Pediatrics OSCE

Pediatrics SAWA

OSCE / PEDITRICS

OSCE station (previous year)
10 min stations:
1-short stature (hx, ddx, investigation)
2-meningitis (investigation, CSFanalysis, tt, prophylaxis)
3-asthma (Hx, PE)
4-eamin abdomen (hepatospleenomegaly, ddx)

10 min stations:
1-Hx of jaundice + investigations + PE.
2-Hx of red urine + PE (case had increase BP+ LL edema, post strep GN)
3- L.O.C takes Hx, PE (meningitis)

5 min stations:
1-Hx of skin rash.
2-Hx of fever.
1+2: you have to ask about the vaccine & might have allergic reaction from vaccines.
3-Hx of diarrhea.
4-Hx of jaundice.
5-Hx of vomiting+fever.
6-PE for LL edema.
7-developmental Exam.
8-vaccintion hx.

First of all to be organized and oriented in the exam:
1-Identify yourself to the child (if old enough) and his mother.
2-Explain for them what you are going to do.
3-Start by taking patient's profile.
4-Then chief complaint (vomiting, cough….etc).\
5-Full history & physical examination.
6-Suspected diagnosis.
7-Investigation needed.
8-Management.
☺ ☺

Important for OSCE:
1-introdue yourself, use hygiene, take permission.
2-development assessment.
3-neuorological examination.
4-otitis media, bronchiolitis, pneumonia.
5-celiac disease, CF.
6-febrile convulsion.
7-weight/height estimation for age.
8-UTI, red urine.

Cough

🗣History:

1-Duration & onset (acute or chronic).
2-Dry or wet (rarely before 8 years of age where they tend to swallow it so we ask about vomiting or if it appears in stool.
3-Diurnal variation (nocturnal cough in asthma, croup is worst at night).
4-Seasonal variation.
5-Character of cough (bovine, whooping or barking).
6-Heamoptysis (CF, TB).
7-Associated symptoms:
-difficulty of breathing.
-wheezes or strider (explain present of each).
-cyanosis.
-chest pain if old child.
-fever.
-fatigue, malaise and weight loss (TB).
-night sweating (TB).
-abdominal pain + vomiting (pneumonia).
-diarrhea + vomiting (CF).
-hx of chocking (foreign body).
-FTT (CF).
-recurrent sinusitis (CF), recurrent URTI.
8-Triggers + aggravating factors {cold air, exercise, emotion, allergens (house dust mite, pollen, animal fur), infection, drugs (aspirin), pets, carpet, feather pillows, foods (in tracheoesophageal fistula), lying flat (in GERD), smoking.}
9-other atopic diseases: eczema, hay fever and allergy.
10-Family hx of CF, asthma, allergy and atopy, immunodeficiency.
11-Contact with infected family member (pneumonia).
12-Recurrent episodes + Recurrent admission to hospital.
13-In past hx: we ask if he is premature (RDS→ BPD), asphyxia at birth, recurrent cough.
14-Vaccination: in CF ask about pneumococcal & influenza vaccines, in asthma ask about influenza vaccine.

👁Examination:

1-General: we look for signs of respiratory distress (nasal flaring, grunting, audible wheezes, cyanosis and tachypnea).
2-Hand: finger clubbing (CF, bronchiectasis), cyanosis.
3-VS:
-respiratory rate is important.
-temperture.increases in infection.
-tachycardia may present.
-hypotension may indicate sepsis and this may be the only sign of pneumonia in neonates.
4-Growth parameters: FTT (CF, ID).
5-H&N: examine ENT, cervical LN, supraclavicular LN may be palpable (TB).

6-Chest:
-other signs of respiratory distress (retraction: use of accessory muscles + tachypnea).
-AP diameter may increases due to CF or longstanding untreated asthma.
-we may have decrease air entry bilaterally (pneumonia).
-we look for wheezes.
-crackles may be heard in pneumonia.
-friction rub suggest pluritis.
7-Heart: heart disease→ recurrent chest infection→ recurrent cough.
8-Abdomen:
-abdomen tenderness or irritability (pneumonia).
-distended abdomen (CF).
-hepatomegaly (CF).

★Investigation:
1-CBC: WBC increase in infection.
2-Chest X-ray.
3-Spirometry: only in old child (5-6 years)
↓FEV1/FVC, ↑residual volume (asthma).
4-Pulmonary function test (ABG's).
5-Sweat test.
6-Sputum or throat culture: may be helpful in TB but not always in pneumonia.

DDx:
Acute:
1-RTI (pneumonia, croup) 2-Foreign body.
Chronic:
1-Asthma. 2-Cyctic fibrosis. 3-bronchiectasis. 4-TB. 5-GER. 6-Post nasal drip.

Cystic Fibrosis

🗣History:

1-in neonates: FTT, meconium ileus, rectal prolapsed.
2-Children & young adult:
-Respiratory: Cough wheezes, recurrent infection (fever), SOB (dyspnea), hemoptysis, and sudden chest pain + SOB (pneumothorax). Chronic sinusitis.
-GIT: steatorrhea, vomiting, GERD, DM, distal intestinal obstruction syndrome.
-Others: arthritis, nasal polyps, infertility (in adult).

👁Examination:

1-General: cyanotic, underweight, finger clubbing, pale (anemia).
2-ENT: nasal polyp, post nasal drip.
3-Respiratory: wheezes, bilateral coarse crackle, decrease air entry bilateral.
*in cute exacerbation of respiratory infection pt may be: increase fever, sick looking.
4-GIT: abdominal distension (in IO), decrease bowel sound (in IO), rectal prolapse, jaundice.
5-Growth parameter: FTT.

⚹Investigation:

1-CBC: anemia of chronic disease.
2-Sweat test.
3-Fecal elastase: exocrine pancreatic function.
4-DNA analysis for common CF mutation.

Cyanosis

Every ever illness may came with cyanosis.

🗣History:

1-onset, duration, progression, site (hands, foot only acrocyanosis), relation to crying and feeding.

2-respiratory symptoms & problems:
-SOB & sign of RD: tachypnea, retraction, grunting, nasal flaring, use of accessory muscles, disturbances of conscious.
-cough, sputum, hemoptysis, wheezes.
-chest pain, GERD.

3-general manifestation:
-fever, sweating, fatigue, weight loss, nausea & vomiting.
-decrease feeding, activity, increase sleeping.

4-cardic symptoms: Edema, palpitation, syncope, unable to feed.
5-ask bout FB aspiration and organic phosphate poisoning.
6-hx of congenital heart disease or murmur.
7-dehydration: gastroenteritis, RF, diabetic ketoacidosis.
8-sepsis or acute blood loss.
9-PMH: previous attack, hospitalization.
10-prenatal history: torch infection, fever, abnormal fetal movement, drug, mode of delivery+ NICU.
11-developmental hx: mostly if suspect CHD.
12-family hx: CHD or asthma.
13-skin rashes or nodule (rheumatic heart disease)
14-UTI.

⚹Investigation:

1-ABGs.
2-chest x-ray.
3-ECG.

Fever

History:

1-analyze fever: onset, continuous or intermittent, ↑ at night, frequency, documented or not, site of documentation, response to water compressors and antipyretics.
2-night sweat.
3-weight loss, appetite.
4-chills & rigors.

5-disease associated with fever:
*pneumonia: cough, tachypnea, retraction, cyanosis, noisy breathing.
*meningitis: headache, vomiting, paradoxical irritability, photophobia, IOC, neck rigidity.
*otitis media: ear retraction, discharge.
*gastroenteritis: diarrhea, vomiting, abdominal pain, signs of dehydration.
*UTI: change in urine color, irritability or abdominal pain upon micturation, frequency and dysuria.
*URTI: nasal obstruction, rhinorrhea, sneezing, tonsiliar enlargement, dysphagia.
*arthritis: hotness, redness, swelling, limitation of movement in any joint.
*osteomyelitis: pain upon moving any limb.
*cyclic neutopenia: oral ulcer, stomatitis.
*hematology: bleeding, neck swelling, masses (LAP), pallor.
*thyroid: neck swelling, tremor, heat intolerance, weight loss.
*hepatitis: jaundice.

6-skin rash.
7-convulsion.
8-feeding, sleeping, activity.
9-tears, sunken eyes.
10-vaccines, drug, surgeries, previous hospitalization, daycare attendance, similar sx in siblings.
11-if neonate (sepsis): ask about PROM, maternal fever, maternal UTI, birth weight, abortion.

Examination:

1-level of consciousness, pallor, cyanosis, signs of respiratory distress.
2-VS.
3-fontanelles, HC.
4-skin rash.
5-ENT.
6-lymphadenopathy.
7-hepatosplenomegally.
8-kernig, brudzinski.
9-chest, abdominal, neuro, joint examination according to hx.

★Investigation:

1-CBC: Hb (chronic illness), WBC (leukemia, infection), platelets, lymphocyte (viral infection).
2-ESR (connective tissue disease), CRP.
3-blood culture.
4-urine analysis, culture.
5-LP.
6-CXR.
7-ECG.
8-electrolytes, glucose, ca+2.
9-KFT, TFT, LFT.
10-CT scan
11-GRAM stained middle ear swab.
*special tests:
-Rh factor: ANA.
-ASO titer: Rh fever.
-BM aspirate: leukemia, myeloma.
-Mantoux test: Tb.
-liver bx, kidney bx, muscle bx.

*remember: occult bacteremia: +ve blood culture without focus.

Jaundice

Bilirubin > 5mg/dl: adult but in children and adolescent > 2mg/dl.

🗣History:

1-duration: acute (1 week), chronic (3 weeks).
2-age of onset:
-hepatitis B (incubation period 60 day) so < 8 month it's hepatitis A.
3-urine and stool color.
4-the course: when started and the progression.
5-onset: sudden or gradual.
6-the color of skin, mucus membrane, sclera.
7-breast feeding: duration, frequency.
8-vomiting, diarrhea or constipation, irritable.
9-appetite, weight loss.
10-relation to food (if there is vomiting)
11-feeding: if breast feeding alone and if certain food element was introduce: metabolic disorder.
12-abdominal mass, neck swelling, night sweat.
13-symptoms of kernicterus: ↓ consciousness, hearing changes, seizure, hypotonia.
14-daycare, family member, water supply, cases of hepatitis A contact.
15-blood transfusion, blood group of mother & baby.
16-history of previous surgeries on biliary tract or spleenectomy.
17-drug hx: sulfa, valprovc acid, isomatic.
18-disease during pregnancy: infection, placenta prevail, PET, diabetic mother.
19-small for gestational age or post maturity.
20-twins.
21-delivery: full term or not, birth weight; instrument uses (vacuum), hematoma, delayed cord clamping.
22-if he was hypoxic, plethoric face.
23-history of previous neonatal jaundice.
24-family hx of hemolytic disease, hypothyroid, liver disease.
25-socioeconomic status & hygienic condition.

★Investigation:

1-hematological profile (met Hb).
2-Hb, HCT, serum bilirubin (total & direct), blood group of mother and baby.
3-coombs test, peripheral smear.
4-red cell enzyme assay.
5-osmotic fragility.
6-TSH, T3.
7-IgM titer (mother < baby) for torch infection.
8-in galactosemia: ↑ glctose-1- phosphate assay in serum stool for reducing substance, ↓erythrocytes glactose-1-posphte uridyl transferase.
9-urine for reducing substance.
10-glucoruonyl transeferase.
11-xray: upper GI.
12-sweat chloride.
13-liver enzymes (AST, ALT).
14-PT, PTT, albumin.

15-urine cytology for CMV inclusion.
16-heptitis eAg & sAg.
17-HIDA scan or liver biopsy: if biliary atresia suggested.

DDx:
1-physiologic jaundice.
2-hemolytric anemia (iso-immunization), infection, drugs or congenital erythrocyte defect.
3-polycythemia (DM mother, congenital adrenal hyperplasia, placental insufficiency), Down syndrome.
4-hematoma.
5-conjugation defect.
6-metabolic (hypothyroid, galactosemia).
7-gut obstruction (pyloric stenosis, duodenal atresia).

Anemia

Definition: Hb or hematocrite 2 or more standard deviation below the mean value for age & sex.
If Hb < 11g/dl in a baby less than 1 year old = anemia.
Physiological anemia: in full-term at 2-3 months, in preterm at 6 weeks.

History:
1-Is the pallor acute or chronic? Since when in acute pallor it's short (hours or days).
2-If acute assess the severity: ask about tachypnea, altered level of consciousness, coma and urine output (oligurea).

3-Ask about jaundice:
Acute unconjugated hyperbilirubinemia:
-skin discoloration.
-dark urine: pink, red.
-fever: may also present.
-appearance of purpura: hemolytic anemia syndrome, septicemia.
-Hx of exposure to drugs: G6PD, e.g. Aspirin, chloramphenicol, sulfonamide.
-food: fava beans & other green beans.
-manifestations of acute renal failure (hematuria, oliguria).
-family hx of hemolytic anemia (في حدا بالعائلة عنده مرض تكسر الدم) or hx of spleenectomy or cholecytectomy.
-pain in the abdomen (sequestration of the blood in liver or spleen).
-painful swelling of hand & feet (hand-foot syndrome in vasoocclusive crises of hemolytic anemia).
-trauma or surgery.

Chronic anemia:
-jaundice.
-distended abdominal (with jaundice: chronic, without jaundice: leukemia, chronic infection)
-purpura.
-bleeding (hematurea, hematochezia, melena) in leukemia & anaplastic anemia.
-arthritis: leukemia, chronic infection & inflammation.
-skeletal anomalies: microcephally, absent radius or thumb: fanconi.
-skeletal changes: large head, prominent maxilla= chronic anemia.
-growth failure & chronic vomiting: chronic renal failure.
-if just pallor think of Fe deficiency or hypoplastic (pure red cell) anemia.

4-Diet: of exclusive breast feeding & the baby is above 6 months:
-low Fe formula, low Fe in the food.
-goat's milk: folate deficiency.
-pica (diverted appetite to wall points & mud) in Fe deficiency anemia.
5-Did he receive any iron & didn't improve on tt? Suspected B-thalassemia minor.
6-Any sever behavioral disorder, school under achievement to MR? Suspected lead poising.
7-Ask about environmental exposure in air or water (factories).
8-Family hx of spleenectomy or repeated blood transfusion.
9-Neurological manifestations as:
-ataxia: vitamin B12 deficiency
-deafness: osteopetrosis.

👁Examination:

1-Skin:
-hyper pigmentation: café au lait: fanconi.
-vitiligo: vit B12 deficiency:
-jaundice: hemolytic.
-petechiae, purpura: hemolytic anemia syndrome.
-erythematous rash: parvovirus, EBV.
-butterfly rash: SLE.

2- Head:
-frontal bossing, thalassemia major, Fe deficiency.
-microcephally: fanconi.

3-Eyes:
-microophthalmia: fanconi.
-retinopathy: sickle cell.
-optic atrophy: asteopetrosis.
-Kayser-fleischer ring: Wilson.
-blue sclera: Fe deficiency.

4-Ears: deafness: osteopetrosis.

5-Mouth:
-glossitis: B12 deficiency, Fe deficiency.
-angular stomatitis: Fe deficiency.
-cleft lip: diamond blakfan syndrome.
-pigmentation: peutz jegher syndrome (intestinal blood loss).
-telengiectasia: osler-weber-rendu syndrome.
-leukoplakia: dyskertosis congenital (hyperpigmention + blocked lacrimal gland)
6-Chest:
-wide spread nipples: diamond blackfan syndrome.
-murmur: endocarditic, prosthetic value hemolytic

7-Abdomen:
-hepatomegally: hemolytic, tumor.
-spleenomegally: hemolytic, sickle.
-nephromegally or absent kidney: fanconi

8-Extremities:
-absent thumb: fanconi.
-triphalageal thumb: diamond black fan.
-spoon nails: Fe deficiency.
-dystrophic nails: dyskeratosis congenital.

9-Rectal:
-hemorrhoids: PHT
-heme +ve stool: intestinal hemorrhage.

10-Nerves:
-irritable, apathy: Fe deficiency, vit B12 deficiency, B1, E
-peripheral neuropathy: vit B12 deficiency, lead poisoning.
-dementia: vit B12 deficiency & E.
-ataxia: vit B12 deficiency.
-stroke: sickle cell.

★Investigation:
1-blood film:
-fragmented distorted RBC.
-reticulocytosis (above 5%) except in plastic crises: reticulocytopenia.
2-CBC & CRP for all cases especially if septicemia suspected.
3-serum vit B12, Fe, ferritin.
4-bone marrow aspiration

Meningitis

🗣History:

1-Age: sign & symptoms depend on age; the younger the child the less likely he or she exhibits the classical symptoms (fever, headache and meningal signs).

We divide the age into 3 groups:

1-newborn < 2 months. 2-infant: 2-12 months. 3-child > 2 years.

1-Newborn < 2 months (non specific):

-fever or hypothermia (may be normal).
-poor feeding & altered sleeping pattern.
-irritability, lethargy &seizures.
-rash in meningococcal.
-tachypnea or apnea (cyanosis).
-jaundice, vomiting & diarrhea.
-abdominaldestintion.

2-from 2-12 months (fever mainly):

-fever (frequently) with paradoxical irritability.
-convulsions and LOC.

3- >2 years (classical picture):

-headache.
-projectile vomiting.
-fever.
-seizures, photophobia and petechial skin rash.
-meningal signs.

1+2+3: these are symptoms related to meningitis, then ask about:

2-family Hx (siblings).
3-recurrent travels.
4-contact to animals (social Hx).
5-drug HX.
6-complication during pregnancy & radiation.
7-other causes of fever:
-respiratory symptoms: cough, dyspnea…etc.
-urinary symptoms: frequency, urgency….etc
-acute otitis media: earache…etc.
-gastroenteritis: vomiting, diarrhea…etc.

👁Examination:

Classically the younger the pt the less likely to find signs (i.e. usually +ve sign in pt> 2 yrs).

Look for:

1-General condition: tachypnea, jaundice and cyanosis.
2-Vital sign & growth parameters.
3-Head & neck: fontanel (bulging or not); baby should be in sitting position and not crying.
4-Classical signs: nuchal rigidity, kernig sign and brudziniske sign (> 2 yrs).
5-In meningococcal there is rash & describe it.
6-Look for meningitis complications:

-diplopic.
-bulging fontanel.
-ptosis.
-focal neurological signs (change in behavior, abnormal movement).
7- Other related to DDx: ENT, Chest, and Abdomen.

☆Investigation:
1-CBC and differential.
2-Lumber puncture (for CSF analysis, G stain & culture).
3-blood culture (50%-90%) +ve.
4-ESR, CRP.
5-Serum glucose especially if the pt in coma.
6-Electrolytes for SIADH as complication.
7-Serum & urine osmolarities.
8-Bacterial Ag study (urine & serum).
9-PT, PTT.
10-MRI & CT scan if there is Hx of trauma, altered mental status & neurological signs.
11-Others related to DDx: CXR, Urine analysis, Stool analysis.

DDx:
1-sepsis. 2-UTI. 3-OM. 4-Gastroenteritis. 5- +/- pneumonia.

Vomiting

History:

First ask about vomiting:

1-Duration: when was your vomiting started? Acute or chronic?
2-Frequency: how many times per day?
3-Volume: dribble onto clothes or full stomach.
4-Nature: effortless, forceful (onto child or parent), projectile (several feet away)
5-Relation to feed and posture.
6-Pressence of blood or bile in vomit.
7-Is there nausea or not.
8-Is there are any associated symptoms.

Then put in your mind the causes of vomiting:

1-Alimentary causes:
-gastric outlet obstruction.
-intestinal obstruction.
-peptic ulcer.
-gastroenteritis.
-acute cholecystitis.
-acute pancreatitis.
-hepatitis.
-GERD (most common cause of chronic vomiting in infancy).

2-Metabolic causes:
-diabetic ketoacidosis.
-renal failure.
-galactocaemia.

3-Neurological causes:
-meningitis.
-intracranial hypertension (hemorrhage, tumor).
-migraine.
-sever pain.
-syncope.
-acute labyrinthine disorder.

4-Pharmacological causes:
-digoxin.
-opiates.
-theophylline.

5-Cyclic vomiting syndrome.
6-Infection: UTI, otitis media (OM).

Then ask to differentiate between the above mentioned causes (go systemically):
1-Is vomiting associated with dyspepsia or abdominal pain and, if so, does vomiting relief the symptoms?
2-Is there abdominal distention?
3-If there is any pain, ask about the pain (location, frequency…….)
4-Do you have diarrhea or constipation?
5-Ask about jaundice, weight loss, hematochezia, and melena.
6-Ask about fever.
7-Ask about headache.
8-Ask about irritability.
9-Ask about consciousness.
10-Ask if he has diabetes.
11-Ask bout urinary tract.
12-Ask about any previous medications.
13-Is there any previous illnesses, family hx, social hx.

👁Examination:
1-Vital signs & growth parameters.
2-Any signs of dehydration:
-sunken eyes & cheeks.
-sunken fontanelles.
-few or no tears.
-dry mouth or tongue.
-decreased skin turgor.
-sunken abdomen.
3-examine the abdomen for:
-distention.
-tenderness.
-abdominal mass.
-succession splash (pyloric stenosis).
-tinkling bowel sounds (intestinal obstruction).
4-meningeal signs:
-neck stiffness.
-kernig's sign.
-Brudzinski's sign.

★Investigation:
Gastroenteritis:
-stool microscopy and culture.
Meningitis:
1-CBC with differential.
2-ESR.
3-Lumber puncture analysis & culture.
4-Blood culture.
5-Blood glucose (compare to CSF).
6-Serum electrolytes.
7-Serum and urine osmolality.
8-Bacterial antigen studies.
9-PT & PTT (DIC).
10-Skull X-ray (recent head injury).

Others: MRI, CT, Upper endoscope, abdominal x-ray with/without barium, 24hrs Ph monitoring, urine analysis & culture.

Chronic diarrhea

Definition: > 2 weeks, > 10cc/kg/day or >15cc/kg/day with maximum 200g/day.

🗣History:

1-age.
2-diarrhea: onset (acute, chronic/ recurrent), frequency, diet, appearance (blood, mucous, sticky, floating), consistency (formed, loose, watery) over flow infant diaper, amount (large, small), smell (foul), tenesmus (young crying with defection), effect with no presence of diarrhea.
3-similar attack in the past, previous infection, hx of contact.
4-family history.
5-fever + about differential.
6-nausea, vomiting, appetite, activity, irritability, weight loss.
7-asociated GI sx (abdominal distention, pallor, jaundice, constipation).
8-previou surgeries, bleeding tendency, joint problem, skin lesion/rash.
9-endocrine: tremor, flushing, sweating, neck swelling.
10-day care, travel.
11-respiratory sx (CF).
12-drug history.
13-if suspect hirschsprung ask about meconium.

👁Examination:

1-asses dehydration.
2-growth parameter.
3-according to dx:
-skin: rash, petechiae, skin lesions (in celiac, Zn).
-dysmorphic feature.
-pallor, jaundice.
-GI: bowel sound, hepatomegaly, anal tone.
-bone deformities.

★Investigation:

1-stool:
-analysis: WBC, RBC, mucous, PH, Cl toxin, cyst.
-culture + sensitivity.

-for malabsorption:
*CHO: PH, cline test.
*Fat: Sudan test, 3 day collection.
*Protein: alpha-1-antitrypsin.

-for mal-digestion: serum trypsinogen.
-osmolarity: anion gap.

2-blood: CBC, ESR, electrolytes, LFT (PT, bilirubin, albumin), serum lipase, < 3months old pt, HIV Ab/Ig, TFT.
3-urine:U/A, culture, specific gravity.
4-SI bx for celiac.
5-ERCP, abdominal US, sweat Cl, vit, Zn….etc.

DDx:

1-renal: HUS.
2-vasculitis: HSP.
3-infection: parasites, giardiases, amoebiasis, cryptosporidium (ID).
4-GI:
-SI inflammation: cow/ Soya milk protein intolerance 2^{nd} m.c.c of functional diarrhea in infancy, celiac, chron, UC.
-disaccharidase deficiency: lactase deficiency (**acquired**: post infection (mcc of functional diarrhea in infancy + child), **congenital**), sucrose (isomaltase deficiency).
-Mal-digestion: pancreatic insufficiency, CF, chronic pancreatitis, ↓ bile in ileal resection or chron, inactivation of pancreatic enzyme (ZE syndrome).
-disorder of peristalsis: overfeeding, scleroderma, pseudo obstruction.
-Mal-absorption: congenital glucose galactose malaborption, acrodermatitis enteropathica, a-b lipoproteinemia, hypo B lipoproteinemia, Wolman disease (↑ acid lipase in serum).

5-endocrine: hyperthyroidism, ZE syndrome, carcinoid syndrome, neuroblastoma.
6-drugs: laxative excess, Mg containing antacid, Ab, chemotherapy.
7-lymph vessels obstruction: 1^{st} intestinal lymphangetasia, 2^{nd} cardiovascular.
8-toddler diarrhea: mcc of child diarrhea (benign + wt gain, normal growth).

Management:
1-maintains good nutrition, control diet, avoid deprivation of essential nutrient.
2-antibiotic in overgrowth situation.
3-tt according to dx.

Red urine

History:

1-Urinary system:

-urine: ask about specific color {pink to red (extra renal), brown (renal)}, smell, stones, clots (extra renal).

At which phase of urination, duration of the problem, increase at night or with activity, in each episode of urination or not, previous similar problem.

-dysurea, suprapubic pain, flank pain (painful vs. painless).

-frequent & amount.

-edema.

-hypertension & fever.

2-General:

Weight loss, fatigue, FTT, pallor, jaundice, fever.

-Acute pallor: HUS or G6PD.

-Chronic pallor: Renal failure.

3-Respiratory system:

*URTI:

-Mild: 2 days prior; IgA nephropathy.

-5-10 days prior; HUS.

-Moderate to Severe: 1-3 weeks prior; post.Strept.

*Cough + hemoptysis = good pasture syndrome.

*Tachypnea = reflects acidosis.

4-CVS:

Exercise intolerance, fatigue (acute secondary to HTN), and fluid overload).

5-GIS:

Hx of gastroenteritis 5-10 days prior = HUS.

Associated with diarrhea, vomiting & Anorexia.

6-NS:

Decrease LOC, convulsion = hypertensive encephalopathy.

7-Locomotor:

Arthritis = SLE.

8-Skin:

-rash (macula papular = HSP I think it's in Kawasaki not in HSP), (photosensitivity = SLE), (petechial = bleeding tendency)

-jaundice & itching, skin infection (post strept.).

-Jane way & Osler nodules = infective endocarditis

9-Eyes & Ear:

Progressive sensor neural deafness, cataract & keratoconus = Alport syndrome.

10-Hematology:

-bleeding tendency (bleeding from other sites, easy brusibilty).

-sickle cell anemia.

-hb urea: intravascular hemolysis = G6PD & PNH.

11-Past medical hx: kidney diseases, recurrent URTI, trauma & exercise.

12-Drug hx & food intake:

-urate/ rifampicin/ flugy= orange urine.

-methylene blue= green urine.

-alcapronuria= black urine.

-cyclophosphamide= hemorrhagic cystitis.

-anticoagulants, chronic salcycilate, desferrioxmine.
-food=شمندر
13-Family Hx: similar complaint, tendency to form stones, alport syndrome.

👁Examination:
1-General: LOC, distress, pallor, cyanosed, jaundice, IV fluid.
2-V/S:
-HR: tachycardia, RR: tachypnea in acidosis, T: increase in infection, BP.
3-Growth parameter, FTT.

4-H&N:
-pallor, jaundice, buffiness, LAP.
-eye: cataract, keratoconus, fundi, per orbital edema.
-ear: sensor neural deafness.
-nose: infection, epitaxis.
-mouth: pharyngitis, MM bleeding.

5-Chest: heart murmur (heart failure, anemia).
6-Abdomen: tenderness especially renal angle & suprapubic, abdominal mass, organomegaly, ascites.
7-Genitlia: edema.
8-L.L: skin lesions (rash, infection), edema (ankle).
9-Locomotor: arthritis & joint swelling.

★Investigation:
1-Urinalysis, microscopy & culture +/- quantitative protinuria.
2-Blood:
-CBC (↑WBC, ↓hb, ↓platelets {SLE, HUS, Bleeding})
-blood film& reticulocytes.
-C3 complement, NA, streptozyme.
-KFT, BUN, Cr, Ca+2.
-PTH, uric acid.
3-Imagining: abdominal US, IVP or nephrogram.
4-Others: stones, crystal, bleeding (PT, PTT, INR, bleeding time), recurrent infection UCUG.

DDx:
1-glomerular diseases: acute GN, IgA nephropathy, HUS, HSP, SLE, nephritis.
2-stones & hypercalciurea.
3-infection.
4-drugs.
5-bleeding tendency.
6-hb pathology: sickle cell anemia, G6PD, PNH.
7-benign= familial, idiopathic, postural & recurrent.
8-congenital malformation, cystic diseases, stenosis
9-contaminated/ trauma.
10-tumor.

UTI

Upper UTI:
-pyelonephritis.
-renal abscess.
Lower UTI:
-cystitis.
Most common organism: E.coli 90% by an ascending mechanism followed by hematogenous, other organisms include:
-klebsiella, proteus, enterococcus.
-C.trachomatic, S.sapopyticus (usually in sexually active people)

🗣History:

1-Neonatal UTI symptoms:
Feeding problem, jaundice (direct hyperbilirubinemia), unexplained fever, diarrhea, convulsions, vomiting, FTT (may be in chronic UTI).
2-Infants 1 month to 2 years:
Unexplained fever, nausea, vomiting, irritability, diarrhea, abdominal colic & FTT.
3-Above 2 years:
Usually they present with the classical UTI symptoms: urgency, frequency, dysuria, abdominal pain, flank pain, incontinence, enuresis, may present with hematuria, high or low grade fever, nausea, vomiting, diarrhea and convulsions may present this age

👁Examination:

1-Look at the diaper for change in urine color, foul urine or diaper rash.
2-Look for non-specific symptoms like fever, irritability.
3-Look at the back to R/O neurogenic bladder.
4-Tenderness:
-suprapubic: cystitis.
-cost vertebral angle: upper UTI.
5-Look for metal stenosis or metal discharge, vaginal discharge.
In boy: penile circumcised or not.

⚹Investigation:

1-Urine culture: the gold standard for Dx.
-suprapubic sample: >1000 cfu/ml +ve. Or any growth.
-mid stream urine: >100000 cfu/ml +ve.
-catheterization: >10000 cfu/ml +ve.
2-Urine analysis:
-PH alkaline with proteus infection.
-pyuria >10 wbc/mm^3
-hematuria, wbc cast for pyelonephritis.
-Gram stain.
3-CBC, KFT, ESR, CRP, bleeding culture.
4-Imaging techniques:
-US, VCUG & ICUG for VUR, DMSA for kidney scaring, DTPA for obstruction.

DDx:

1-External genitalia inflammation and infection. 2-Pneumonia. 3-Appendicitis. 4-GE.
5-Pin worm infection. 6-Mesentric lymphadenitis.

Upper GI Bleeding

-Upper GI bleeding occurs at a site proximal to the ligament of treitz.

-Presented as:

Hematemesis (emesis of fresh or old blood).
Hematochezia (passage of fresh or dark blood from the rectum)
Melena (shiny, jet black, tarry stool)

The most common causes:

1-drugs (NSAIDs).
2-varices.
3-esophagitis.

History:

1-onset & duration.
2-color (fresh or dark).
3-rate (brisk or gradual).
4-type of bleeding (hematemesis, hematochezia, melena, blood-streaked stool).
5-forceful vomiting.
6-ingestion of drugs (NSAIDs).
7- 24-48 food hx (red fluids or food, spinach).
8-family x of liver disease or PUD.
9-coagulopathy.

Investigation:

1-CBC with differential.
2-coagulation studies.
3-to determine the site of bleeding (upper or lower):
-unstable pt: gastric lavage.
-stable pt: upper &lower endoscopies.
4-in case of a worsening pulmonary examination do a CXR to demonstrate if there is pulmonary hemorrhage or not.

Lower GI Bleeding

Introduction:

-GI bleeding may be acute or chronic, gross or microscopic, and may manifest itself as hematemesis, hematochezia or melena.

-hematochezia is the passage of fresh (bright red) or dark maroon blood from the rectum. The source is usually the colon, although upper GI bleeding that has a rapid transit time can also result in hematochezia.

-melena is shiny, jet black, tarry stool. It usually results from upper GI bleeding; the blood has been chemically altered during passage through the gut.

-Lower GI bleeding occurs at a site distal to ligament of treitz.

History:

1-onset, duration.
2-color: bright red, dark maroon, tarry black.
3-rate & frequency: on& off, continuous.
4-type: blood streaked, mixed.
5-painful or painless.
6-associated symptoms:
-fever.
-weight loss, change of appetite.
-diarrhea, constipation, vomiting, abdominal pain.
7-joint pain: HSP, IBD.
8-skin changes: (purpura: HSP, coagulopthy) (erythema nodosum: IBD).
9-eye sx: (episcleritis, uveitis, iritis =IBD).
10-urinary sx: HSP, (nephrolithisis: IBD).
11-mouth ulcer: IBD.
12-dysphagia: esophagitis less common cause of rectal bleeding.
13-infectious contacts.
14-foreign travel.
15-antibiotic or chemotherapeutic use.
16-coagulopathy.
17-previous GI surgery.
18-family history of peptic ulcer disease or duodenal ulcer.
19-history of milk colitis:
-sx occur with cow or soy milk.
-sx disappear after withdrawal of the milk.
20- 24-48 hr food history (diet):
-red foods: beets, red jelly, red licorice, fruit bar.
-red drink.
-melena can be caused by (therapeutic iron supplements, blackberries, spinach, compounds containing bismuth, charcoal)
21-growth.

👁Examination:

Immediate priority is to determine if hypovolemia exists from an acute bleed.

1-VS: for orthostatic changes or for evidence of shock (tachycardia, tachypnea and hypotension), (earliest sign of significant GI bleeding is raised resting HR), (drop in BP is seen when 40% of intravascular volume is depleted).

2-Capillary refill should be assessed on extremity examination (thenar eminence in neonates & infants).

3-Mouth lesion: ulcer.

4-Dermatological abnormalities:

-petechia & purpura.
-cool or clammy kin with pallor = shock or anemia.
-rashes.
-hemangiomas.
-jaundice.
-telangiectasias (hereditary hemorrhage telangiectsia, peutz-jeghers syndrome).

4-Abdominal examination:

-distention (intussusceptions, toxic megacolon).
-tenderness (epigastrium= PUD) (RIF= crohn's, infective enterocolitis).
-masses (RIF= crohn's, intussusceptions).
-hepatospleenomegaly & caput medusa (evidence of portal HTN & risk of varices).

5-Rectal examination:

-anal fissure (spread buttocks & evert anal canal; most present at 6 & 12 o'clock position).
-fistulas: crohn's.
-feel for hard stool.
-look for dilated rectum in children with chronic constipation or anal fissure.

★Investigation:

1-CBC with differentiation.
2-retic count.
3-blood smear.
4-platelet count.
5-coagulation studies.
6-type & cross match (if child ill appearing)
7-if bleeding source is unclear & patient is unstable, the clinician should use gastric lavage to determine whether bleeding is from upper or lower GI tract. (Unnecessary in children with minor or nonacute bleeding).
8-to dx specific cause of upper GI bleeding, endoscope should be performed.
9-lower GI bleeding may be evaluated with proctosigmoidoscopy, colonoscopy, arteriographhy, or specific scans.
10-in newborn infants with bright red, bloody emesis or bright red blood passed per rectum, an appropriate test should be performed to determine whether blood is maternal or fetal.

