



- **Case (1): a 2 month old infant presented to the emergency with seizure.**

- **What is your differential diagnosis:**
 - ✓ Infection: meningitis or viral encephalitis (which is most commonly caused by Herpes virus).
 - ✓ Metabolic disorders: hypoglycemia, hyperammonemia, hyper/hypo natremia, hypocalcemia and hypomagnesemia.
 - ✓ Structural anomalies of the brain.
 - ✓ Trauma: cerebral palsy and anoxia, intraventricular hemorrhage or subarachnoid hemorrhage (shaken baby syndrome).
- **What investigations would you request?**
 - ✓ Blood to check for:
 - ❖ Blood glucose level (ruling out hypoglycemia which is very common).
 - ❖ Ammonia (ruling out hyperammonemia).
 - ❖ Calculating anion gap (to rule out metabolic acidosis which is might be associated with metabolic diseases).
 - ❖ Check levels of electrolytes (sodium, calcium and magnesium).
 - ✓ CT-scan: to rule out increased intracranial pressure before doing lumbar puncture and to identify any structural anomalies or lesions due to trauma.
 - ✓ Obtain CSF sample through lumbar puncture: checking for meningitis.
 - ✓ EEG: to know the type of seizure and its characteristics.

- **Case (2): a 1 month old infant presented to the hospital with fever (39 C).**

- **What is your differential diagnosis:**
 - ✓ Upper respiratory tract infections (croup, epiglottitis).
 - ✓ Pneumonia.
 - ✓ Meningitis or encephalitis.
 - ✓ Septecemia (especially if high-grade fever is present).
- **What investigations would you request?**
 - ✓ CBC and differential: to rule out infection.
 - ✓ Chest X-ray.
 - ✓ C-Reactive Protein (CRP) and ESR: acute phase reactants (indicating the presence of inflammation).
 - ✓ Blood culture: when septicemia is suspected.
 - ✓ Urinalysis and urine culture: to rule out UTI.
 - ✓ Lumbar puncture: when meningitis is suspected.
- **What is your first line of management?**
 - ