do it)
5	Make a sound by a rattle near each ear and then above his head (do it)
6	Rises independently (ask the mother or observe it)
7	Walks with one hand held (do it)
8	Picks up pellet (do it)
9	Releases object to other person on request or gesture (do it)
10	Uncovers hidden toy (do it)
11	Says a few words besides “mama,” “dada” (ask the mother)
12	Plays simple ball game (do it)
13	Drink from cup (ask the mother)
14	Makes postural adjustment to dressing (ask the mother)
15	Responds to sound of name (do it)
16	Thanks the mother

SUGGESTED SCHEME FOR DEVELOPMENTAL EXAMINATION IN OLDER CHILDREN

Gross motor examination (posture and movement)

What is the child doing now?
Observe and comment in less cooperative or less directable children. Think about:

- Gait
- Running
- Climbing

For older children think about asking them to:

- Jump up high
- Stand on one foot
- Kick a ball
- Bounce and catch a ball
- Ride a tricycle
- Climb stairs if stairs available

There will be equipment provided to assess gross motor function in older children, so look for tricycles and balls when you get into the room and don't forget to use them if they are appropriate.

Remember to join in and look like you are having fun no matter how stresses you are. Be enthusiastic and congratulate them loudly, often this best left towards the end of the examination as once you have encouraged them to run about and kick a ball they may not want to stop and do something that requires more focus.

If you get a chance to ask the parents a question then, (how does the child go up and down stairs) is an excellent way to be very specific about which milestones have been reached

Fine motor and vision

This is an excellent place to start your examination, particularly if the child is focused on a (sitting down) activity when you arrive in the room.

Always start by watching and commenting before directing the child towards more specific activities. A suggested sequence is as follows:

1. Picture book
    - This is better suited for young toddlers
    - Look out for pointing, recognizing pictures and turning pages
    - Remember to comment on vocabulary and speech as this can often be assessed using the pictures in the book

2. Drawing (if pen and paper handy) - Are you good at drawing? Can you draw?
    - Be careful to note whether the child can imitate (child watches as you draw a shape) or (paper covered and the child cannot see what you are drawing until you are finished). As a general rule, imitating comes approximately 2 months before copying. Make sure you use the right terminology when reporting findings
    - If you are in the middle of a full developmental assessment you may well be able to get all the information you need to comment on developmental stage with this activity alone. You could then quickly move on to other areas. If you have been only asked to assess fine motor and vision then spend more time on this activity and definitely include drawing a person if you are assessing an older child

3. Building blocks – Let's do some building – can you do this?
    - Remember the difference between copying and imitating as described before

4. Other activities – you may be supplied with equipment to assess

- Threading beads
- Using scissors
- Matching colors

Hearing and speech

- Pointing to body parts
- Ask about name, age, boy or girl, counting, birth day
- Comment on vocabulary and how easy the child is to understand

Social

For toddlers (you may need to ask the parents for most of these) the questions are all to do with self-care/independence.

- Dressing
- Toileting
- Eating and drinking

For older children, ask about activities and friends at school or preschool.

Finally

Keep the presentation of development stage confined to categories. Be systematic.
First comment on developmental age for each area of development you have assessed.
Next comment on whether you feel this appropriate to the child's chronological age, or whether you feel it is delayed. Also comment on whether the delay is isolated to one area of development or concerns several areas. Be aware of the limitations, as well as the significance of your findings.

Suggested check list for development of 18-month-old child

1	Introduce yourself friendly and greet the mother
2	Ask about the name of the child
3	Make relationship with the child
4	Runs stiffly; sits on small chair (do it)
5	Walks up stairs with one hand held (do it)
6	Explores drawers and wastebaskets (ask the mother)
7	Makes tower of 4 cubes (do it)
8	Imitates scribbling (do it)
9	Dumps raisin from bottle (do it)
10	Speak 10 words (average) (ask the mother)
11	Names pictures (do it or ask the mother)
12	Identifies one or more parts of body (do it)
13	Feeds self (ask the mother)
14	Seeks help when in trouble (ask the mother)
15	May complain when wet or soiled (ask the mother)
16	Kisses parent with pucker (do it or ask the mother)
17	Thanks the mother

Suggested check list for development of 24-month-old child

1	Introduce himself friendly and greet the mother
2	Ask about the name of the child
3	Make relationship with the child
4	Runs well (do it)
5	Walks up and down stairs, one step at a time (do it)
6	Opens doors (do it)
7	Climbs on furniture (do it)
8	Jumps (do it)
9	Makes tower of 7 cubes (6 at 21 mo) (do it)
10	Scribbles in circular pattern (do it)
11	Imitates horizontal stroke (do it)
12	Folds paper once imitatively (do it)
13	Puts 3 words together (subject, verb, object) (ask the mother)
14	Handles spoon well (do it and ask the mother)
15	Often tells about immediate experiences (ask the mother)
16	Helps to undress (ask the mother)
18	Listens to stories when shown pictures (ask the mother)
19	Thanks the mother

Suggested check list for development of 30-month-old child

1	Introduce himself friendly and greet the mother
2	Ask about the name of the child
3	Make relationship with the child
4	Goes up stairs alternating feet (do it or ask the mother)
5	Makes tower of 9 cubes (do it)
6	Makes vertical and horizontal strokes, but generally will not join them to make cross (do it)
7	Imitates circular stroke (do it)
8	Refers to self by pronoun “I” (ask the mother)
9	Knows full name (do it)
10	Helps put things away (do it or ask the mother)
11	Pretends in play (do it or ask the mother)
12	Thanks the child and his parents

Suggested check list for development of 36-month-old child

1	Introduce yourself friendly and greet the mother
2	Ask about the name of the child
3	Make relationship with the child
4	Rides tricycle (ask the mother)
5	Stands momentarily on one foot (do it)
6	Makes tower of 10 cubes (do it)
7	Imitates construction of “bridge” of 3 cubes (do it)
8	Copies circle (do it)
9	Imitates cross (do it)
10	Knows age and sex (do it)
11	Counts 3 objects correctly (do it)
12	Repeats 3 numbers or a sentence of 6 syllables (do it)
13	Most of speech intelligible to strangers (ask the mother)
14	Plays simple games (in “parallel” with other children) (ask the mother)
15	Helps in dressing (unbuttons clothing and puts on shoes) (ask the mother)
16	Washes hands (ask the mother)
17	Thanks the child and his parents

Suggested check list for development of 48-month-old child

1	Introduce himself friendly and greet the mother
2	Ask about the name of the child
3	Make relationship with the child
4	Hops on one foot (do it)
5	Throws ball overhand (do it)
6	Uses scissors to cut out pictures (do it)
7	Climbs well (do it)
8	Copies bridge from model (do it)
9	Imitates construction of “gate” of 5 cubes (do it)
10	Copies cross and square (do it)
11	Draws man with 2 to 4 parts besides head (do it)
12	Identifies longer of 2 lines (do it)
13	Counts 4 pennies accurately (do it)
14	Tells story (ask the mother)
15	Plays with several children , with beginning of social interaction and role-playing (ask the mother)
16	Goes to toilet alone (ask the mother)
17	Thanks the child and his parents

Suggested check list for development of 60-month-old child

1	Introduce himself friendly and greet the mother
2	Ask about the name of the child
3	Make relationship with the child
4	Skips (do it)
5	Draws triangle from copy (do it)
6	Names heavier of 2 weights (do it)
7	Names 4 colors (do it)
8	Repeats sentence of 10 syllables (do it)
9	Counts 10 pennies correctly (do it)
10	Dresses and undresses (ask the mother)
11	Asks questions about meaning of words (ask the mother)
12	Engages in domestic role-playing (ask the mother)
13	Thanks the child and his parents

CLASSIC WARNING SIGNS OF DEVELOPMENTAL DELAY

Fine motor/vision

- Fixed squint at any age
- Hand preference before 18 months (usually not established until third year)
- Not staring/no visual fixation or following at 6 weeks
- Immature grip at 18 months
- Still casting at 18 months

Speech/hearing

- Failure to respond to sound at any age
- Inability to understand simple commands at 18 months
- Not babbling at 12 months
- No spontaneous vocalization at 18 months
- Unable to speak in short sentences at $2^{i/2}$ years
- Unable to understand speech at $2^{1/2}$ years
- Poor articulation making speech difficult to understand at 4 years

Gross motor

- Asymmetrical neonatal reflexes – up to 6 weeks
- Excessive head lag past 6 weeks
- Persistence of primitive reflexes (e.g. Moro/asymmetric tonic reflex at 6 months)
- Unable to sit or weight bear, absence of saving reactions at 12 months
- Not standing at 18 months
- In boys: think about Duchenne muscular dystrophy
- If upper body gross motor motor development is normal (sitting with straight back, reaching for toys, normal head control): think about problems with hips or spine

Social/behavioural

- Failure to smile: average age is 5 weeks, should be concerned if not smiling at 6 weeks

SOME KEY INVESTIGATIONS FOR UNEXPLAINED DEVELOPMENTAL DELAY

- Chromosomes
- Fragile X
- Thyroid function tests
- Creatine phosphokinase
- Metabolic screen
- X-rays (hip/spine)
- Neuroimaging

OSCE TIPS

Don't panic. Be philosophical about your exams. Put them into perspective. And remember that as long as you do your bit, you are statistically very unlikely to fail.

Read the instructions carefully and stick to them. Sometimes it's just possible to have revised so much that you no longer "see" the instructions and just fire out the bullet points like an automatic gun. If you forget the instructions and/or the actor looks at you like Caliban in the mirror, ask to read the instructions again.

Quickly survey the cubicle for the equipment and materials provided. You can be sure that items such as hand disinfectant, a tendon hammer, a sharps bin, or a box of tissues are not just random objects that the examiner later plans to take home.

First impressions count. You never get a second chance to make a good first impression. As much of your future career depends on it, make sure that you get off to an early start. And who knows? You might even fool yourself.

Don't let the examiners put you off or hold you back. If they are being difficult, that's their problem, not yours. Or at least, it's everyone's problem, not yours. And remember that all that is gold does not glitter; a difficult examiner may be a hidden gem.

Be genuine. This is easier said than done, but then even actors are people. By convincing yourself that the OSCE stations are real situations, you are much more likely to score highly with the actors, if only by "remembering" to treat them like real patients. This may hand you a merit over a pass and, in borderline situations, a pass over a fail. Although they never seem to think so, students usually fail OSCEs through poor communications skills and lack of empathy, not through lack of studying and poor memory.

Enjoy yourself. After all, you did choose to be there, and you probably chose wisely. If you do badly in one station, try to put it

behind you. It's not for nothing that psychiatrists refer to "repression" as a "defense mechanism", and a selectively bad memory will put you in good stead for later life.

Keep to time but do not appear rushed. If you don't finish by the first bell, simply tell the examiner what else needs to be said or done, or tell him indirectly by telling the patient, e.g. "Can we make another appointment to give us more time to go through your treatment options. Then summarize and conclude. Students often think that tight protocols impress examiners, but looking slick and natural and handing over some control to the patient is often far more impressive, and probably easier.

Be nice to the patient. Have I already said this? Introduce yourself, shake hands, smile, even joke if it seems appropriate - it makes life easier for everyone, including yourself. Remember to explain everything to the patient as you go along, to ask him about pain before you touch him, and to thank him on the second bell. The patient holds the key to the station, and he may hand it to you on a silver platter if you seem deserving enough.

Take a step back to jump further. Last minute cramming is not going to magically turn you into a good doctor, so spend the day before the exam relaxing and sharpening your mind. Play some sports, rent out a DVD, and make sure that you are tired enough to fall asleep by a reasonable hour.

Finally, remember to practise, practise, and practise. Look at the bright side of things: at least you're not going to be alone, and there are going to be plenty of opportunities for good conversations, good laughs, and good meals. You might even make lifelong friends in the process.

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THANKS FOR GOD

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