DDx:

	common causes	less common causes
Infant	Anal fissure, milk protein intolerance, necrotizing enterocolitis, swallowed maternal blood, hirschsprung's disease, vit K deficiency.	Vascular lesions, meckel diverticulum, malrotation volvulus, intestinal duplication, intussusceptions.
Older child	Anal fissure, meckel diverticulum, intussusceptions, infectious enterocolitis, antibiotic-induced enterocolitis, juvenile polyp, HUS, HSP, IBD, peptic ulcer, esophageal varices.	Intestinal duplication, amebiasis, hemorrhoids, peri-anal cellulites, rectal prolapsed, solitary rectal ulcer, sexual abuse & ano-rectal trauma.

Diagnosis of lower GI bleeding:

1-PUD: epigastric pain, meal related, may be increased at night, family hx.
2-Fissure: bright red blood on surface of stool, pain, constipation, fissure often visible on anal eversion.
3-Colonic polyps: bright red blood on surface of stool, painless.
4-Milk colitis: blood mixed with stool, diarrhea, patient may have proteinemia, edema.
5-Meckel's diverticulum: painless bleeding mixed with stool, often a lot of blood.
6-IBD: diarrhea, fever, abdominal pain, poor growth, associated systems sx & sx.
7-Bacterial colitis: diarrhea, fever, abdominal pain, antibiotics.
8-HSP: joint pain, purpura, abdominal pain, nephritis (casts, RBC's in urine).
9-HUS: diarrhea, renal failure, thrombocytopenia, microangiopathic hemolytic anemia.
10-Intussusception: intermittent abdominal pain, vomiting, pallor, red currant jelly stool, right sided mass.

Leg edema / swelling

History:
1-Profile: age, route of entry(ER or NA).
2-C/O: lower limb swelling, duration.
3-History of present illness:
-start (acute, chronic), progression, end, position (standing/ lying), uni or bilateral, severity, painful or painless, then use the ddx to guide you:

1-Generalized causes:
1-congestive heart failure: chest pain, palpitation, SOB, easy fatigability, cough, frothy sputum.
2-liver failure: UGI / LGI bleeding, vomiting, jaundice, testicles, skin lesion, dilated veins, abdominal masses, abdominal distention, diarrhea, nails.
3-nephrotic syndrome: frequency, polyuria, urine color, stones, HTN, abdominal pain, edema in orbits/ hands.
4-malnutrition: feeding & food.
5-renal failure: as above + any growth/ bones problems.
6-fluid overload: any IV fluid given.
7-hypothyroidism: sluggish, decrease appetite, cold intolerance…etc.
8-drugs.
9-allergy.

2-Localized causes:
1-trauma.
2-cellulitis: any skin wound/ infection, redness, shinny, painful, hotness, fever.
3-allergy.
4-joint disease: other joints, eye symptoms, lymph nodes, rash, fever, throat infection, can he move his leg, can he stand, pain.
5-venous disease: pelvic trauma, IVC obstruction, AV fistulas.
6-paralysis (decrease muscle pump): any neuro/muscle disease, polio infection.
7-dependency: obesity, prolonged standing.
8-lymphedema: any lymph nodes, dirty water.

3-Review of system: nothing.
4-PNH:
-any previous hx, HTN, DM, hospital admission.
-vaccines.
-development.
-nutrition.
5-Drug hx: any taken drugs.
6-Family hx: any similar condition in family.

👁Examination:

1-general look nails & fingers.
2-VS.
3-growth parameters.
4-H&N: periorbital edema, LN, throat, skin.
5-RS: chest for pulmonary edema, crackles, skin.
6-CVS: pulses& heart.
7-Abdomen: masses, organomegaly, veins, ascites, skin.
8-Genitalia: testicles, swelling.
9-Lower limbs:
-pitting edema or not.
-level of edema.
-skin lesion, color, veins.
-joints (look, feel, move), other joint in body.
-lymph nodes.
-pulses.
-power.
-capillary refilling.

★Investigation:

1-CBC & differential.
2-ESR, CRP.
3-Urinalysis.
4-Blood electrolytes, KFT.
5-LFT, clotting (PT, PTT).
6-Tyroid function test.
7-RF, ANA??
8-CXR.
9-Limb x-ray. CT scan.
10-abdominal US, CT scan.
11-pelvic US, CT scan.
12-Doppler.
13-Venography/ arteriography.
14-Lymph node biopsy if indicted.

Case: 9 year old male patient presented to you with right knee pain of two days duration.

History:

1-onset, duration & progression of pain.
2-aggravating or relieving factors.
3-is there associated hip pain.
4-associated hotness, swelling, tenderness, decreased mobility, limping.
5-associated fever, fatigue, wt loss, night sweat.
6-associated skin rash.
7-associated GI symptoms (abdominal pain, diarrhea….).
8-associated urinary symptoms (hematuria, dysurea…).
9-associated eye symptoms (pain & redness).
10-previous similar attacks of knee pain or other joint.
11-recent hx of trauma.

12-recent hx of sore throat.
13-hx of bleeding disorder.
14-family hx of joint disorders.

Investigation:
1-CBC, blood culture.
2-ESR, RF, ANA.
3-Joint aspiration.
4-Joint x-ray, bone scan.
5-PT, PTT.
6-ASO, throat swab.
7-Brucella titer.
8-Tuberculin test.

DDX:
1-Trauma (point 11 in hx)
2-Septic arthritis (point 4, 5 in hx).
3-Juvenile rheumatoid arthritis (point 6, 9, 14 in hx).
4-Rhaumatic fever (point 12).
5-FMF (point 7 & fever).
6-HSP (point 6, 7, 8)
7-Reiter's syndrome (points 8, 9, remember the triad: arthritis urithritis, conjunctivitis).
8-Toxic synovitis of hip (point 3, 4).
9-Hemophilia (point 13).
10-Sickle cell disease (salmonella osteomyellitis).
11-Tumours (bone tumor, soft tissue tumor, leukemia).
12-Others: TB arthritis, psoriatic arthritis, brucellosis).

Headache

🗣History:

1-profile: age (infant: non specific. Child &adolescent: more specific)
2-C/C: headache.
3-HPI:
-onset: acute, chronic.
-progression: continuous, intermittent, is there pain free intervals.
-site, radiation, severity, duration, frequency.
-character: tight band, pressure over lead. Throbbing, dull aching.
-morning/ night.
-aggravating factors:
In ↑ICP the pain is ↑ by coughing, straining & bending.
In migraine: CHOCOLTE: **CH**eese, **O**cp's, **C**affeine, Alcoh**OL**, **A**nexiety, **T**ravel**, E**xercise
-relieving factors.
4-other neurological (CNS):
Dizziness, vertigo, blurred vision, nystagmas, dysathria, hemiparesis, quadriparesis, LOC, photophobia, phonophobia, aura, neck stiffness and abnormal movements.
5-more specific questions directed to specific disease:
-Headache may be part of systemic manifestation of any infection, so risk about malaise, fever, weakness, myalagia, cough SOB, dysuria, diarrhea, joint swelling.
-subarachnoid: neck stiffness.
-ear rubbing for otitis media.
-rhinorrhea + blocked nose for sinusitis.
-meningitis: history for LP, fever, lethargy.
-migraine: aura, orbital pain.
-hx of hydrocephalus and a VP or VA shunt.
-tumor: chronic headache, progressive, generalized weakness, x of primary tumor else where in the body.
-ask about nausea/ vomiting s it would suggest an ↑ICP or cyclic vomiting (a subtype of migraine).
6-specific questions for pediatric age group:
-poor feeding, sleep pattern, activity, lethargy, developmental milestones.
7-family hx of migraine.
8-drug hx: steroids, NSIDS.
9-social hx: recent travel, contact with ill patients.

