Febrile Convulsion → Simple (< 15min, Once/24h, Generalized) / Complex (> 15min, Occur in 24h, Focal)

Abnormal movements

① Previous episodes? / frequency

② Fever?

Yes

Fever
① Documented?
② Route.
③ Duration
④ Progression

Convulsions
① Pre-ictal → what he was doing before the attack?
did he complain about Anything? (Aura)
→ Sweating, Palpitation, Abnormal sensation, visual disturbances.

② Ictal → Duration
Generalized or part of Body (symmetry)
Type (Tonic-clonic, Abscense)
myoclonic, atonic
Was he responsive during attack?
Tongue biting. uprolling of eyes, Foaming, Incontinence, cyanosis, secretion from mouth

③ Post-ictal → How did it stop? → spontaneous / meds
sleep for 60m
Status after attack (confusion, LOC)
Does he remember what happened?

④ DDx: ① Meningitis: Neonates: Vomiting, Rash, Hypoactivity | older children: photophobia, HA
meningococcal, other viral causes roseola
projectile+early morning
phonophobias

② Otitis media: Ear discharge.
OM could cause CNS infection then seizure

③ URTI: Rhinorrhea, cough, SOB, sputum.

④ GE: Diarrhea, Abdominal Pain/distention, Jaundice, Blood in stool (shigella)

⑤ UTI: Frequency, Hematuria.

⑨ Cellulitis: Trauma or skin infection. (redness)

⑩ Arthritis: Joint Pain, swelling. (if yes → photophobia, malar rash, painless oral ulcer) } SLE

⑪ Systemic infection: Anorexia (Poor feeding), night sweat, lethargy.

⑫ Perinatal history (if < 3 years):
- Prenatal: maternal Fever, UTI
- Natal: mode of delivery, ruptured membranes (complication)
- Post natal: ICU, Birth weight

⑬ Feeding hx → Breast feeding.

Vaccines
↳ last vaccine
↳ Reactions
Meningiococcal
PCV-13
DTP
MMR

⑭ Drug hx

⑮ Family hx of Febrile convulsion or epilepsy?

⑯ Social hx: Day care, contact with feverish person?

No

① Pre-ictal → what he was doing?
↳ Abnormal sensation?

② Ictal → Duration.
Generalized or Focal?
Type?
Responsiveness?
Tongue Biting. Foaming. ....

③ Post-ictal → How did it stop?
↳ status after attack?
↳ Does he remember?

④ DDx:
① Hx of Head Trauma.
② Meningitis: Hypoactivity, vomiting, Rash, HA, photophobia.
③ Infantile spasm (4-7m): Skin Rash (Ash leaves) — Neurocutaneous disorder (TS).
(↓↑ Na^+, ↓ Ca^{+2}, ↓ Mg^{+2})
④ Electrolyte Imbalance: 1- hypoglycemia (Good Feeding?)
2- Hyponatremic dehydration: vomiting, diarrhea, thirst, oliguria, Abscent tear. 3- hypocalcemia: rickets
⑤ Disorders that mimic seizure:
① Arrhythmias: Family hx of sudden death & heart Problems
② Breath holding spells → Crying then powerful exhalation (hypoxic seizure)
③ Migraine → HA
④ GERD → Heart burn / Abd. Pain — stiffness, apnea
⑤ Sleep Deprivation / Jitteriness
focal neurologic deficit, behaviour changes, school performance
⑥ Malignancy (Brain Tumors): early morning vomiting, headaches, Anorexia, weight loss.
⑦ Perinatal hx — complications, ICU, Birth weight (Hypoxic encephalopathy)
⑧ Drug hx (dystonic Reaction) → metoclopramide for N/V.
⑨ Family hx of epilepsy, heart disease, Neuro dz
⑩ Developmental hx :)

Seizure: Transient occurance of signs & symptoms (change in Level of consciousness. motor or sensory Abnormality) resulting from excessive neuronal Brain Activity.

Epilepsy: Two or more unprovoked attacks in time frame > 24 hour.

status epilepticus: Continuous seizure > 30min & the patient remain Unconscious, or Two or more seizures without full recovey of consciousness Between them.

Febrile convulsion: Seizure with Febrile illness in the abscense of CNs infection or electrolyte imbalance in childrens between 6m - 6y.

Risk Factors For FC Recurrance: ① male ② <12m ③ Day care ④ Family hx ⑤ Duration & temp. of fc. (lowest ↑ the risk)

Factors that ↑ epilepsy → ① Family hx ② Complex FC ③ Neurodevelopmental Anomalies ④ Duration of Fever.

① Infantile spasm (west syndrome / salaam attack) → can evolve to lenux Gastut

① 4-7 m. (Infants)
② spasms (Flex. extens. or mixed) + variable encephalopathy.
③ 90% underlying cause. (Associated with Tuberous sclerosis)
④ EEG: hypsrrhythmia. (multifocal Activity)
⑤ Treatment: ACTH, high dose oral steroid. Vigabatrin!

② Lennox Gastaut Syndrome:

① 1-7 years (Pre-school)
② EEG: Generalized 1-2 Hz slow spike & wave
③ 40% Preceded by infantile spasm.

③ Childhood Abscense Seizure:

① 3-10 years (Peak 6-7) - early school Age
② Generalized Abscense seizure provoked by hyperventilation → staring < 5 sec (Unresponsiveness) → delayed school performance.
③ EEG: 3 Hz spike & wave.
④ Treatment: ethusaxamide.

④ Rolandic seizure:

① 4-10 years.
② Focal seizure typically before or after sleep.
↳ drooling, dysarthria, speech arrest
③ self-limited. & normal cognition.
④ EEG: High amplitute centrotemporal spikes (do serial sleep EEG)

causes of seizure:

① Head Trauma
② Tumers
③ Electrolyte disturbances
④ Inborn errors of metabolism
⑤ Birth complications => Hypoxic encephalopathy
⑥ CNs infections

Disorders that mimic seizure:

① Arrhythmia
② Birth holding spell
③ Migraines
④ GERD
⑤ Dystonic Reactions
⑥ sleep-related.
⑦ Tics
⑧ Jitteriness in newborn.

Physical Examination

- *General look*
- *Vital signs*
- *Growth parameters*
- *Signs of dehydration*
- *Glasgow Coma Scale* (*GCS*)
- *Mental status* (place, time, person)
- *Glucose check*

Organ	What to look for
Eye	sclera, conjunctival telangictasias, Lisch spots, coloboma, cataract, *fundoscopy (for papilledema)*
Ear ⇒ Otoscopy	Otitis media
Face	dysmorphic, port wine stain (sturge weber), sebecum adenomas (TS)
Cardiac	murmurs
Abdomen	organomegally
Skin	Ash-leaf spots (TS) Café au lit spots (neurofibromas NF1) axillary freckles
Hands	for deformities
Neurological	- *Meningeal signs:* nuchal rigidity, Brudizinski, Kernigs sign - *Cerebellar signs* - *Cranial nerve examination* (*CN*) - *Muscle tone*, *reflexes*, *clonus*, *Babinski* sign

Investigations

Test	What to look for
CBC	
Electrolytes	hypocalemia, magnesemia, hyponatremia, hypernatremia
Blood glucose	
ABG & pH	
Blood urine toxicology	
Metabolic workup	
Anti-seizure drug level	
EEG	
Neuroimaging	MRI superior to CT

Investigations

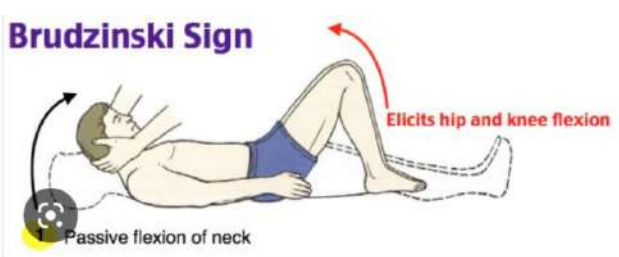
Test	What to look for
CBC, ESR, CRP	
Electrolytes and blood glucose	
LP with CSF analysis & culture	
Throat swap culture	
EEG, Neuroimaging	

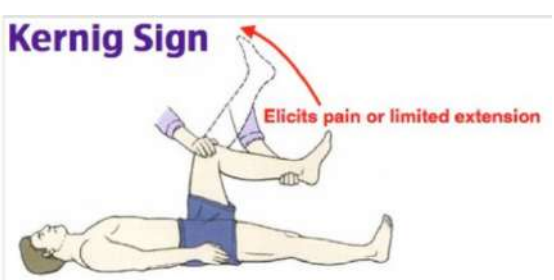
Cerebellar sign

- Speech Normal
- Balance No wide-based gait,
  No truncal ataxia
  Tandem walk : Neg

Nystagmus No nystagmus

- Coordination
  Finger-to-Nose test : Rt. Dysmetria
  Heel-to-Knee test : Neg
- Dysdiadokokinesia : Neg





Management

ABC	
2 IV lines	
Pulse oximeter	
to stop seizure	- **IV bendiazebines** (**diazebam**, **lorazebam**), slow IV push over minute if not stopped additional 2nd dose (wait for 5 min from the 1st), be aware of respiratory depression, if not: - **Phenytoin** continuous infusion wait for 5 min, if not additional 2nd dose is given, risk of local pain and injury including venous thrombosis, purple gloves syndrome (edema, discoloration, pain distal to site of infusion) in severe cases limb ischemia & skin necrosis that may require amputation - **Phenoparbital** & **valproate** then induction of coma via continuous infusion of **midazolam**, **propofol** then prophylactic management based on the lecture
hypoglycemia	give bolus IV 10% **glucose saline**

Management

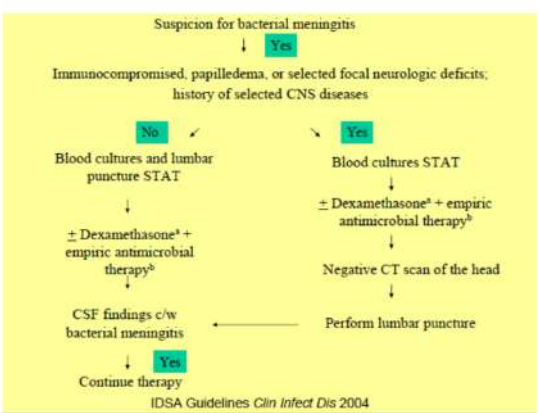
Empiric Mx	Ceftriaxone or Cefotaxime + Vancomycin (Ampicillin + Gentamicin for newborns)
Bacterial	Ceftriaxone + Vancomycin
Viral	Acyclovir mostly
Steroids	Might be given in some cases

Contraindication for LP

- Suspected brain abscess or subdural empyema (20% herniation)
- Bleeding disorders
- Skin infection at site of LP
- Papilledema? (1-6% herniation after LP)

Duration of treatment Bacterial Meningitis

- **S. pneumoniae**: 10-14 days
- **N. meningitidis**: 5-7 days
- **Hib**: 7-10 days
- ***L. monocytogenes*** – 14 to 21 days
- ***S. aureus*** – at least 2 weeks
- **Gram –ve**: 3 weeks



History and Physical examination of Pallor

Q.M.A. Team

Differential diagnosis

Table 16-1: Anemia Mechanisms Summary

		Reticulocyte Count	Morphology	Etiology	Examples
1) Production Defect		Decreased	Normal	1) Decreased erythropoietin 2) Bone marrow failure	1) Chronic renal disease 2) Aplastic anemia
2) Matura-tion Defect	Cytoplasmic	Decreased	Hypochromic Microcytic	1) Impaired Hgb synthesis 2) Protoporphyrin deficiency 3) Globin synthesis deficiency	1) Fe deficiency 2) Sideroblastic anemia 3) Thalassemias
	Nuclear	Decreased	Megaloblastic	DNA synthesis defects	B_{12}, folate deficiencies
3) Survival Defect	Intrinsic (inherited)	Increased	Specific changes	1) Membrane cytoskeleton protein 2) Metabolic enzymes 3) Hemoglobinopathies	1) Spherocytosis, elliptocytosis 2) G6PD deficiency 3) SS disease, HbC, HbD, HbE
	Extrinsic (acquired)	Increased	Specific changes	See examples	Autoimmune hemolysis, malaria, DIC, vascular hemolysis

Hx taking

Le ROYAL AMMAN

↑ Pt profile :-

- Age
- Sex
- Race and Ethnic factors

→ 6-9 m ⇝ Iron store depleted ⇝ Iron deficiency anemia appear

دورتی کثیر وما لقیت سبب ⇝ BM biopsy ⇝ DBF

→ Newborn ⇝ Autoimmune hemolytic anemia / 50% of spherocytosis / Favism OR Pyruvate kinase deficiency

⇝ After 6m = disappear of HbF ⇝ Start presentation of hemoglobin disorder

→ Specific Age for Congenital problem in Erythroplast

(DBF ⇝ 3m-6m / TEC ⇝ 6m-3y / Fanconi ⇝ 4-10y)

⇝ male more risky to have X-linked disease e.g G6PD def.

⇝ black = SCD / Mediterrean = Thalassemia /

HOPI

Black OR Mediterrean

⇒ Analyse the CC

- Timming + duration → since when ? (acute Vs chronic)
- Is there any previous (similar attack ?
هل هاي أول مرة بتصير معه !
- persistant Vs changable (↑/↓)
- Distribution ⇝ شو أول مكان لاحظتي فيه ! / هل في اماكن ثانية
- Associations ⇝ (weakness) ⇝ مين (infant) ⇝ hypoactive, poor sucking
  - ↳ الطفل child ⇝ decrease exercise tolerance
  - ↳ Cardio- ⇝ palpitation, dizziness OR syncope
  - ↳ pulmonary ⇝ SOB [on exertion], tachypnea

⇒ DDx for anemia

1. production defect → A. Decreased erythropoietin → Chronic kidney disease

→ B. Aplastic anemia → Congenital → هل فيه أي تشوهات خلقية

(Fanconi Vs DBF)

→ Acquired

Drugs

- Antibiotic (Sulfonamide, Chloramphenicol)
- Cytotoxic drugs (Cyclophosphamide

infection

(Parvovirus B19)

- Fever تختفي , Rash ↓ (slapped cheek)

→ C. Marrow infiltrative disorder = هل في العائلة أي حدا عنده سرطان في الدم !

→ B symptoms ⇒ w. loss / Fever / night sweat / hypoactivity

2. Maturation defect

↳ Cytoplasmic :-

A. Fe (Iron deficiency anemia)

- Nutrition ↓ + Appetite

- Pica ⇝ بياكل الطفل خشب، غبرة، تراب !

- older child, adolescent ⇝ melena (Meckel, PU, hemangioma, IBD)

↳ Female ⇝ menstrual blood loss

B. Anemia of chronic disease ⇝ هل يعاني من التهابات مزمنة ؟

C. Sideroblastic anemia [Acqired] → drug = Isoniazide

(protoporphyrin)

↳ lead poisoning = موجود في الدهان = هل يوجد في بيته دهان!

D. Thalassemias ⇝ Extravascular hemolysis (jundice, dark urine, pale stool)

(Globin synthesis)

↳ Is there any previous blood transfusion ?

↳ Fa [Autosomal ~~recessive~~ recessive]

↳ Fa [Autosomal recessive]

↳ Nuclear

A. Folate deficiency ⇝ Nutrition ↷

↳ Malabsorption ⇝ Celiac = غدة حساسية قمح

FTT

↳ chronic enteritis = chronic diarrhea ؟

↳ Intistinal surgery = عامل أي عمليات !

B. B12 deficiency ⇝ Nutrition ↷

↳ Malabsorption ⇝ Celiac = غدة حساسية قمح

FTT

↳ Intistinal surgery = عمل أي عمليات

Lead to

↳ Neurological symptoms ⇝ Seizure

↳ لو كان كبير شوي نشأل عن ⇝ sensory deficits

↳ dementia

jundice , Dark (urin, stool) , GB stone

Red + Dark urin = hemoglobin uria

(G6PD def. also SS disease) Intravascular hemolysis

3. Survival defect = All have symptoms of hemolysis → Extravascular [Spherocytosis SSD + Thalasm.]

→ jundice , GB stone

→ Dark urine , Dark Stool

→ Fx = Is there any one in your family

↳ Intrinsic

A. Spherocytosis (membrane) عندهُ صفار / تضخم في الطحال / حصوات في المرارة / فقر دم

↳ Fx = if any one of your parent do splenectomy ? [Autosomal deminant]

B. G6PD deficiency (Metabolic enzyme)

✓ ↳ Fx [redacted] [x-linked recissive]

↳ produced by → Fava bean → هل أكل فول !

↳ infection → تعرض لعدوى والتهاب !

↳ Drugs PAINS

(Primiquine / Aspirin / Izoniazide / Nalidixic acid / Sulfamethaxal [Bactrim]

↓ (Antimalical) (also sidroplastic)

C. SS disease (hemoglobinopathy)

✓ → Fx [Autosomal recessive] ⇝ Consanguinity

→ at age of 2 ⇝ Dactylitis = symmetric / unilateral swelling, pain in the hand / foot

⇝ Extrinsic

A. Autoimmune hemolytic anemia = Coombs test +ve

→ In infancy ⇝ ask about blood group for mother + baby

→ ask about URTI (Mycoplasma pneumonia) + infectious mononecleousis (EBV)

B. Malaria ⇝ ask about recent travel ?

4. Blood loss

A. hx of (trauma) OR surgics OR (Epistaxis)

⇝ Extrinsic

A. Autoimmune hemolytic anemia = Coombs test +ve

↳ In infancy ⇝ ask about blood group for mother + baby

↳ ask about URTI (Mycoplasma pneumonia) + infectious mononecleousis (EBV)

B. Malaria ⇝ ask about recent travel ?

4. Blood loss

A. hx of (trauma) OR surgics OR (Epistaxis)

B. Bleeding disorder + Fx for them = عندهُ أمراض في التخثر / النزف أو في العائلة / Bruises

C. HSP ⇝ (purpura rash (lower limb + butuk), Arthralgia, Abdominal pain)

D. S+S of dehydration

❖ Systemic Review ⇝ we talked about related systems ✓

- B symptoms = Malignancy [w. loss, Fever, night sweat, Anorexia]
- Skin ✓ - GI ✓ - CNS ✓ - Renal ✓

❖ past medical ha

- previous admission / OR procedure = e.g. Total radiation = BM suppression
- s surgeries ✓
- Blood transfusion ✓

❖ prenatal ❖ Natal ❖ Post Natal ⇝ premature

any (Fever, infection) during preg. ⇝ TORCH

↳ early cord clamp < 30 sec = IDA

↳ bleeding from the child during dilivary

↳ dilivary = vaccum = Cephalo hematoma

دخل الخداج

❖ Nutritional :-

- infant = is he on breast feed VS formula / does he start weaning !
- Older ⇝ When he stop breast milk and start weaning

↳ Diet = Does he eat enough [meat, vegetables, fruits]

* Developmental →
  - B12 defeciancy affect it

* Vaccination ✓
* Family hx ✓
  - Consanguinity → Autosomal recessive
* Social
  - travel

* If in exam he want **Acute onset** DDx for anemia
  1. Infection → parvo
     → Malaria
  2. Spherocytosis, G6PD def
  3. After 6m → thalasemia major
     SS disease

  (2–3: مسوقين نفرض = c.x infection)

  4. Autoimmune
  5. Blood loss

Le ROYAL AMMAN

physical exam (anemia = pallor)

✱ Note ⇒ Clinical findings generally don't become apparent until Hb level fall below < 7 - 8 mg/dl

1. General look (ABCD)

A = Appearance ⇝ look well vs ill / Alert, concious OR. oriented

B = Body weight ⇝ normal weight ?

C = Color ⇝ jundice, pallor, Cyanosis

D = Distress ⇝ tachypnea[1] / Nasal flaring[2] / Grunting[3] / Retraction[4]

= Dysmorphism ⇝ DBA (webbed neck)

Fanconi (Microcephaly / low set ear / Strabismus)

Thalasemia (prominance malar eminence / Frontal bossing / Exposure of upper teeth)

extramedullary hematopoiesis

2. Vital signs

pulse (HR) ⇝ hyperdynamic circulation = tachycardia

RR ⇝ may be distress ⇝ tachypnea

Blood pressure ⇝ e.g. in bleeding = hypertension

temperature ⇝

O2 saturation by pulse oximetry ⇝ may be ↓ like in SSD

3. Growth parameters and put them on percentile

it may associated with FTT

4. Start from head to toe

- head (Scalp) ⇝ If he is new born ⇝ Cephal hematoma
- Eye ⇝ Sclera ⇒ jaundice / Conjuctiva ⇒ pallor
- mouth ⇝ Glossitis = (IDA / Folate def.)
- neck ⇝ Any LN enlargement = malignancy
- hand ⇝ thumb Absent = Fanconi / triphalanges = DBA
  - ↳ Nail Spoon shape = IDA
- Chest ⇝ Respiratory = RD heart = Murmur = DBA / Fanconi
- Abdomen ⇝ Liver / Spleen

hepato splenomegaly ⇝ malignancy / hemoglobinopathy

- Lower limb ⇝ purpura ⇒ HSP
- Skin ⇝ purpura / Ecymosis = bleeding disorder
  - ↳ hyper pigmentation ⇝ Cafe au lait spot = Fanconi

Investigations

Test	What to look for
CBC	(Hb level, WBCs, Platelet), MCV (micro, normo, macro)
TIBC, Ferritin	
B12 level	
Reticulocyte count	(increase – hemolysis / decrease – anemia of decreased production or bone marrow failure)
Peripheral blood smear	
G6PD analysis	
Osmotic fragility test	hereditary spherocytosis
Coombs test	for immune
PT, PTT, bleeding time	if bleeding present
Bone marrow biopsy	
Chromosomal breakage	Fanconi
Hb electrophoresis	

Management

- **based on the cause**

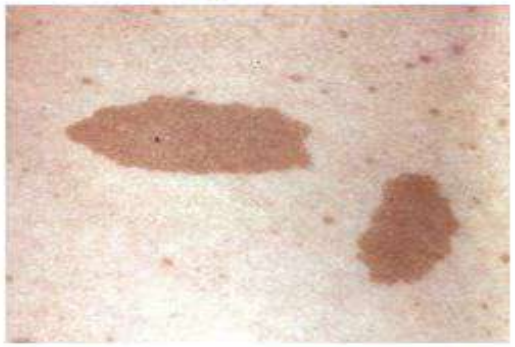
IDA

- **Mx of IDA:**
  - ✓ Start supplemental iron
  - ✓ Increase consumption of iron rich food like: meat, fish
- **Duration of Mx:**
  - ✓ Around 3-4 months
- **If there is no response to the iron Rx: what is your explanation?**
  - ✓ Non-compliance
  - ✓ Malabsorption
  - ✓ Thalassemia minor

Fanconi Anemia - Clinical Description

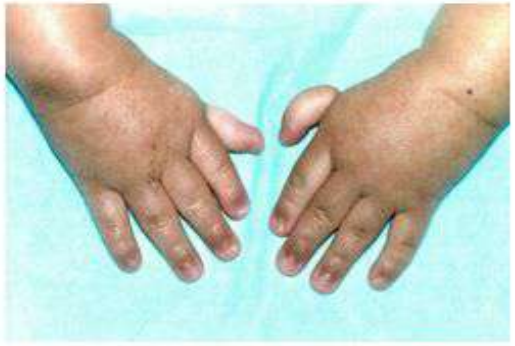
Congenital malformations

- Short stature
- Microcephaly (small head)
- Micropthalmia (small eyes)
- Hypo/hyperpigmentation
- Abnormal thumbs



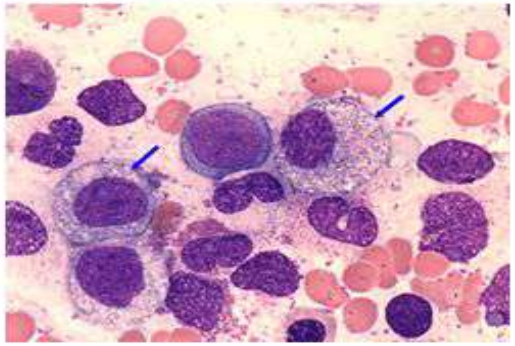
Hematological abnormalities

- Bone marrow failure
- Acute myeloid leukemia (x800)



Non-Hematological abnormalities

- Head and neck squamous cell carcinomas (x2000)
- Gynecologic squamous cell carcinomas (x4000)
- Benign and malignant liver, brain and renal tumors



History & Physical examination & assessment of Dehydration

Q.M.A Team

DEFINITION:

• Dehydration is a condition that can occur with excess loss of water and other body fluids.

Dehydration results from decreased intake, increased output (renal, gastrointestinal or insensible losses), a shift of fluid (eg, ascites, effusions), or capillary leak of fluid (eg, burns and sepsis).

Signs & Symptoms of Dehydration

Sign or symptom	Mild dehydration (3-5% loss of body weight; BW)	Moderate dehydration (6-9% loss of BW)	Severe dehydration (10-15)% loss of BW)
Mental status	Well, alert	Normal, fatigue, restless, irritable	Apathetic, lethargic, unconsious
Thirst	Drinks normally	Thirsty, eager to drink	Drinks poorly; unable to drink
* Heart rate	Normal	Normal to increased	Tachy, brady in very severe cases
* Quality of pulses	Normal	Normal to decreased	Weak, thready or impalpable
* Breathing	Normal	Normal; ~~fast~~ deep	Deep + ↑ RR
Eyes	Normal	Slightly sunken	Deep sunken
Tears	Present	Decreased	Absent
Mouth and tongue	Moist	Dry	Parched
Skinfold (turgor)	Instant recoil	Reciol < 2 sec	Recoil > 2 sec
Capillary refill	Normal	Prolonged (2-3 sec)	Prolonged; minimal >3 sec
Extremeties	Warm	Cool	Cold, mottled cyanotic
Urine output	Normal to decreased	Decreased	Minimal
* Blood pressure		orthostatic fall	hypotension
Fontanelle		depressed (sunken)	

History for oliguria or anuria (acute renal failure)

Patient profile

Chief complaint + duration

OPP

Pre-renal causes:

- Is he dehydrated? (thirst, dry mouth, absent tears, and change in consciousness, **fatigue**)
- Nutritional history (Pharyngitis)
- Does he have diarrhea or vomiting?
- Does he have any blood loss from skin, GI, or urine?
- Heat or sunlight exposure or burn?
- Is he septic or have current illnesses? (fever)
- 3rd space losses (HF, Liver cirrhosis,….)
- **Polyurea**

Renal causes

- Hematuria?
- Poststerp GN (history of sore throat within the past 30 days)
- HSP (rash, joints pain, abdominal pain)
- HUS (history of bloody diarrhea or chest infection during the past 10 days, and bleeding tendecny)
- Hemolytic anemias (pale, jaundice, and past history of anemia especially sickle cell disease)

Drug intake …

Post renal or obstructive problems

- Stones (Flank or suprapubic pain and dysuria)
- Trauma
- Neurogenic bladder (diabetes, back lesion or hair tuft, or past history of back surgeries)
- Ask if he had recurrent UTIs
- Past and family history of renal diseases

Perinatal history (drugs intake, and prematurity)

Physical examination

General appearance, vital signs, growth parameters

Dehydration signs

Eye: jaundice, anemia

Oral: pharyngitis

Skin: HSP

RS examination

Abdominal examination

Investigations

- CBC (sepsis + HGG)
- Bd smear
- Urinalysis (specific gravity, stones, UTI)
- Lactic acid
- BD sugar
- KFT + Electrolytes (Na & HCO3- + K+)
- VBG
- C3, C4

History & physical examination for diarrhea

Q.M.A Team

GI + HyperT3 + PR

Chronic Diarrhea ≥ 14 days (chronic)
(>10 ml/kg/Day) diarrhea

- PP
- Cheif C. + duration.
- OPP
- F C BC AOM + (Night) (odor)
  - (frequency)
  - mucous + greasy
  - melena

DDx

GI causes

① food
- Fruit juice
- Diet
- Toddler diarrhea (↑ watery + night)

② GI enzymes
- hepatobiliary
- Pancreatitis
  - α 1 anti - Fecal elastase
- Cystic fibrosis
  - Sweat cbride test
  - Rectal prolapse

③ GI tract
* infections:
  1. Giardia → متناثرة غير مبتعدة
  2. + Traveler diarrhea (Travel Hx)
* Inflammatory:
  1. IBD ⇒ (colonscopy + occult blood)
  2. IBS → constipation
* ~~allergy~~ + Immune:
  1. Allergic entero. — Skin prick test, IgE level
     - cow's milk.
     - celiac ds. (Rash, ..., Pallor)
  2. Immuno deficiency → ESR

④ Absorption
- Malabsorption (Reducing substances)
  - FTT, wt loss, abd distention
- Protein loosing (albumin)
  - edema + Ms wasting (weakness) (atrophyed) + hair loss

Non GI
- hyperthyroidism (TFT)
- + Drugs (laxatives)
- + F. Hx. (consanguinity)

* Endoscopy.
* Reducing substance
* Stool analysis
  ova, PH, Occult blood
* Full celiac

DDx	Questions
Malabsorbtion	abdominal distention, weight loss, failure to thrive FTT
Diet	is he given food now
Cow milk allergy	type of feeding, dietary products, rash, vomiting
Celiac	does he consumes wheat & its products, pallor, FHx of celiac
Cystic fibrosis	delayed passage of meconium, recurrent chest infection, CF FHx
Consanguinity	
Protein Loosing	edema, muscle wasting, hair loss
IBD	eye redness, inflammation, oral ulcers, arthritis, FHx of IBD
IBS	does diarrhea alternate with constipation
Giardiasis	water source
Immunodeficiency	recurrent skin infection, otitis media, FHx
Hepatobiliary	jaundice, dark urine, pruritus (itching), Hx of liver disease
Pancreatitis	Steatorrhea
Allergic enteropathy	allergic to food, drug, rash, asthma, spring allergy
Hyperthyrodism	head intolerance, sweating, hyperactivity, anxiety, palpitation
Fruit juice	does he consumes allot of juices
Toddler	does the diarrhea become worse and more watery at night
Travel Hx	Traveler's diarrhea
Drug	laxatives

Physical Examination

- ***General look***, ***Vital Signs***, ***Growth parameters***
- ***Signs of dehydration***: sunken eyes, dry mucus membrane, skin turgid >15 sec, capillary refill > 2 sec

Organ	What to look for
Eye	pallor, jaundice, redness, exophthalmos, led lag, conjunctivitis, uveitis
mouth	teeth problems, Aphthous stomatitis, oral ulcers
Neck	Lymph nodes and thyroid
Chest	auscultation
Abdomen	- *Inspection*: mainly distention - *palpation*: organomegally, liver span, transmitted thrills - *percussion* shifting dullness - *auscultation*
PR	rectal prolapse, anal fissures, tags, sphincter tone
Lower limb	sweaty, tremor
Hand	edema
Skin	rash, bruises

Investigations

Test	What to look for
CBC	(Anemia, Lymphopenia, Thrombocytosis, Protein loosing enteropathy (Reactive)), Anemia: IDA, B12, folate, chronic
Allergy	Skin prick test, specific IgE levels
ESR	Immune deficiency
If Celiac	Anti-TTG, Total IgA
Albumin	If edema is found
EMA, HLA (DQ2,8)	
Stool culture	ova, parasites, C.difficile, pH, occult blood
Reducing substances	fecal hydrolysis for non-reducing carb
Fecal elastase, Alpha 1 antitrypsin	For pancreatic insufficiency
Sweat chloride test	
Endoscopy with biopsy	For Celiac, Lymphangiectasia

Management

- **based on the cause**

Celiac Disease	✓ lifelong strict adherence to a gluten-free diet. This requires a wheat-, barley-, and rye-free diet. ✓ Periodic measurements of TG2 antibody levels to document reduction in antibody titers can be helpful as indirect evidence of adherence to a gluten-free diet

Name the histological changes in each:

A. Celiac:

- Villi to crypt ratio 3:1
- Flattening of the villi
- Lymphocyte infiltration

History & physical examination of fever

Q.M.A Team

Hx taking

- **1. Duration**
- **2. Describe the fever**
- - Degree (the highest), where measured and by whom?
- - Progression (remained as it is, increased, decreased, or fluctuates??)
- - Is there a specific time for increased degree (night, morning, or day??)
- - Did it respond to medications (or treatments), and what are the medications (or treatments) given??
- - General associated symptoms especially in infant (convulsions, malaise, poor feeding, activity, and sleeping pattern)

3. Causes of fever

- **Meningitis** (vomiting, headache, photophobia, rash and hypoactivity)
- **OM** (ear discharge and pain)
- **Respiratory** (cough, sputum, distress, poor feeding / sore throat, nasal congestion and rhinorrhea)
- **Gastroenteritis** (diarrhea, abdominal distention, pain and blood in stool (shigella). If those presents ask about **dehydration** signs (thirst, absent tears, and oliguria)
- **UTI** (frequency, dysuria, and heamturia)
- **Skin infections**, OR TRAUMA that may have caused skin infection.
- **Chronic or systemic conditions like TB** (anorexia, weight loss, night sweats, and living with elderly (TB))
- **Arthritis** (joint swelling or pain)
- **SLE, rheumatoid diseases and Rheumatic fever** _only ask about these in case there was arthritis in your history (sore throat within 30 days, rash, malar rash, painless mouth ulcers, and photosensitivity)
- Has there been recent drug intake **(drug allergy)?**?
- **Vaccinations** are important as well in any case with possible infection.

4. Has there been **contact** with another family member or friend that had fever or infection??

5. Signs of **dehydration** (thirsty, dry mouth, absent tears, oliguria, and level of consciousness)

6. **Previous episodes**?? What was the diagnosis of those previous episodes??

7. If the patient is neonate, ask about risk factors in perinatal history (premature, birth weight, maternal fever, maternal UTI, and prolonged rupture of membranes, foul smelling liquor)

poor feeding, poor suckling , irritability, seizures , drowsiness, vomiting, cough, diarrhea, ear discharge, jaundice, cyanosis …)

Fever of Unknown origin

Temperature of a 38 degree or higher with a minimum duration of 3 weeks without an established diagnosis.

It may be:

1- Infectious

2- Inflammation

3- Malignancy

4- others

- **Infections**

↳ **Bacterial :**

[1] Cat scratch disease :- [Bartonella henselae] ⇒ Exposure to Kittens

↳ Rx : usually self limited or use Azithromycin.

may come as lymphoadenopathy, Rashes, and constitutional symptoms.

[3] Brucellosis الحمى المالطية

↳ Hx: main way of transmission is ingestion of unpasturized diary products, But could be transmitted by inhalation or transconjunctival, cuts or abrasions.

⇒ Come as: fever + arthralgia + HSM + GI symptoms..

[4] TB :-

↳ Lethal forms: TB meningitis , Miliary TB.

- ask about contact with elderly people OR TB infected people and respiratory symptoms..

[5] Typhoid :- [Salmonellosis]

↳ High grade fever , Coated tongue , HSM, AP, V, Diarrhea

[7] Bacterial Endocarditis :-

↳ Subacute → caused by viridans strep → ask about dental work hx.

↳ Acute → may come as HF!

Inflammation

① Kawasaki Disease :-

↳ affect medium sized arteries mainly Coronaries.

Classic Clinical criterias :-

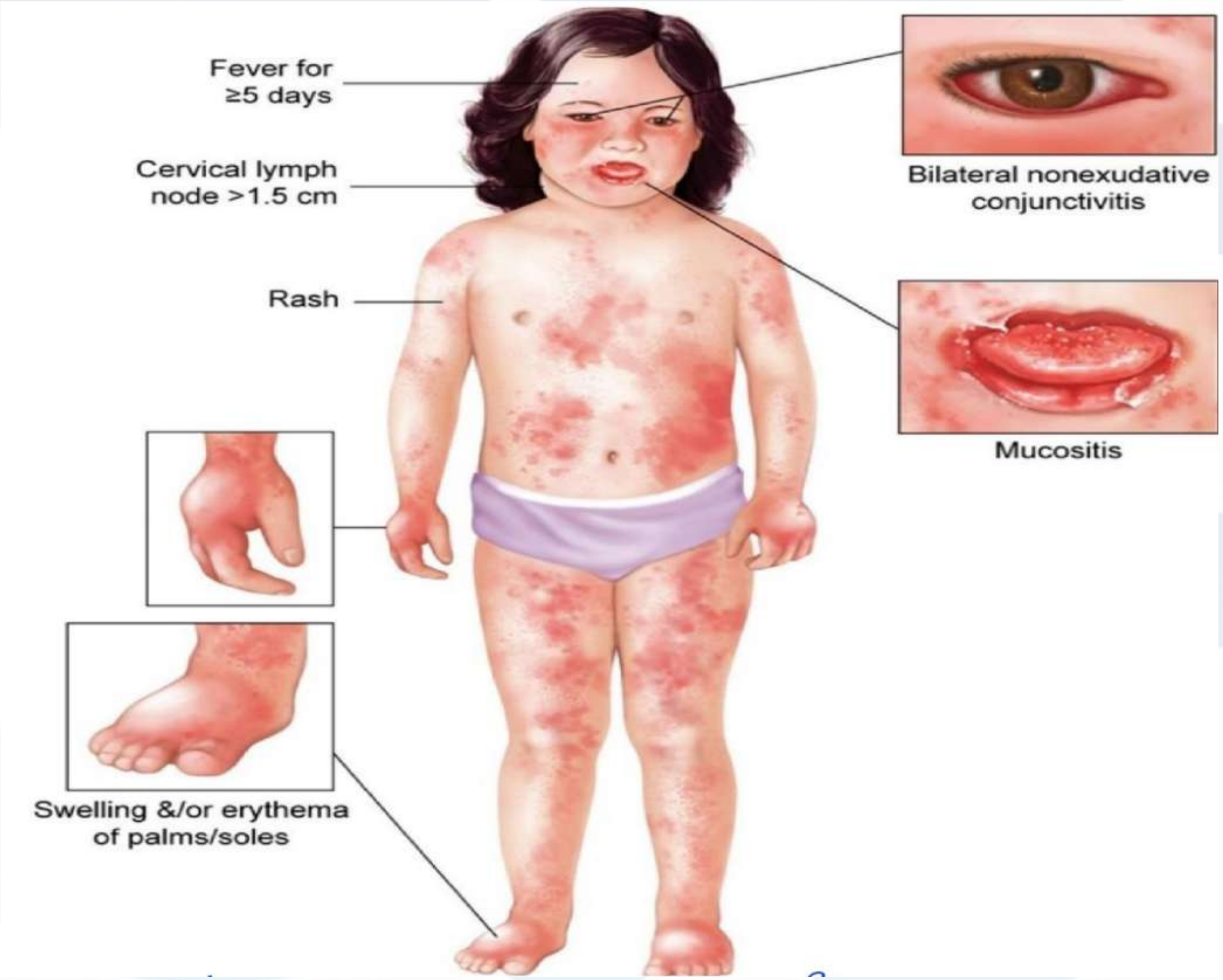
I : Fever ≥ 5 days +

II : at least 4 out of 5 principle features :-

1. Bilateral bulbar conjunctival injection without exudate (non-purulent)
2. Erythema / Diffuse injection of oral and pharyngeal mucosa. cracked lips and strawberry tongue.
3. Unilateral cervical lymphoadenopathy > 1.5 cm.
4. Rash of various forms Except vesicular.
5. Changes in Extremities :
   - ↳ Acute : Erythma of palms / soles - edema of hand / Foot.
   - ↳ subacute : periungual peeling of fingers / toes in wks 2-3.

② Juvenile idiopathic arithritis (Dx of exclusion).

③ SLE :



Treatment	Aspirin plus intravenous immunoglobulin (acute symptoms usually self-resolved in 2 weeks)
Complications	• Coronary artery aneurysms • Myocardial infarction & ischemia } عشان هيك لازم يوخذ aspirin

Investigations

- Blood (CBC, CRP, Culture)
- LP
- CXR
- Urine analysis and culture
- Stool analysis
- ASO
- FMF genetic testing
- Otoscope
- PPD/ IGRA
- Echo
- Brucellosis ELISA or antibody
- ANA, anti DsDNA

Management

- Sepsis: 1st line Ampicillin, Gentamycin // 2nd line Ceftrixone

History for failure to thrive

Q.M.A Team

- FTT is defined by both poor weight gain and low weight below the 5th or 3rd percentile on a growth chart. Although it includes length, but weight is affected first.
- the case present to you complaining from poor weight gain or low length, or sometimes detected at hospital on growth assessment. Disease of any system can cause FTT, so we have to search between almost everything.
- In neonates and small infants you better start with **perinatal history** for **congenital and anatomic causes**, in older infants and children you can delay it.

Deferential Diagnosis

Perinatal problem: Maternal or congenital infection (TORCH).

Genetic problem. (Down syndrome , Turner syndrome)

Inadequate caloric intake.

Malabsorption (diarrhea) (Celiac, IBD, Lactose intolerance, CF)

Metabolic disorders: Galactosemia.

GERD (vomiting)

Increased ICP (vomiting)

Chronic disease (CVS, RS, Renal, Anemia).

Malignancy.

Hyperthyroidism, DM

Hypothyroidism, GH deficiency

Immune deficiency.

Patient profile

Chief complaint + duration

OPP

(Current **weight and height**? How much they were 6 months ago? How much they were at birth)

Perinatal history:

- **Prenatal history**: IUGR, Maternal infections, illnesses, and substances intake during pregnancy (smoking & alcohol) (all of which can cause congenital heart diseases and congenital infections).

- **birth history:** Mode of delivery, asphyxia, prematurity and birth sizes (weight, length and head circumference).

- **Post natal history:** early or prolonged jaundice? (May indicate hypothyroidism, congenital infections, and inadequate breast feeding), any diagnosed congenital illnesses including **hypothyroidism**? Did he need ICU admission, oxygen or ventilatory support?

Deferential diagnosis

Feeding or diet history

- In infant:

 Breastfed or formula? If formula what is the formula? If he was breastfed, when he stopped.

 How many meals per day he is fed? And how much quantity of each meal (in breastfed, ask how long he spent sucking)

 Any issues like poor sucking or refusal to eat.

 If he is introduced to food, when and what food, and was there a complications (vomiting) or allergy to any specific food? And ask if he drinks too much juice

- In child:

 How many meals and what is their times and lcoations? What foods he usually eats at meals?

How much is the quantity of each meal?

 Does he feed himself? If so does anybody observe him while eating?

 Any issue like refusal to eat or complications or allergies after certain food? Does he drink too much juice?

Malabsorption or other causative **GIT** problem?

- Diarrhea, steatorrhea, blood in stools, vomiting, abdominal distention & pain, flatus, and jaundice.

- Celiac disease (If these symptoms present, are they related to wheat and grains, and is there a family history of celiac?)

- IBD (arthritis and mouth ulcers)

- Lactose intolerance (are the above symptoms related to milk? Is there family history)

- Cystic fibrosis, in addition to the respiratory and malabsorption symptoms you ask about (past and family history of CF)

- GERD (food regurgitation and heart burn, vomiting)

Cardio or respiratory or renal problem?

- Cardio-respiratory symptoms (difficulty breathing, cough, sputum, hemoptysis, wheezes, cyanosis, chest pain, palpitations, loss of consciousness, limb edema)

- Anemia (past and family history, blood loss in stool or urine may cause anemia)

- renal problems (Past history of renal failure and recurrent UTIs, oliguria, frequency, urgency and changes in color)

- **Hypothyroidism** (cold-intolerance, slowness, constipation, thyroid disease on newborn screening)
- **DM**: polyurea, polydypsia, polyphagia

- **Immune deficiency** history of recurrent fever and ear infections.

- **Genetic problem?** Take family history
- Are his parents short?
- Any of his siblings has the same problem?
- Genetic disease

Social hx

Occupation of parents and economic state

Hx of violance or abuse or neglect

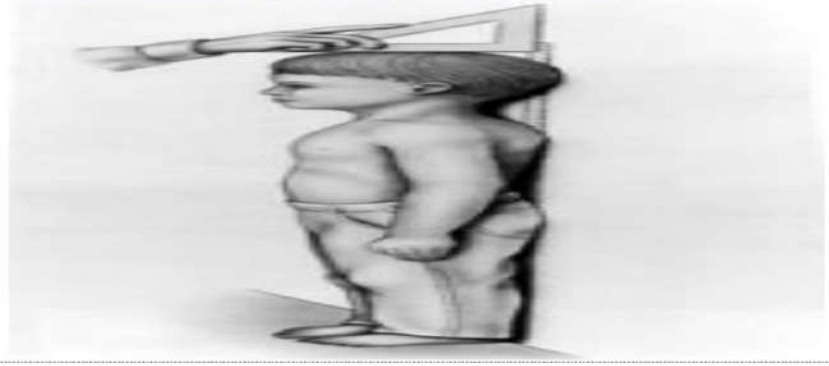
Physical examination

- General examination, vital signs, Growth parameters.

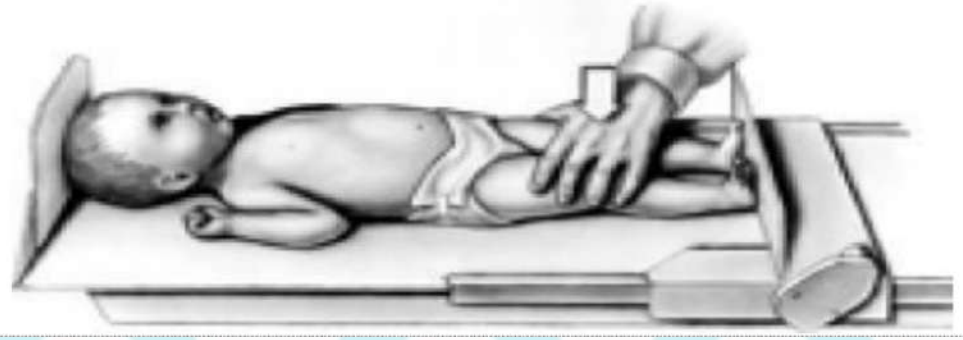
- **Growth Parameters**: Length, weight, head circumference:
- **Length**:

Age	Length
At Birth	**50 cm**
3 m	60 cm
1 y	75 cm
2 y	90 cm
4-5 y	100 cm
5-10 y	5cm/years
Adolescence	8cm/y for girls during 12-16 y – 10cm/y for boys during 14-18 y

Height (how tall)



Length (how long)



Weight:

Status	Weight at birth
Normal	**>2.5 kg – 4 kg (Approximately)**
Low birth weight	<2.5 kg
Very low	<1.5 kg
Extremely Low (incompatible)	<1kg (other references said <750 g)

** in the *first 3 months* the child weight must increase *20-30 gm/day*
** but in the *first 4 days* he will *loss 10%* of his birth weight because of losing the extra fluid and *in the next 4 days (day 8)* he will *get this 10% back (weight at birth again)*, *so in the first 8-10 days his birth weight will not change*.
** In the ***first one month*** we will calculate this month as 20 days not 30 days and, *normally the child weight will increase 400-500 gm*.
** in the ***second month***, we calculate 30 days, and the weight will increase 750 gm in this month.
** in the ***5th month***, the weight must be the double of the birth weight.
** in ***month 10-12***, the weight must be the triple of the birth weight.

- **Head Circumference**:

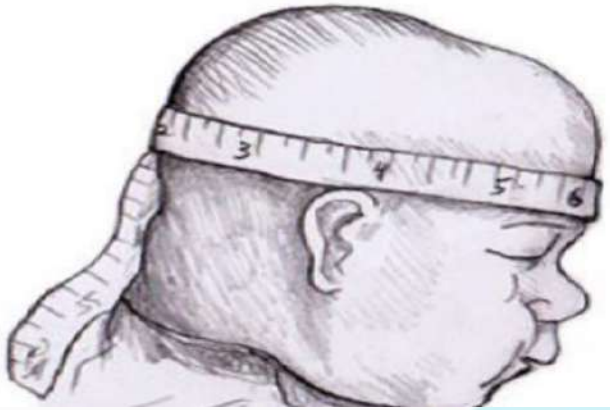
- how is it measured? Wrap the tape around the widest possible *circumference* - from *the most prominent part of the forehead* (often 1-2 fingers above the eyebrow) around to the *widest part of the back of the head*

- ***at birth the head circumference normally is 35 cm*** (range: roughly 32-38cm)

- below 3% of percentile is **Microcephaly**, and above 97% is **Macrocephaly**

Age	Rate of growth
0 – 3 months	2 cm / month
3 – 12 months	2 cm / 3 month
1 – 3 years	1 cm / 6 month
3 – 5 years	1 cm / year

- at the age of 6 the head circumference nearly reaches the adult size



General appearance: Cachexia, temporal wasting, sparse hair or alopecia.

Dysmorphic features

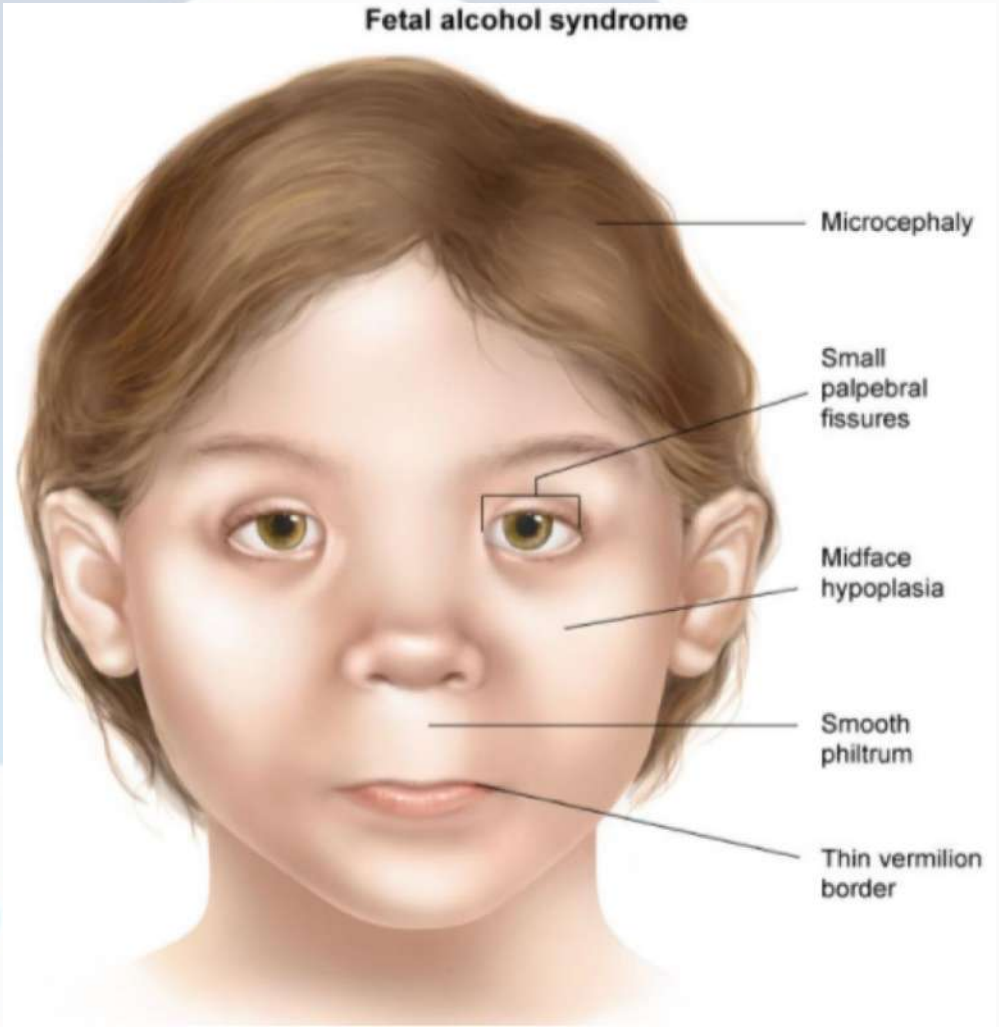
Head: microcephaly

Eye: IBD, Pallor, cataract, jaundice

Oral: IBD

Nasal polyps

Skin: DH, EN, Scratching



Chest

- Wheezing
- Crackles
- Prolonged expiratory phase
- Hyperexpansion

Abdomen

- Abdominal distension
- hyperactive bowel sounds
- Hepatosplenomegaly

Skin and Mucous Membranes

- Pallor
- Clubbing
- Scaling skin
- Spoon-shaped nails
- Iron deficiency
- Cheilosis
- Vitamin deficiency
- Chronic diaper rash

Investigations

- CBC
- Blood sugar
- Urine analysis & KFT (Electrolytes)
- Stool analysis
- IgA ttg, total IgA, anti-glidin, biopsy
- CF: fecal elastase, genetic testing, sweat chloride test
- Hydrogen breath test, stool acidity test for lactose intolerance.
- TFT
- Esophageal PH monitoring
- Karyotyping

Gastroesophageal reflux	• Physiologic o Asymptomatic o "Happy spitter"	• Reassurance • Positioning therapy
	FTT, chest infections, ulcers, strictures • Pathologic (GERD) o Failure to thrive o Significant irritability o Sandifer syndrome	→ special formula • Thickened feeds • Antacid therapy • If severe, esophageal pH probe monitoring & upper endoscopy

Headache History & Physical examination

Q.M.A team

Headache differential diagnosis:

- **CNS Causes:**

1. **Primary: A. Tension: Stressful, usage of phone.**
   B. Migraine: Nausea, vomiting, photophobia, photophobia, aura. C. Cluster: Localized to one eye, rhinorrhea, severe).
2. **Secondary: Trauma, meningitis, increased ICP, sinusitis, drugs (vitamin a, doxycycline, a & beta agonist, NSAIDS), abdomen (change in bowel habit), thyroid disease, refractive error.**

- **Non CNS: Life style (sleep, dehydration, food, caffeine), toothache, otitis media, UTI, consanguinity, family history.**

Headache

- PP (age, name)
- Cheif Comp & duration):
- ~~OPP~~SOCR ~~AFT~~C,S ~~ai~~
- with ferer or not

CNS

Primary

- Tension (stressful event, usage of phone)
- Migraine (Nausea, vomiting, aura, Paralysis, Photophopia, phonophopia)
- Cluster (localized to one eye, Rhinorhhea, severe)

Secondary

1. Trauma
2. Meningitis
3. ↑ ICP.
4. sinusitis
5. Drugs (vit A, Doxicycline, α,β agonist (NSAIDs)
6. Abdomen (change in bowel habit)
7. Thyroid

NON CNS

- drugs ~~abdomen~~ ~~sinusitis~~
- family Hx

~~headache~~

* Family Hx - + Consanguinity.
* life style (Sleep + hydration + food + Caffiene intake)

* General look
* Vitals + GCS
* Growth Parameters
* (sign of Dehydration)

For Convulsion

① Eyes (fundoscopy, Refractive errors)
fish nodules, coloboma, cataracts.
with CHARGE
Retinoblastoma

② Ear (otoscopy for discharge + T. Membrane)

③ ~~Face~~ Mouth (teeth problems, tooth decay, throat)

④ Face (Dysmorphic features, Port wine stain
adenoma sebacum)

⑤ Neck (lymph node, thyroid)

⑥ Cardiac (murmur)

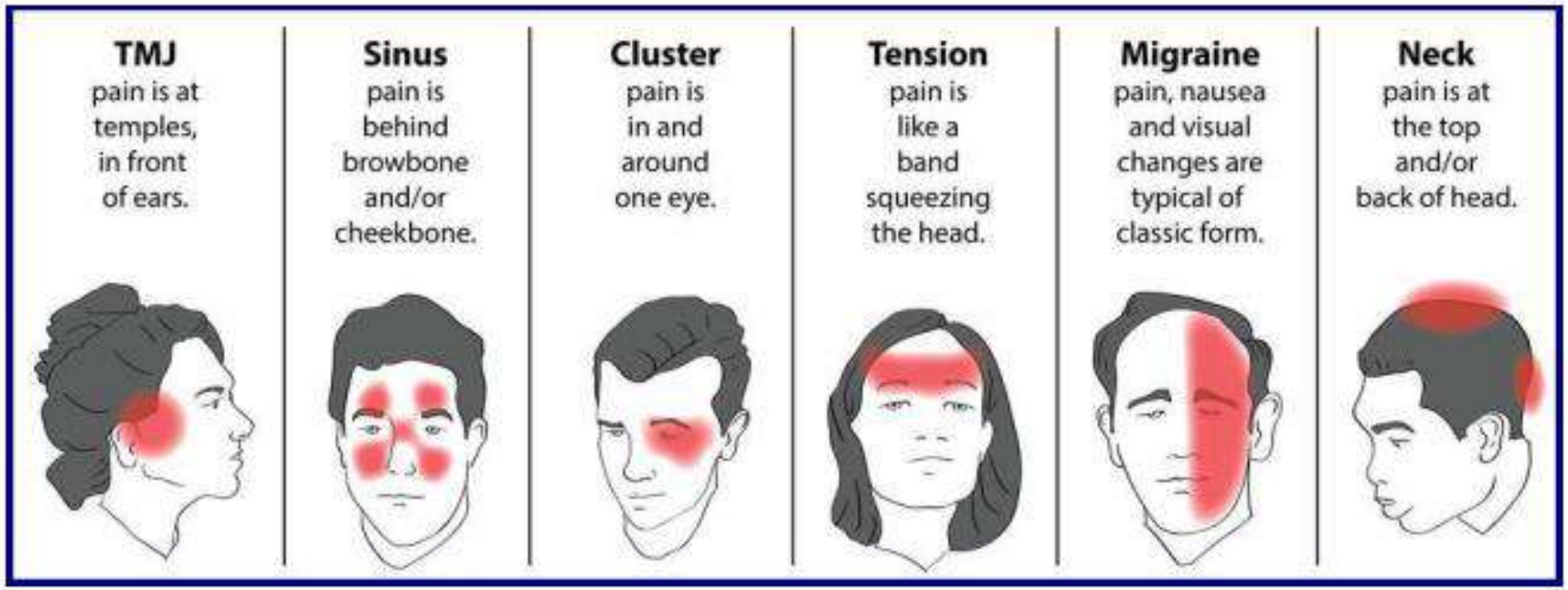
⑦ Abdomen (for masses + organomegally)

⑧ Full neurological (- Meningial signs.
- cerebellar signs
- cranial nerves
- Babinski + clonus

⑨ Limbs
+
Skin: ash leaf, cafe au lait, ~~Neuro~~ Neurofibromas
Rash.

Management

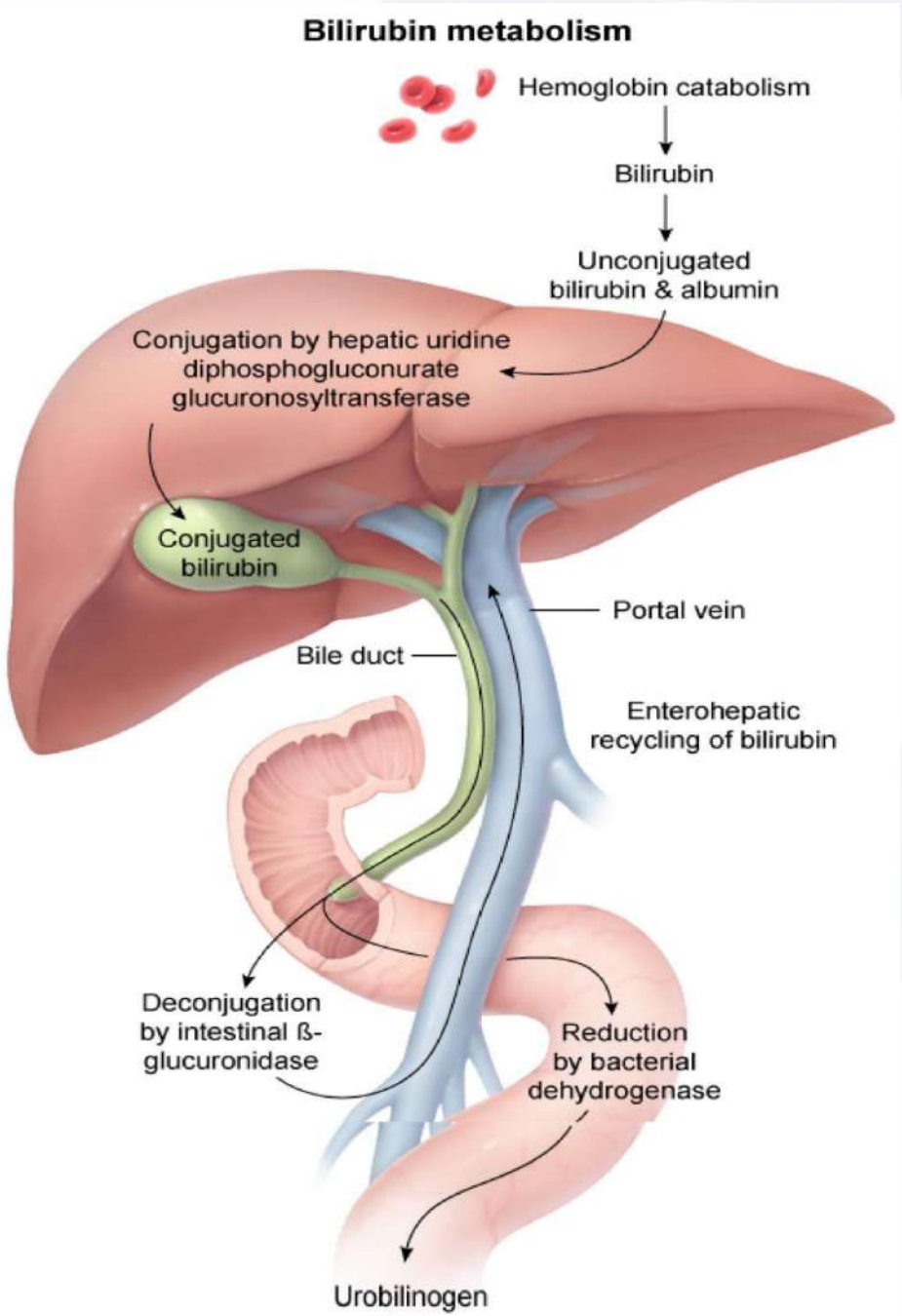
- **based on the cause**

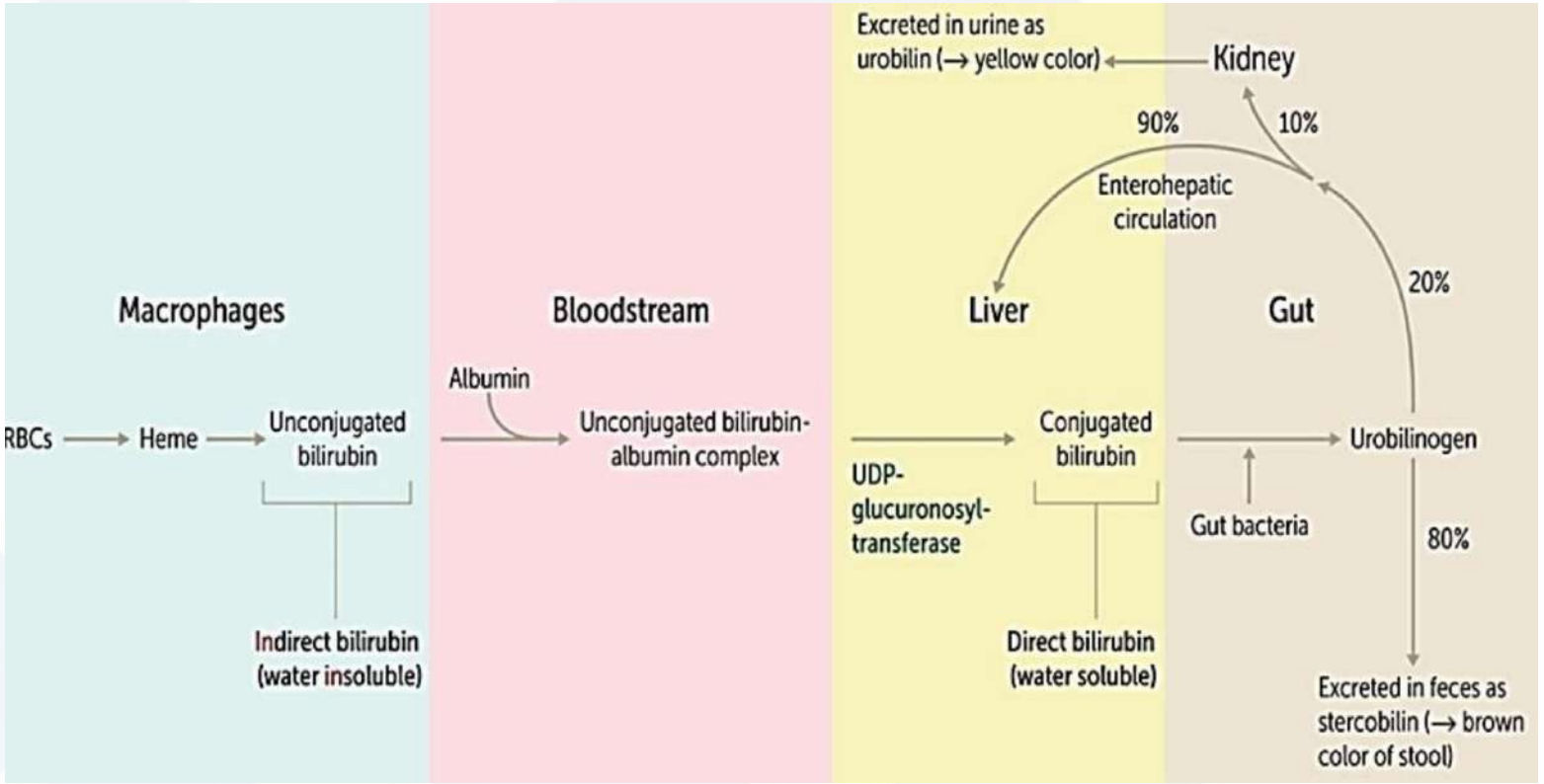


Thank you

History & physical examination of Jaundice

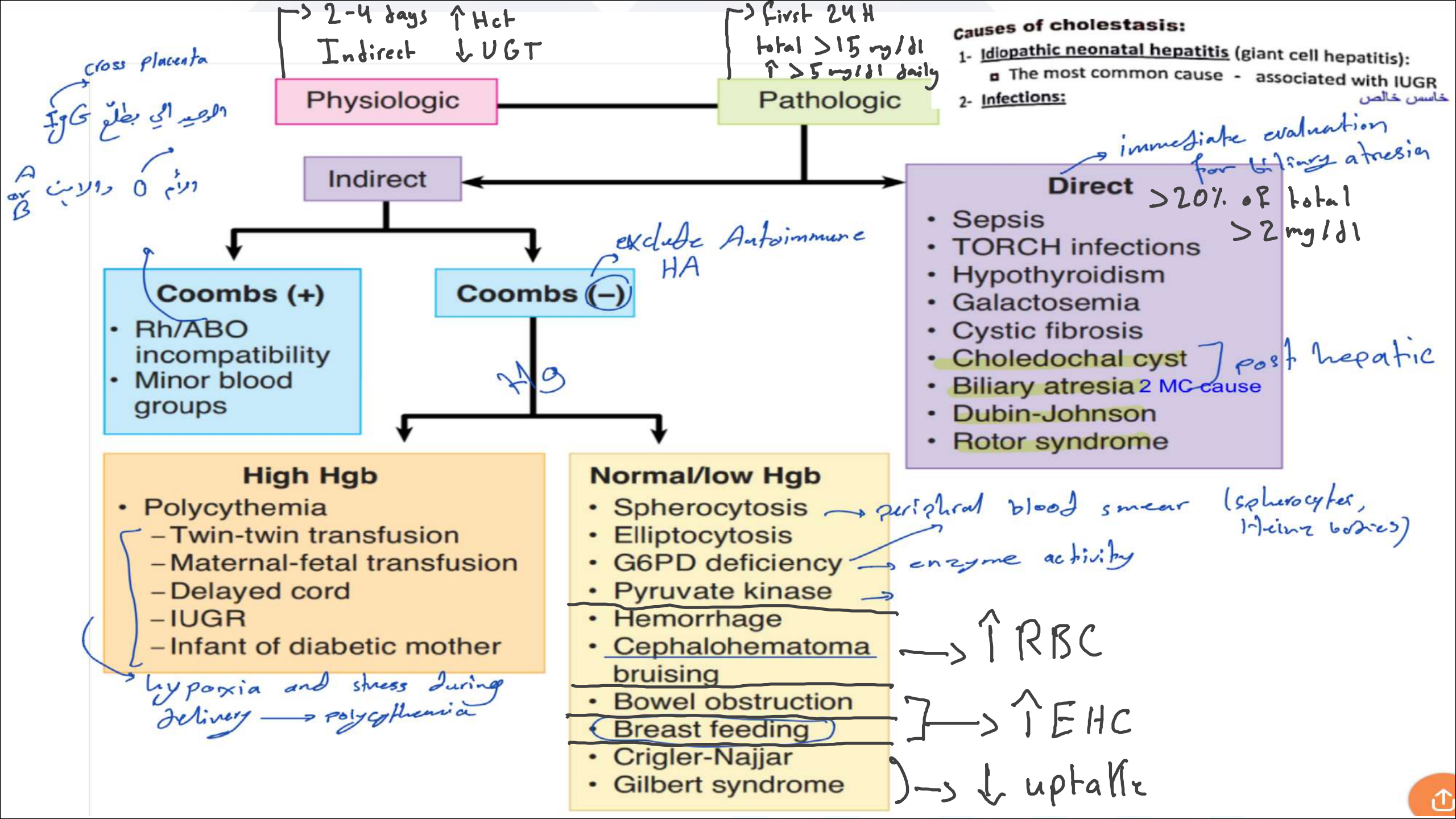
Q.M.A Team



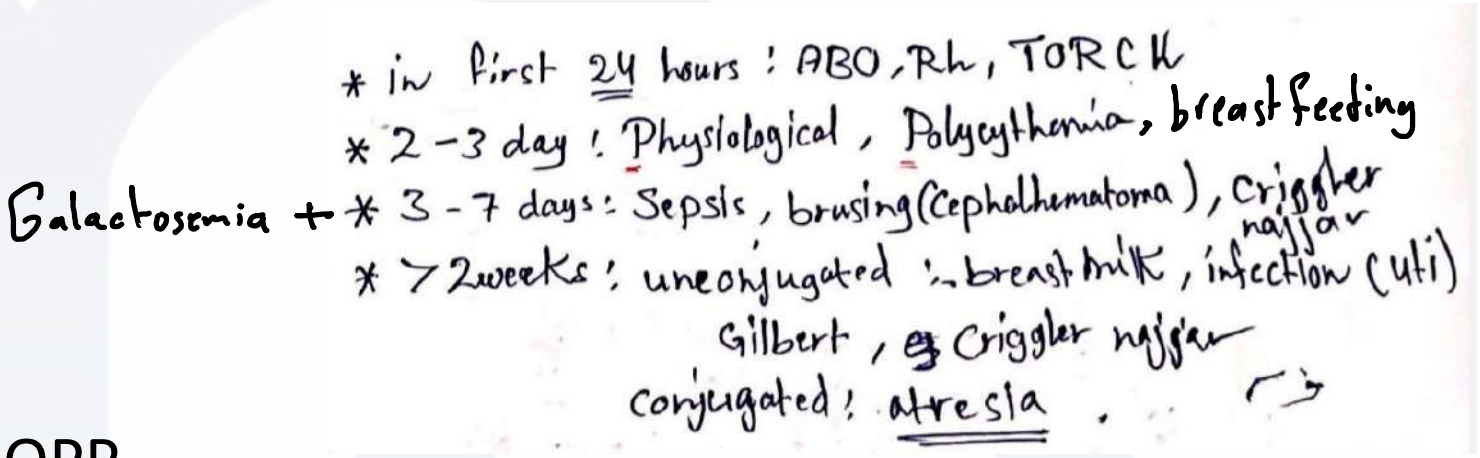


↑ RBC ↓ uptake

↑ EHC ↓ UGT


2-4 days ↑Hct
Indirect ↓UGT
First 24 H
total >15 mg/dl
↑ >5 mg/dl daily
Physiologic
Pathologic
Causes of cholestasis:
1- Idiopathic neonatal hepatitis (giant cell hepatitis):
The most common cause - associated with IUGR
2- Infections:
cross placenta
IgG
A or B
O
Indirect
Direct
immediate evaluation for biliary atresia
>20% of total
>2 mg/dl
Coombs (+)
Rh/ABO incompatibility
Minor blood groups
Coombs (–)
exclude Autoimmune HA
Hg
Sepsis
TORCH infections
Hypothyroidism
Galactosemia
Cystic fibrosis
Choledochal cyst
Biliary atresia 2 MC cause
Dubin-Johnson
Rotor syndrome
post hepatic
High Hgb
Polycythemia
Twin-twin transfusion
Maternal-fetal transfusion
Delayed cord
IUGR
Infant of diabetic mother
hypoxia and stress during delivery → polycythemia
Normal/low Hgb
Spherocytosis → peripheral blood smear (spherocytes, Heinz bodies)
Elliptocytosis
G6PD deficiency → enzyme activity
Pyruvate kinase
Hemorrhage
Cephalohematoma
bruising
→ ↑RBC
Bowel obstruction
Breast feeding
→ ↑EHC
Crigler-Najjar
Gilbert syndrome
→ ↓uptake

Hx taking



- Patient profile
- Chief complaint + duration + OPP
- HOPI: analysis of the complaint
- SOCrATES:

Site : where was it noticed ?

Color: stool & urine color

Associated symptoms (itching)

Timing: intermittent or constant

Exacerbating and reliving factors

Severity: kernicterus (poor activity, hypotonia, seizures, hearing loss)

Coombs (+)

- Rh/ABO incompatibility
- Minor blood groups

نوع دم الام والاب وترتيبه بين اخوانه

High Hgb

- Polycythemia اذا كان توأم
  - Twin-twin transfusion
  - Maternal-fetal transfusion
  - Delayed cord
  - IUGR → Prematurity / low Birth wright
  - Infant of diabetic mother

اذا الام عندها سكري حمل

Normal/low Hgb

- Spherocytosis → F Hx / splenectomy
- Elliptocytosis
- G6PD deficiency → fava beans, fever, F Hx, drugs
- Pyruvate kinase
- Hemorrhage → birth trauma vacuum / forceps
- Cephalohematoma
  bruising
- Bowel obstruction → Pyloric stenosis abdominal distention + projectile vomiting after eating non-bilous
- Breast feeding → Type of feeding duration, frequency
- Crigler-Najjar → Consaguinity زواج الاقارب
- Gilbert syndrome

Sepsis
- early < 72 H => UTI , PROM
- late > 72 H => UTI, OM, URTI, GE, arthritis

Fever / hypoactivity / irritability / poor feeding

Unexplained fever + rash during pregnancy / cats

Macroglossia / weak cry / constipation / Maternal Hx of thyroid dz / anti thyroid drugs / screening

recurrent chest infection / chronic diarrhea steatorrhea
delayed passing of meconium / FTT / FHx

Abdominal destintion, easy bleeding, bruising, edema
liver Symptoms

Perinatal V/S ??

Galactosemia => Vomiting
FTT

Direct
- Sepsis
- TORCH infections
- Hypothyroidism
- Galactosemia
- Cystic fibrosis
- Choledochal cyst
- Biliary atresia

2 MC cause

Jaundice in CHILDREN

DDx	Questions
Pre-hepatic	- *G6PD*: pallor, exercise intolerance, ingestion of fava beans - *FHx* of G6PD, hemolytic anemias, Splenectomy
Hepatic	- *hepatitis*: fever, fatigue, anorexia, abdominal pain, diarrhea, vomiting - *Hx*. exposure to a jaundice patient / hepatitis patient / liver surgeries - *Personality changes*, behavioral changes, seizures, hematemesis (vomiting blood), blood in stool, easy bleeding, bruises and edema
Post-hepatic	- *Obstructive* features: color of stool (pale), urine (dark), itching
Extra-hepatic	- *Cystic fibrosis*: chronic diarrhea, steatorrhea, recurrent sinopulmonary infection, failure to thrive (FTT), family Hx of CF - *Hypothyroidism*: cold intolerance, fatigue, lazy, weight gain, constipation - *Hx* of thyroid diseases
Other	- *Consanguinity* - *FHx* of liver transplant/disease - *Drug* hx, *travel* hx - *Perinatal care*: if the mother had hepatitis A/B/C at time of delivery

(choledochal cyst)

Wilson dz => dysarthria, dystonia, psychiatric dz, Hemolytic anemia

Hemochromatosis => DM, skin pigmentation, arthropathy

Physical Exam:

A → apperance / B → Body wt / C → color
D → Dysmorphic, Distress.

* General look: Pallor, Jaundice, Malnourshied, M.s. wasting
* Vitals
* Growth Parameters. ⇒ FTT in C.F.

Then . . منه مفوده لكنت

(Rubella) + (galocto semia)

① Ege: Pallor, jaundice, ~~dysmorphism~~ Kayser Fleicher ring (Red Reflex) ⇐
cataract.

mouth ↓ tounge ② Face: Jaundice, dysmorphic features. (Allagile features) retinitis → Torch

Allagile → Post. embryotoxon

③ Neck: spider angioma, goiter.

④ Chest: : : , gynecomastia, cardiac murmur. (Allagile Sx)

⑤ Abdomen: - inspection → distention, dilated veins
- Palpation → Superficial, deep. + tenderness + Organomegally
- Percussion → Transmitted thrills, + shifting dullness
- auscultation → [illegible]

⑥ hands, [illegible] ⇒ Palmar erythema, tremor; clubbing.

⑦ legs: edema, Brusesic

⑧ Skin: rash, itchy marks

Investigations

- Direct and indirect bilirubin levels.
- BD type of infant and mother for ABO and Rh incompatibility.
- Peripheral blood smear and reticulocyte count for hemolysis.
- CBC
- LFT (ALT, AST, ALP, GGT)
- PT, PTT, INR, Albumin, glucose
- Blood culture
- Urine analysis and culture
- Sweat chloride test or gene testing
- TFT
- Anti-HAV IgM, HBsAg, HBcAb, PCR

If Wilson suspected	✓ Serum cerulopasmin (low) ✓ Blood copper (high) ✓ 24 urine for copper (high)
If Autoimmune hepatitis (AIH) suspected	✓ Gamma-globuline level (high) ✓ ANA, ASMA, LKM1

Management

- **based on the cause**

Wilson Disease	• **Compensated liver disease** ✓ Chelating agents: Penicillamine or Trientine ✓ Zinc therapy to suppress Cu intestinal absorption ✓ Dietary restriction for food containing Cu • **Liver transplant** for decompensated cirrhosis or fulminant liver failure (curative) • **Screen the siblings** with ceruloplasmin or genetic mutation if it is known from proband case

Management

- **based on the lecture**

Biliary Atresia

Dx	Mx
✓ **Abdominal US**: - Gallbladder absent/irregular - Triangular cord sign ✓ **Hepatobiliary scintigraphy:** - Failure of tracer excretion ✓ **Liver biopsy** ✓ **Intra-operative cholangiogram: GS!**	✓ **Kasai procedure** ✓ **Liver transplantation**

Management

Frequent feeding should be encouraged to promote gut colonization and fecal excretion.

Sometimes rapidly rising hyperbilirubinemia requires **phototherapy** for kernicterus prevention.

Exchange transfusion is indicated for total bilirubin levels >20-25 mg/dL.

History and Physical examination of joint pain

Q.M.A team

Differential diagnosis

1- Trauma

2- Infectious: Septic arthritis, reactive arthritis, rheumatic fever.

3- Inflammatory/ rheumatology: RA, SLE, JIA.

4- Neoplastic: ALL, Lymphoma, Neuroblastoma.

5- Others: Brucellosis, IBD, HSP, Hemophilia.

Migratory => RF, SLE, ALL

Arthritis -> septic, Rheumatoid, reactive, Juvenile

GI -> HSP, IBD, Brucellosis + Hemophilia

Hx taking

Patient profile.
Chief complaint + duration.
OPP
HOPI: Analysis **(SOCRATES)**
S: site, unilateral or bilateral
R: Radiation (migratory or not)
A: associated symptoms (swelling, erythema, hotness, LOM)
T: Timing (morning vs night vs constant)
E: exacerbating and relieving factors
S: severity (able to bear weight)

DDx	Questions
Trauma	
Septic Arthritis	fever, chills, rigors, fatigue
Brucellosis	ingestion of unpasteurized milk, contact animals
Rheumatic fever (RF)	is the joint improving and another joint is getting involved (migratory arthritis), Hx of sore throat, skin infection (SOB, cough, less exercise)
Reactive arthritis asymmetric oligoarthritis	Triad (mnemonic: can't pee can't see, can't bend my knee): dysuria, Hx of GI/UTI infection
Inflammatory Rheumatoid Arthritis (IRA)	morning stiffness
migratory,non destructive **SLE**	malar rash, photosensitivity, chest pain, seizures
IBD	abdominal pain, eye Sx, oral ulcers, bloody diarrhea
HSP migratory	red urine, rash over lower extremities
Hemophilia	nose/gum leeding, FHx of hemophilia
All migratory **Malignancy** osteosarcoma,lymphoma ,neuroblastoma	pallor, weight loss, bruises
FHx hemophilia	FHx of IRA, Familial Mediterranean fever (FMF) ,IBD,SLE
Vaccines	Hib, PCV-13
Surgical Hx	Hx of Appendectomy increase risk of RA

Physical Examination

- ***General look*** → ABCD
- ***Vital signs***: HR, RR, Temp, BP, O2 sat
- ***Growth parameters***: weight, head circumference, height

Fever → Septic, RF, IBD, Ca
↑BP → HSP

reactive arthritis, IBD

Organ	What to look for
Eye	Conjunctivitis, Uveitis, lazy cornea, hypopion, Redness, Pallor
Face	JIA, SLE ← rash (discoid, malar), micrognathia (small jaw)
Oral	IBD, SLE ← ulcers, pharyngitis → RF
Neck	LNs examination → Malignancy
Chest	***a. CVS***: pericardial rub, murmurs (**aortic insufficiency**: diastolic murmur heard on left upper sternal border / **mitral regurgitation** (pansystolic systolic murmur heard on the apex with radiation to the axilla) ***b. RS***: pleural rub, serositis, fibrosis (SLE)
Abdomen	Organomegally
Knee (Joint) => Bilateral	- *inspection*: redness, swelling, scars - *palpation*: tenderness, temperature - *movement*: passive and active movement - *special movement tests*: -patellar hollow test, tap test, effusion test, milking test - inspect *gait* - *limb length* disturbance

Murmur
→ early: MR ± AR
→ late: MS

Skin manifestation → Rash = [SLE, Rheumato., HSP]
→ [R.F] → Erythema marginatum
→ Subcutaneous nodule
→ [SLE] → discoid rash
→ photosensitivity

Investigations

Test	What to look for
CBC	Leukocytosis (inflammation), Anemia, Platelets
ESR/CRP	Elevated in inflammation
Aspiration	For septic arthritis
Antibodies	C3,C4 (low in PSGN), ANA, Anti-DsDNA Ab, Anti-smith, Anti-CCP + RF [redacted]
ASO or DNase	Evidence of bacterial infection for Rheumatic fever

Management

Dx	Mx
Rheumatic Fever	➢ Bed rest, ➢ Antibiotics (**Penicillin G** or Amoxicillin, Erythromycin, Azithromycin, clindamycin), ➢ Corticosteroids
Septic Arthritis	➢ Drainage and debridement
SLE	➢ Mild: NSAIDs, hydroxychloroquine ➢ Moderate: High dose glucocorticoids, mycophenolate mofetil ➢ Severe: Cyclophosphamide, prednisone

Rheumatic Fever: Criteria

knowmedge

Mnemonic: "JONES CAFE PAL"

Major Criteria

J	Joint Involvement
O	**O** looks like a heart = myocarditis
N	Nodules, subcutaneous
E	Erythema marginatum
S	Sydenham chorea

Minor Criteria

C	CRP Increased
A	Arthralgia
F	Fever
E	Elevated ESR
P	Prolonged PR Interval
A	Anamnesis of Rheumatism
L	Leukocytosis

Diagnosis

Throat cultures growing GABHS
OR
Elevated anti-streptolysin O titers

+

2 Major criteria

OR

1 Major criterion and 2 Minor criteria

History & Physical examination of polyurea

Q.M.A Team

Deferential diagnosis

Diluted Urine: (water diuresis)

- Psychogenic polydipsia
- Diabetes insipidus (Central or Nephrogenic)

Concentrated urine: (Osmotic diuresis)

- Glucose: DKA
- Na: Diuretic
- Ca+2: HyperCalcemia
- Sodium bicarbonate in renal tubular acidosis, Fanconi's syndrome.

Hx taking

- Patient profile
- Chief complaint + duration
- HOPI: Analysis

Amount, color, frequency, urgency, nocturia, dysuria

Dehydration symptoms

Seizures

irritability, failure to thrive, fever due to dehydration

ADH-related causes of polyuria & polydipsia			
	Primary polydipsia	**Central DI**	**Nephrogenic DI**
Defect	ADH independent ↑ Water intake	↓ ADH release from pituitary	ADH resistance in kidney
Etiology	(dry mouth) • Antipsychotics azine • Anxious, middle-age women psychiatric or CNS disorders.	• Idiopathic • Trauma • Pituitary surgery • Ischemic encephalopathy	• Chronic lithium use • Hypercalcemia \ hypo K+ • Hereditary (*AVPR2* mutations)

Diabetic ketoacidosis in children	
Clinical features	• Polyuria/nocturia • Polydipsia, polyphagia • Vomiting, abdominal pain • Weight loss, fatigue • Kussmaul respirations (deep, rapid breathing) • Dehydration

Fanconi syndrome	Generalized reabsorption defect in PCT → ↑ excretion of amino acids, glucose, HCO_3^-, and PO_4^{3-}, and all substances reabsorbed by the PCT	Metabolic acidosis (proximal RTA), hypophosphatemia, hypokalemia	Hereditary defects (eg, Wilson disease, tyrosinemia, glycogen storage disease), ischemia, multiple myeloma, drugs (eg, ifosfamide, cisplatin, tenofovir, expired tetracyclines), lead poisoning	Growth retardation and rickets/osteopenia common due to hypophosphatemia Volume depletion also common

HyperCa+2: Stones, bones, abdominal moans, psychic overtones

Drug hx: Li+2, Demeclocycline, Diuretic

Physical examination

General examination, vital signs, Growth parameters

Dehydration symptoms

DKA: kussmal breathing, Abdominal pain, acanthosis nigricans

Investigations

- Establish the **presence** of polyuria (24 hour urine collection)
- Morning sample of urine to be tested for **Osmolality**. (Urinalysis)
- **Water deprivation test.**
- **Vasopressin test** to differentiate Central from Nephrogenic
- **CT/MRI** of brain for signal in post pituitary, to detect cysts, tumors, hydrocephalus craniopharyngiomas, histiocytosis as secondary causes of central DI.
- **Genetic studies** for diagnosis of inherited types of nephrogenic DI, distal RTA, nephronophthisis, cystinosis, etc.
- DKA investigations.

Diabetic ketoacidosis in children	
Clinical features	• Polyuria/nocturia • Polydipsia, polyphagia • Vomiting, abdominal pain • Weight loss, fatigue • Kussmaul respirations (deep, rapid breathing) • Dehydration
Laboratory findings	• Glucose >200 mg/dL • Bicarbonate <15 mEq/L • pH <7.3 • Anion gap >14 • Serum/urine ketones
Management	• 10 mL/kg isotonic fluid bolus over 1 hour • Insulin infusion + isotonic fluids with potassium
Complications	• Cerebral edema

SEVERITY OF DKA (pediatric):

1-Mild : PH less than 7.3 or serum HCO3 less than 15 mmol/L , assume 5% dehydration

2-Moderate: PH less than 7.2, serum HCO3 less than 10 mmol/L, assume 7% dehydration

3-Severe : PH less than 7.1, serum HCO3 less than 5 mmol/L , assume 10% dehydration

Red Urine History & Physical examination

Q.M.A team

Differential diagnosis:

- **Systemic cause: pre-renal**

Blood >> Bleeding disorders (bleeding from other sites (gum,melena), drugs)

>> Trauma

Pigments >> Endogenous >> Hemoglobinurea (G6PD, HUS, DIC)

>> Urobilinogen (SSD, Thalassemia)

>> Myoglobinurea (Status epilepticus, exercise)

>> Exogenous >> food (beet root)

>> drugs

Differential diagnosis:

- **Kidney cause: renal**

Glomerular >> PSGN, IgA nephropathy, Alport (hearing problems), Goodpasture (hemoptysis), SLE (rash, chest pain, photosensitivity).

(Hypertension, Edema, decrease urine output)

Vascular >> **HSP** (Arthralgia, abdominal pain, rash) , **HUS** (bloody diarrhea, under cooked meat).

Tubular >> Toxic causes ATN (contrast, drugs)

Interstitial >> AIN (drugs)

Tumor >> Wilms tumor

Differential diagnosis:

- **Infectious**:

Kidney >> **pyelonephritis** (fever, flank pain)

Bladder >> UTI (irritative symptoms), hemorrhagic cystitis (drugs or shistosomiasis)

- **Stones**:

Kidney + Ureter (flank, groin pain)

Bladder (obstructive symptoms)

Hx taking

P.P

CC: Onset, duration, previous episodes, progression.

HOPI:

- Timing during micturation (initial >> urethra,, end >> bladder,, constant >> renal).
- Exact color (**bright red** >> bladder, urethra,, **tea color** >> renal)
- Presence of clot >> extra renal
- Painful (infection, stone) , painless (kidney: GN, tumor)

PP [Name , age]

chief [duration]

OPP

Color / Time / clots

prerenal

وجع بوكل لحبيبه

Vigorous excercise

trauma تعرض لـ

blood نزل منه الـ

(G6PD, hemophilia)

واعطوه ادوية

(Rifampicine

cyclophosphamid

anticougulant)

Renal

Nephritic

recent URTI, impetigo

GE

- Glumerulonephritis
  - headach / lower limp edem
  - eye-puffiness typically upon waking
- Goodpasture
  - hemptysis
  - Nasal ulcer (WG)
- PSGN (1-2 weeks)
- IgA Nephropathy (1-2 days)
- Wilms → علامات malignancy
- SLE Nephritis → علامات الـ SLE
- HUS → blood diarrhea + abdominal pain
- HSP
- Alport syndrom

post renal

Urinary tract stone

UTI

Inves:

(red urine)

urine analysis

urin dip test

KFT

electrolyte

urine culture

prerenal:

CBC

G6PD

post renal:

KUB / CT

renal:

C3/C4

ANA

Anti Ds DNA

anti smith

anti GBM

anti streptolysin O

anti DNase

biopsy

Examination

- physical examination (general look)
- Vitals (Bp → in nephritic)
- Growth parameter

Eye: jaundice, pallor [hemolysis]

Face: (SLE) malar rash

oral: ulcer, pharyngitis

abdomen: full abdomen + Costovertebral angel, suprapubic, renal artery auscultation

genitalia → meatal erosion / ulcers

Legs → edema

freq. urgency

- past medical, Surgery / Social / Fx
  - & travel!
  - → bleeding disorder OR blood disorder? (SSD, Thalas, G6PD)
  - → Renal failed OR transplant?
  - → poly cystic kidney disease?

- Natal / [redacted] nutrition / developmental

- Drugs / vaccination / Allergy
  - → Lead → Wolf., hepa
  - → Color → Rifampicin, desferrioxamine
  - → ATN → aminoglycoside
  - → IN → NSAID, Gold, D-penicillomine (IN)
  - → hemorrhagic cystitis → cyclophosphamide

Red / Dark urine examination

① General

- Appearance → well VS ill
  → Consous, Alert, [illegible] Oriented
- Body weight
- Color ⇝ (pale, jundice)
- Dismorphism

② Vitals

- BP ⇝ hyper = GN
  → hypo = shock = cause of ATN
- T° ⇝ Fever = infection

③ Growth parameters

- Genetalia
- Back ⇝ Signs of Spina bifida → neurogenic bladder
- Lower Limb → Rash
  → pitting edema

④ Start from head to toe :- Oral ← ulcer, Pharyngitis

- Face ⇝ Eye → Color
  → periorbital edema
  → Ear → periauricular sinus
- Chest → lung → hear ⇝ (effusion, edema)
  → heart → S ⇝ murmur

- Abdomen

1- inspection ✓

2- palpation

→ mass ⇝ willms
→ tenderness ⇝ UTI
→ kidney palutement

3- percution

→ Costophrinic Angel
→ bladder

4- Auscultation ⇝ Renal Arteries

Investigations

Test	What do you look for
CBC	Anemia (G6PD), leukocytosis (infection)
Urine Analysis microscopy: crystals	- RBCs (dysmorphic suggests GN) - RBC Casts (suggests GN) - Protein (suggests GN)
Urine dip-test	leukocyte esterase, nitrite
Urine culture	
Antibodies	C3,C4 (low in PSGN), ANA, Anti-DsDNA Ab, Anti-smith, Anti-GBM
Other	Anti-steptolysin O (ASO), Anti DNase B
KFT	↑ SCr & BUN suggest nephritis
Electrolytes	
KUB +U/S	Stones
CT	Trauma, Wilm's tumor
G6PD Analysis	
Biopsy + cystoscopy	

- 24hour urine: Ca, oxalate, uric acid, creatinine, protein

Kidney Biopsy Indication (common question):

2- For the cause → Renal biopsy

- Not indicated if MCNS is suggested.
- Indications.

Before treatment:

- Age < 1 **or** >12 years.
- Gross hematuria.
- Renal failure
- Low C3

After treatment:

- Steroid resistant nephrotic syndrome.
- Frequent relapser

Not all children with hematuria require a renal biopsy
Children with persistent microscopic hematuria may warrant renal biopsy when they have:
- systemic illness (SLE,HSP)
- significant proteinuria
- impaired renal function
- hypertension
- family history of hematuria

Management

Dx	Mx
UTI	➢ Antibiotic choice: Sensitivity testing. ➢ Outpatient: Co-trimoxazole, 2nd generation cephalosporins Fluoroquinolones ➢ Inpatient: Aminoglycosides., 3rd/4th generation cephalosporins. ➢ Duration: 5 days in lower UTI, 10-14 days in upper UTI
PSGN	➢ *Sodium restriction*, ➢ *diuresis* (*IV furosemide)* ➢ *calcium channel Blocker (CCB)* ➢ *vasodilator* ➢ *ACEIs* used to treat HTN
SLE	➢ Mild: NSAIDs, hydroxychloroquine ➢ Moderate: High dose glucocorticoids, mycophenolate mofetil ➢ Severe: Cyclophosphamide, prednisone

History and physical examination of RS symptoms

Q.M.A Team

Cough

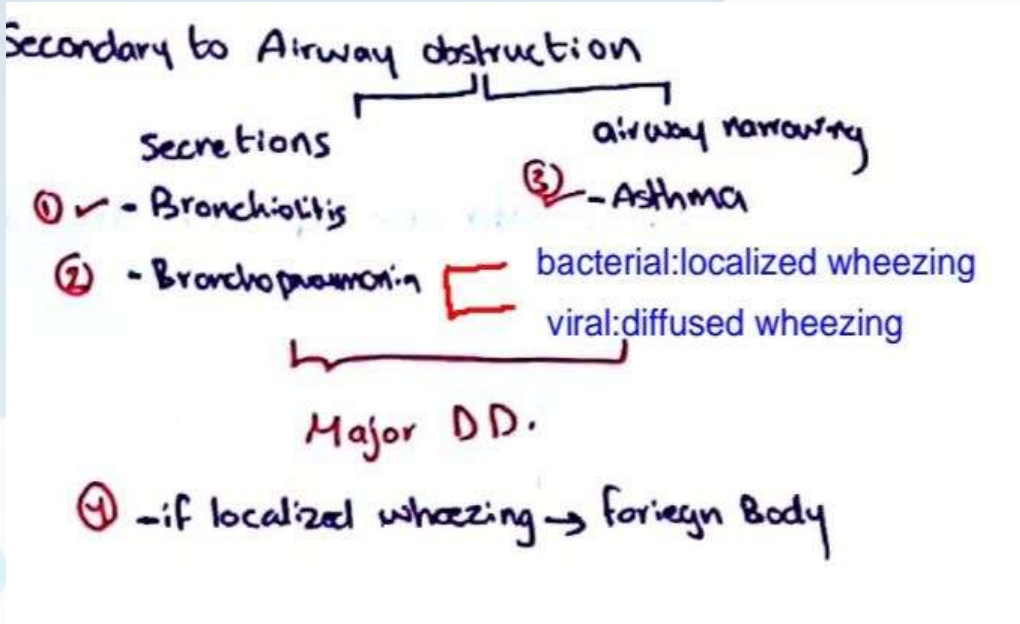
It’s forceful expiration that aimed to clear airways from debris and secretions and it’s divided according to chronicity:

- Acute: less than 2 weeks
- Chronic: more than 2 months
- Subacute: btw them

Wheezing

Musical continuous sound heard on expiration due to turbid airflow secondary to smaller airway in lungs obstruction.

- Differential diagnosis of wheezing: Asthma
  - Bronchiolitis
  - Cystic Fibrosis
  - Foreign body
  - Anatomical lesions like vascular rings, mediastinal cysts
  - GERD, aspiration
  - Heart failure
    - ↳ How?! via pulmonary edema.



Stridor

Stridor is a higher-pitched noisy that occurs with obstruction in or just below the voice box. Determination of whether stridor occurs during inspiration, expiration, or both helps to define the level of obstruction.

Causes of stridor in infants & toddlers	
Acute / epiglottitis:	
Croup	• Parainfluenza virus, most cases in fall/winter • Inspiratory or biphasic stridor, "barky" cough, infectious symptoms
Foreign body aspiration	• ± Choking episode • Inspiratory stridor &/or wheeze, focally diminished breath sounds
Chronic	
Laryngomalacia	• "Floppy" supraglottis, prominent age 4-8 months • Inspiratory stridor worsens when feeding, crying, or supine; improves when prone
Vascular ring	• Great vessels encircle & compress trachea • Biphasic stridor that improves with neck extension

Hx taking

SOCRATES

analysis:

1. Duration in days (acute vs chronic)
2. onset : sudden (foreign body)
   Gradual
3. Timing: Daytime
   early Morning, at sleeptime } paroxismal croup
   related to event (as waking, eating, exercise)
4. Frequency: continuous
   paroxismal
   ↳ for : Ask about whooping (pertussis)

5. details of cough:
   a- dry or reproductive:
   Asthma, TB, viral irretents
   ↳ if so: sputum: color, amount, consistancy, Blood?
   ↳ pneumonia, Bronchitis, sinsitis
   ↳ or if even he's able to expectorate sputum → become able >8y

   b-Sound of cough:
   - Barking cough:
     ↳ croup
   - whooping cough:
     ↳ pertussis
     ↳ duet Gasping for Air in btw cough (Because he's not Breathing during Cough)

6. Aggraviating factors:
   Dust, smoke, cold air, seasonal variation, exercise, animal danders → Asthma
   - time variation: worst at sleep or early Morning { Asthma, sinsitis with post-nasal drip, GERD
   - feeding or post-prandial → GERD and Aspiration
   - posture
   - crying → laryngomalacia

   relieving Factors:
   - Bronchodilators, steroid → Drugs (Asthma)
   - Humidfy air

7. reccurancy: 1st episode or previous episodes
   ↳ Ask: How Many time?, Dx, Hospitalization, tt

8. : if affecting Quality of life: - sleep
   - school attendance
   - Activity

9. Associated sym → included in Differential Diagnosis

Associated symptomes and differential Diagnosis

A • infection

1- URTI

- sneezing, nasal discharge, cough, headache
- Fever : 1- Documented? by whome?
  2- Route
  3- if Many times, what is the highest read?
  4- progression?
  5- increase at specific time of the day?
  6- responce to medication, and what medication
  7- Associated sym: convulsion, Malasia, chills

fever : >38 cc

- red eye / painful (conjunctivitis)

2- pharyngitis

- Sore throat

3- epiglottitis

- stridor
- drooling
- Horsness of voice

5- croup, Bronchiolitis, pneumonia → wheezing or noisy Breath

allready we Ask about Hx of URTI

→ Ask about symptoms of Respiratory Distress

1- Tachypnia, SOB
2- Grunting
3- cynosis (central is the important one)

6- Sepsis: Hypoactive, poor feeding, lethargic

6- Risk factors for infections:

1- Contact with sick pp in Home or schoole (with same sym), Sem
2- day care attendance
3- under ventilated House (
4- vaccination: 1- National programm (BCG, HiB)
   2- added vaccines: influnza, pnumococcal

7- Diseases associated with reccurent infections or Episodes

↳ pneumonia if >2 per 1Y

• Ask about Hx of reccurent inf.
  ↳ when was 1st time or >3 ever

1- Immunodeficency: family Hx or pt Diagnosed with
- drugs: immuno-suppresent Drugs, chemo, steroids
- other sites of infection: skin, OM...etc

2- reccurent Aspiration: reccurent Hx of choking, Hypotonia, inability

3- Impaired cilliary clearance:

• kartagner syndrome: cilliary Dyskinasia
  ↳ Ask about Fx of reccurent chest infection, Consanguinity (Aut. recessive)

• cystic fibrosis: Fx or pt
- chronic Diarrhea, steatorrhea
- failure to thrive despite Good food intake
- nasal polyps

4- Congenital defect: vascular ring

B- Asthma

- Family or pt History of : allergic rhinitis, allergic conjunctivitis, atopic dermatitis (Eczema) / Age of Dx.
  (Atopy · or food allergy)
- if he improve on Bronchodilators

asthma can appear on CXR as air trapping

C- forgien Body Aspiral

- Hx of playing with small obj then he develop sym
- chocking → foreign Body Aspiration

D- GERD or TEF

reccurent vomiting after Meal

E- Congenital Heart Disease or failure

- Dyspnea, chest pain (Wisi), Limb swelling (or Generalized), cynosis
- Hx of cardiac Disease
- Drugs : such As ACEI

H- laryngemalcia: Presentation includes inspiratory stridor worse in the supine position and exacerbated by feeding or upper respiratory illnesses; prone positioning improves symptoms.
also by crying

F- TB or Tumor

- night sweeting, weight loss, contact with Elderly
- Fx of TB

G- wegner Granulomatosis / Good past : Hematuria, rash

Perinatal History

- Pre- any Complicat during pregnancy
- natal : preterm, weight, Any Complicat during delivery
- post natal : - NICU admission and why?
  - ventilator?
  - when he pass 1st stool (Meconium ileus)

post Medical

- previous episodes, Hospitalization and when 1st episode
- Pt : Atopy, Cystic fibrosis, Heart Disease, chronic lung Disease, Asthma, recurrent choking
- Surgeries

Drugs

- ACEI, Bronchiodilator, steroids, Immunosuppressants, Anti-biotics, Anti-histamine
- allergy

Family Hx

Consanguinity, CF, Heart Disease, Kartagner syndrome, Atopy or Asthma, TB, same sign in family

Social

- smoking / pets / recent travil
- House ventilation, nomber of person lives in

development

- Failure to Thrive (CF)

nutrition and Vaccination

Mask ← A B C D → CF
CPAP

Physical Examination

- ***General look***, ***Vital Signs***, ***Growth parameters***
- ***Signs of respiratory distress***: nasal flaring, retractions, rapid breathing, grunting and tachypnea, Cyanosis, Posture.

Acute Cough Physical Examination	
Organ	**What to look for**
Eye	Redness, Cyanosis
Nose	Nasal polyps, allergic sallute
Chest	- *Inspection*: deformities (scoliosis, pectus craniatum, excavatum), scars, mode of respiration, masses, visible pulsations, symmetrical chest movement. - *Palpation*: tracheal deviation, masses, tenderness, chest expansion, Apex beat, tactile vocal fremitus, subcutaneous emphesema - *Percussion*: on both sides → dull, stony dull, ↑ resonance 3 areas - *Auscultation*: breathing sounds, air entry, added sounds
Hands	clubbing
Skin	Rash (signs of atopy)
ENT	Full ENT exam

Chronic Cough Physical Examination	
Organ	**What to look for**
Face	Dysmorphic features
Eye	allergic shiners
Autoscopy	for foreign body (autogenic reflux), otorrhea with tympanic membrane, scaring (primary ciliary dyskinesia PCD)
Nose	nasal salute (behavioral rubbing of the nose), anterior rhinoscopy (look for polyps), hypertrophied turbinates, check the mucosa
Mouth	mouth breathing, hypertrophied tonsils
Neck	lymph nodes malignancy
Hand	clubbing, cyanosis
Cardiac	dextrocardia, murmurs (for primary ciliary dyskinesia (PCD)
Respiratory	Full respiratory examination!
Abdomen	distention, organomegally
PR Exam	rectal polyps
Lower limp	Edema

Investigations

Dx	Test
Infections	✓ CBC, ESR, CRP ✓ Sputum & Blood culture
Asthma	✓ Spirometry ✓ Skin prick test ✓ Other: peak flow, methacholine, histamine, exercise challenge tests, sputum eosinophils, IgE, Eosinophils
TB	✓ TST, PPD, PCR ✓ Interferon-gamma release assay (IGRA) ✓ Ziehl-neelsen stain for sputum
CF	✓ Sweat chloride test, Fecal Elastase, Gene testing
Foreign body	✓ Bronchoscopy
Cardiac	✓ Echo, ECG
GERD	✓ Esophageal pH monitoring & upper endoscopy
Other	✓ Electrolytes, ABG's, **CXR (AP/L)**

Management

Dx	Mx
Bronchiolitis	• Supportive • Oxygen, cpap, intubation • IV fluid if unable to take PO or too tachypnic (RR > 60b/min) • Bronchodilators Albuterol and epinephrine may help • Steroids are not recommended in previously healthy children • Hypertonic saline not routinely recommended
Asthma	**Acute asthma management:** • Inhaled albuterol, continuo us, frequent • Systemic steroids---- Oral or IV • Inhaled anticholinergics • If no improvement consider – Subcutaneous terbutaline – Magnesium sulphate – Heliox – Intubation and ventilation

Cystic Fibrosis	• Airway clearance • Disease modifying therapies: Ivacaftor for class 3 mutation • Ibuprofen • Azithromycin • Steroids: not routinely indicated • Pancreatic enzyme replacement therapy • Fat soluble & AKED vitamins • Manage the complications
Pneumonia	• Oxygen • IV fluids if unable to do PO feeds • Antibiotics: - Newborns: ampicillin gentamicin or ceftazidime - Older children: ampicillin or ampicillin clavulanic acid, in severe cases 3rd generation cephalosporins - If older than 5 and mycoplasma suspected: macrolides can be used • If patient is toxic looking add vancomycin

Differential diagnosis of respiratory distress in newborn

- Choanal atresia
- RDS
- Congenital diaphragmatic hernia
- Meconium aspiration

History of Lower Limb / Periorbital / Generalized Swelling

Q.M.A. Team

Deferential diagnosis

- Local: Trauma, cellulitis, arthritis, allergy.
- Systemic: CHF, Liver failure, Renal failure, Nephrotic syndrome, Hypothyroidism.

Hx taking

Patient profile
Chief complaint
OPP
HOPI: analysis by **SOCRATES**
S: site of swelling
C: painful or painless
R: other sites of swelling
A: fever, pain, ….
T: Constant or intermittent
E: position, rest, movement

DDx	Questions
Trauma	
If leg swelling	Fever, erythema, hotness, pain, restriction of range of movement
Allergy	***insect bite***, drug
FHx of Allergy	FHx of asthma, eczema, allergy
Cardiac CHF	Shortness of breath, orthopnea, exertional dyspnea, cyanosis, FHx
Liver failure	jaundice, fatigue, malaise, hematemesis, blood per rectum, bruises, exposed to hepatitis patient, previous blood transfusions, FHx of transplant
Renal failure	headache, facial puffiness, oliguria, red urine
Nephrotic Syndrome	Other sites of swelling, frothy urine (ASK about the nature of urine!)
PSGN	recurrent skin, throat infection
HUS	Hx of gastroenteritis (*GE*), bloody diarrhea
SLE	malar rash, photosensitivity, oral ulcers, chest pain
Alport syndrome	Deafness, FHx of renal transplant/chronic kidney diseases
hypothyroidism	cold intolerance, weight gain , lazy

6. Liver failure (jaundice, abdominal distention, vomiting, blood in vomiting or stools, diarrhea, bleeding tendency, past history of liver disease)
7. Renal failure or nephrotic syndrome
   - polyuria or oliguria, frequency, change in urine color, abdominal pain, swelling around the eyes and in the hands, past and family history of renal disease, history of stones

hyperaldosteronism

Physical Examination

- *General look*
- *Vital Signs*
- *Growth parameters*

Organ	What to look for
Eye	Jaundice, periorbital swelling
Oral	ulcers (SLE)
CVS	(full examination)
RS	(full examination): crepitation, pleural effusion (dullness & less air entry) signs of pleural effusion
Abdomen	Masses (liver, ascites, shifting dullness, transmitted thrills) Organomegally, Signs of liver disease (caput medusa,..)
Groin	scrotal swelling
Lower limb	edema
Back	sacral edema

Investigations

Test	What to look for
CBC	Hemoglobin, WBC, Platelets
Urine analysis, Urine Dipstick	RBCs, Casts, Protein: 1 + = 0.3 gm/L 2 + = 1 gm/L 3 + = 3 gm/l 4 + > 4 gm/L
KFT	urea, creatinine, HCO-3 ,Na+, K
LFT	
Total protein, Albumin	
24-hour protein	
urine Prot./Creat. Ratio.	
C3, C4	
ANA, Anti-DsDNA	
HBsAg	
Serum Lipids	Cholesterol, TG, LDL, HDL
Kidney Biopsy	

Causes of Nephrotic Syndrome:

Primary "Idiopathic" (95%)

- Minimal lesion NS (MCD, lipoid nephrosis)
- Focal segmental glomerulosclerosis (FSGS)
- Mesangiocapillary GN (MCGN, MPGN)
- Membranous nephropathy

Secondary (5%)

- Complication / part of
- Systemic disease (Vasculitis/SLE/HSP etc.)
- Drugs
- Infections etc.

Admission to Hospital:

- "A new case"
- Biopsy
- Extensive edema (anasarca)
- Complications (infections/thrombosis, etc.)

Indications for kidney biopsy:

- Secondary N.S

(Hematuria/significant proteinuria)

- Frequent relapsing N.S
- Steroid resistant N.S
- Hypertension.
- Low GFR / RPGN

Remission: no edema, urine is protein free for 5 consecutive days.

- Relapse: edema, or first morning urine sample contains > 2 + protein for 7 consecutive days.
- Frequent relapsing: > 2 relapses within 6 months (> 4/year).
- Steroid resistant: failure to achieve remission with prednisolone given daily for 1 month.

Management

- **based on the cause**

Nephrotic Syndrome	✓ *Admission* ✓ Family Education: Diet, Steroid SE, .. ✓ *Albumin + Lasix (Diuretics), thiazide* ✓ Vaccination: PCV 13 ✓ Anticoagulation in children with thromboembolic events ✓ *Steroids* (oral, IV bolus) ✓ Immunosuppresives: Cyclophosphamide. Mycophenolate ✓ *Anti-platelet: Aspirin* ✓ *ACEI/ARBS*

Vomiting History & Physical examination

Q.M.A team

Vomiting differential diagnosis:

- **GI causes:**

1. **Gastroenteritis: Fever, diarrhea, abdominal pain, eating junk food/ drinking unsterilized water, family history of the same condition.**
2. **GERD: Heart burn, regurgitation, dyspepsia.**
3. **Hepatobiliary disorders: Jaundice, anorexia, dark urine, pale stool, itching, hepatitis risk factors (contact with hepatitis patient).**
4. **Intestinal obstruction: Distension, constipation.**

Vomiting differential diagnosis:

- **Infectious:**

1. **Upper respiratory tract infections: Cough, nasal congestion, sore-throat.**
2. **Otitis media: ear discharge, ear pain.**
3. **Urinary tract infections: dysuria, frequency, urgency, flank pain, loin pain, incontinence, red urine, oliguria.**

- **CNS causes:**

1. **↑ICP: chronic headache, mainly upon wakening, seizures, focal**
2. **weakness, altered personality and behavior, History of trauma.**
3. **Meningitis: headache, photophobia, neck pain, rash.**

Vomiting differential diagnosis:

- **Others:**

1. **DKA: Polyuria, polydipsia, polyphagia, recurrent infections, nausea, vomiting, rapid breathing, acetone smell, dehydration symptoms, altered mental status, family history of DM.**
2. **FMF: Cyclical abdominal pain, rash, arthralgia, fatigue, family history.**
3. **Drugs**: Vitamin A, doxycycline.

GI + CNS + (FMF, HSP)

Vomiting

- P.P (age, name)
- Chief Complaint + duration
- OPP + F CBC AMS → severity dehydration : ↓urine, ↓tears, ↑HR
  ↳ Projectile.

GI

✓ Gastroenteritis (Leuckocytosis)
- fever, diarrhea, abdominal pain
- junk food, unclean water, FHx.

✓ GERD (24 hour PH monitor)
- heart burn, regurgitation, dysphagia

✓ Hepatobiliary (LFT)
Jaundice, anorexia, hepatitis RF
(dark urine, Pale stool, itching)

✓ Intestinal Obstruction (X-ray)
- distention, constipation
(hernia)
(genitalia)

(التهابات)

* URTI (whooping cough)
* Otitic media (otoscopy)
* UTI (urinanalysis)

(CNS)

(LP) ↑ICP

✓ Meningitis
. headache, Photophopia
neck pain, rash.

✓ ↑ICP
early morning headache
- wt. loss,
- change in behaviour
- focal neurological defect.

(Others)

✓ Trauma to head (CT Scan)

✓ Drugs
vit A, Doxicycline

Glucodeck + ketones ✓ DKA
Polyuria, Polydipsia
rapid breathing
✓ acetone smell
- FH Hx. of DM1
- dehydration
altered mental status
- nausea

- Developmental Hx
- FMF

CBC For inflammation (↑Platelete)
+
Glucocheck
+
Electrolytes ⇐ vomiting
+
LP For ICP + meningitis
+
X-RAY
Stool culture + urinalysis

Possible causes:

Think of the Dx in these scenario's:

A. Vomiting + Headache:

- **Meningitis**

B. Vomiting + Diarrhea:

- Gastroenteritis (GE)

C. Vomiting in neonate:

- Biliary Atresia (BA)

Physical examination:

GI exam

1. General look : Pallor, Jaundice, Malnourished, Ms. wasting
2. vitals : for hypotension, Tachycardia
3. Growth Parameters

+ Signs of dehydration. (fontanlle, sunken eyes mucous mem, skin turgor capillary refill)

* Eye : Pallor, Jaundice, Redness

~~Kayser fleisher~~

~~Red Reflex~~

diaarrhea : exophthalmus
Lid lag

vomiting → fundscopy

ear (otoscopy)

* Mouth : Teeth problems, Ulcers, stomatitis (dental erosion)

Physical examination:

* Neck: lymphadenpathy + Thyroid masses
* Chest : auscultation
* Full Abdomen
  - PR : Anal fissure + tags + Prolapse + TONE
  - Genitalia for hernia
* Lower limb : Rash, edema, bruises
* hand : Sweaty, tremor, Clubbing
* Skin : Rash, bruises
* if vomiting Neurological exam (full)
  - meningial signs: Neck, Brad., Kernig
  - Cranial nerves.
  - cerebellar tests.
  - Brudizinski + Clonus.

Genitalia: hernia
PR Exam

Thank you