👁Examination:

1-VS.
2-general for any systemic infectious disease.
3-head circumference.
4-full neurological examination: cranial nerve, gait, tone, power, sensation, reflexes, specific signs.
5-do meningal signs.
6-ENT exam.

★Investigation:

LP, CT, MRI, Sinus x-ray, Chest x-ray (mets).

Skin Rash

History:

1-age, sex.
2-duration.
3-progression:
-distribution (where did the rash begin {sit}? How did it spread {face, palms, soles involvement, any change in hair, nails or teeth? how long does individual lesion last?)
4-shape & color.
5-discharge, bleeding, itching, pain, blanching.
6-fever, its relation to rash.
7-associated symptoms:
-joint pain, swelling, redness: rheumatic disease.
-abdominal pain, pleuretic chest pain: FMF.
-photosensitivity: SLE.
-red urine, diarrhea, bleeding tendency: HSP.
-abnormal body movement: RF.
-changes in tongue (strawberry): scarlet fever.
-prodrome of cough, coryza, conjunctivitis, koplik spots, generalized LAP: measles.
-slapped cheeks: erythematic infectiosum.
-weight loss, anorexia: malignancies
8-vaccination hx.
9-family hx of skin disease, atopy (asthma, seasonal allergy, drug allergy, atopic dermatitis)
10-hx of contact with ill people.
11-previous hx: prior skin disorder, atopy, asthma, recent URTI, if rash is transient is it seasonal?
12-drug allergy, ointments or creams applied to skin.
13-food.

Investigation:

CBC, ESR, CRP, RF, NA, LFT, KFT, PT, PTT, ASO & throat culture, serology (measles IgM, rubella IgM), PCR, skin biopsy, complements, urine analysis & kidney Bx, echo (Kawasaki).

DDx:

1-infections: measles, rubella, VZV, scarlet fever, erythematic infectious.
2-drug related: urticaria, serum sickness, antibiotics, and penicillin.
3-rheumtic disease: TR, RF, SLE, dermatomyositis, vsculitis (Kawasaki, HSP).
4-dermatitis (diaper)
5-neuro (NF, tuberous sclerosis)
6-immunodeficiency.
7-food allergy.
8-malignancy.
9-insect bites.

Lymphadenopathy

🗣History:

1-age, sex. 2-duration. 3-sites.
4-progression: where did it begin? Change in size, color...etc
5-painful or tender or not.
6-Associated symptoms:
-fever, sore throat, snoring at night, nasal speech: EBV (acute bacterial infection) /cervical non specific inflammation LAP, tonsillar or adenoid hyperplasia.
-SOB, cough, wt loss, anorexia, night sweats, pallor: TB, HL, NHL.
-bone pain, itching, fever with rigors: HL, NHL.
-skin rash, prodrome of cough, coryza, conjunctivitis: measles.
-joint pain, swelling, redness: rheumatic disease.
-photosensitivity: SLE.
-sore tongue, hoarse voice, hemoptysis, abdominal pain: metastasis to know the primary.
7-PMH:
-previous history of LAP.
-vaccination history for BCG: TB
-developmental delay: storage diseases.
8-drugs: phenytoin, allopurinol, INH.
9-FHx: of similar cases or of any disease in the list of DDx, contact with ill people like TB pts.
10-social hx: cats in the house or being scratched by cats (cat scratch disease), raw milk ingestion (brucellosis).

👁Examination:

1-inspect LN: ssss.
-palpate them.
-compare site, size, consistency, tenderness and fixation.
2-examine other systems: heptosplenomegally, bruising, purpura, petechiae, hematological.

⚹Investigation:

1-LAB: CBC, ESR, LFT, KFT, LDH/ uric acid/ ca+2 (malignancy), PPD (TB), titers (EBV, CMV, HIV, toxoplasmosis, B.henseleae, LN aspirate.
2-IMAGING:
CXR (TB, lymphoma, mediastinal LN, Gaucher), CT chest & abdomen, US abdomen for follow up.

DDx:

A-Generalized LAP:
1-infection: non specific, viral (EBV, CMV, HIV), bacteria (brucellosis, TB, syphilis), protozoa (toxoplasmosis), cat scratch disease (B.henseleae).
2-neoplastic: lymphoma (Hodgkin's, non- Hodgkin's) / mets.
3-rheumatologic: RA, SLE, and sarcoidosis.
4-storage disease: nieman pick & gaucher.
5-drug-induced: phenytoin, allopurinol, INH.

B-Localized:
1-infection.
2-neoplastic.
3-kawasaki is an imp. Cause of cervical LAP (5 day fever not responding to ABO).

Failure to thrive (FTT)

Definition: persistent weight below 5th percentile or falling off growth chart.

History:
1-when did it start? & length affected?
2-feeding hx:
-if it is infant: breastfed or bottle fed, type of formula used, how many meals, quantity of milk, time spent each meal, poor sucking, refusal to eat, how she prepare the formula, weaning (when, what type of food she introduced?).

-if table food: quantity of food, quality, does the child feed himself, where does he eat (if while watching TV distraction), anybody observing him during eating, food refusal, drink (juice, soda, water, milk intake), pica hx.

3-review of systems:
-weight loss (how many kg? and duration).
-dysphasia, vomiting, recurrent diarrhea, pneumonia, otitis media, UTI.
-stool frequency, consistency, color.
-hx of recent travel.
-child activity.

4-preinatal hx:
-maternal infection, alcohol.
5-neonatal:
-GA, birth wt, any complication (asphyxia), NICU admission.
-developmental hx according to age.
-vaccination.
-hx of trauma, hospitalization.
-chronic medical illness (asthma, anemia, congenital heart disease).

6-family hx:
-similar condition in siblings.
-short stature.
-developmental delay.

7-social hx:
-parents (job, married or divorced)
-income, insurance.

Examination:
1-VS.
2-growth parameters.
3-general appearance, activity, muscle wasting, pallor, cyanosis, dysmorphism, behavior observation
4-nails, fontanels, frontal bossing.
5-mouth, pharynx, palate deformity (cleft palate), tongue, teeth (dental caries), mucus membrane hydration.

6-neck thyroid abnormalities.
7-chest exam (respiratory & cardiac (murmur, cardiomegaly)).
8-abdomen protuberance, organomegally, masses.
9-extremeties (edema, joint).
10-genitalia (normal for age, ambiguous).
11-neurological exam.
12-skin &back.
13-developmental exam.

★Investigation:

1-LAB:
-CBC, UA, urine culture, ESR, chemistry (electrolytes), KFT, LFT, stool culture & analysis, celiac screen, thyroid function test.

2-sweat chloride test.
3-assesment of GH↓
-IGFI, IGF binding protein 3 level.
4-CXR, echo, endoscope, bone age, karyotype.

DDx:

1-neurological:
-cerebral palsy, mental retardation, degenerative disorder, neuromuscular disease.
All these disorder will lead to inability to suck, swallow or masticate.

2-cardiac: congenital heart malformation (↑metabolic rate).
3-palmonary: CF, BPD, chronic aspiration, respiratory insufficiency, RF.
4-GI: malabsorption, milk protein intolerance, GERD, pyloric stenosis, celiac disease.
5-renal: RTA, chronic renal insufficiency.
6-infections: HIV, chronic gastroenteritis, UTI.
7-psychological: abuse, neglect, inadequate amount of food.
8-incorrect preparation of formula.
9-others (inborn error of metabolism).
10-malignancy.
11-cleft palate, congenital immunodeficiency syndrome.

Etiology of FTT:

1-reduced growth potential:
Chromosomal disorders, skeletal dysplasia, fetal-alcohol syndrome.
2-↑ Metabolic rate:
Thyrotoxicosis, chronic disease (BPD, heart failure), burn.
3-vomiting:
-CNS abnormality (tumor, infection, ↑ICP), metabolic toxin, inborn error of metabolism, intestinal obstruction, RTA.
4-regurgitation GERD, hiatal hernia, rumination syndrome.
5-poor nutrition use: inborn error of metabolism, renal failure.
6-inability to suck, swallow or masticate.
7-psychological.

Floppy infant

History:

*History of present illness:
1-age of onset.
2-onset: sudden, gradual, from down- above or after exercise (he wakes normal then he become like this)
3-duration, progression.
4-weak cry, weak sucking, feeding difficulty (لا يكمل الرضعة).
5-chocking.
6-sign of respiratory distress: tachypnic, cyanosis.
7-constipation

Central:
1-gray matter:
-hx of seizure (in infant).
-change in cognitive function (orientation), LOC (in infant).
-coma (in infant)
-dementia, amnesia (not in infants)

2-white matter:
-squint (in infant)
-motor dysfunction.
-gait & posture abnormality.

3-neuromuscular junction: fatigability.
4-muscular: proximal weakness, grower sign +ve.

*Systemic review: respiratory distress, constipation, muscular pain.
*past medical history:
-previous admission, aspiration pneumonia.
-pregnancy: as usual drugs, radiation exposure.
1-fetal movement.
2-oligo/ polyhydraminous.
3-any abortions, still birth…etc.
-delivery: complicated CIS or NVD, use of vacuum/ forceps head damage, drugs used.
-post delivery: birth weight (low), NICU admission, use ventilator , NGT, RDS, asphyxia, jaundice, meningitis, comatoized at birth, seizure, intra cranial hemorrhage, GI (hypo Na+) may lead to brine damage hence hypotonic, weak cry after birth.
-ask if he is term or preterm: ↑complicated as intra ventricular hemorrhage.

*vaccination:
-Polio vaccine (إذا هو أخذه أو احد من البيت).
-Pertusis vaccine (one of its side effect)

*feeding:
-feeding difficulties, cocking, cyanosis.
-sucking power.
-if he is a child can he chew.

*family hx of same condition, early death, MG (especially of mother), neurological disease, congenital hypothyroid, chromosomal abnormalities (trisomy)
-MG: there is an entity called transient neonatal myasthenia of infant born to mysthenic mother.
*drug hx.
*social hx.

👁Examination:
1-generl: patient lies in his bed, not distressed, not irritable.
-Conscious, alert: rule out central cause.
-signs of respiratory distress, on ventilator: respiratory difficulty.
-with NG tube inserted: feeding difficulty.
-he lies frog like posture (abducted with slight flexion).
-not moving (voluntary movement).
-no abnormal movement (chorea)
-he is calm (they don't produce sound, week cry).
-yes/no dysmorphic features (say some of what you know, no micro or macrocephaly.
-yes/no m.fasiculation, m.wasting.
-early sign of spasticity seizure /fisting of hand.
-he is not obese.
-hair look normal.
2-Hc: macro/microcephaly, Wt: obese, malnourished
3-H&N:
-ant & post fontanel.

4-eyes:
-Fixating or not, squint, eye movement, ptosis.
-cataract, fundoscopy: DM retinopathy.

5-tongue: fasciculation, large protroted tongue.
6-neck: thyroid enlargement.
7-chest: funnel chest, crepitation (signs of pneumonia), decrease expansion (shallow breathing).

8-CVS:
Cardiomyopathy: cardiomegally, cyanosis, USU there is no murmur.

9-abdomen:
-protroted abdomen (m.wasting), hernia (there is ↑ incidence of hernia), hepatomegaly, PR (tone of sphincter).

10-genitalia: undecended testes (↑ incidence of genetalia).
11-LL: wasting, fasciculation, kissing knees (rickets).

12-neuro:
-eye movement.
-tone at each joint& if there is contracture.

-reflexes: hyper (central), hypo (peripheral), babenisky (2years), clonus (3-6 m)
-look for primitive reflexes (monro, grasping)
13-developmental:
-head lag.
-C shape on ventral suspension (ventral).
-try to hold him, he will lip between your hands (horizontal).

★Investigation:
1-central:
-head CT: brain atrophy, anomaly, degenerative.
-chromosomal kyrotyping (chromosomal disease).
-serum cupper & ceraloplamine.

2-peripheral:
-CPK.
-nerve conduction velocity.
-EMG.
-muscle biopsy.
-DNA analysis.

*for MG: chalonge test
1-give short acting cholinesterase inhibitor (drophonium)
2-EMG is also diagnostic.

3-secondary causes:
-TFT: hypothyroid.
-Ca+2, vit D, Po4, ALP: rickets.
-K+
-Cu+2 (cupper) + ceralloplasmine.
-check for DM and adrenal insufficiency.

Central
1-Atonic cerebral palsy:
-primitive neonatal reflex.
-pseudo bulbor palsy.
-microcephaly.

2-chromosomal disease:
-Several trisomy & deletion syndrome
-Look for abnormal feature (face, hand, foot)
-Low birth weight.

3-other:
-Lowe syndrome: hypotonia, cataract, rickets.
-bradder willi: hypotonia, obesity, DM.
-leukocytrophies: kinky hair disease, neonatal adreno leuko dystrophy.
*kinky hair: hypotonia, myoclonic seizure, kinky colorless friable hair, low serum Cu+2 & ceruloplasmine.

4-congenital anomaly of cerebellum: sever hypotonia in infancy.

Peripheral
1-werding-hoffmon disease (most common cause)
-floppy with absent tendon reflex.
-bulbor palsy.
-tongue fasciculation.
-normal mentally
-normal eye movement.
-late respiratory paralysis.
(EMG + muscle biopsy)

2-congenital muscular dystrophy: thin muscle of the limb & trunk, joint contraction & arythogryposis.
(Muscle biopsy + CPK moderately increase).

3-congenital myopathies:
-floppy with absent reflexes.
-thin muscle bulk of limb & trunk.
-mild joint contracture.
-ocular, fascial, respiratory weakness.
(Muscle biopsy + CPK + EMG + nerve conduction velocity)

4-glycogenosis type 2 (pomp disease)
-thin protruding tongue.
-cardiomyopathy cardiomegally, cyanosis, heart failure, no murmur.
-die from cardio-resp failure.

5-congenetal MG:
-weak sucking.
-shallow breathing.
-ptosis + opthalmoplagia.
-transient neonatal myasthenia.

6-benign congenital hypotonia:
-normal muscle biopsy & CT.
-not associated with weakness or delay development or contracture.
-mentally is normal.

☺ ☺

THE end

Sorry for any mistake
Good luck in OSCE.
Yasmeen alomari

- **Special thanx to m7amd rjoob ☺**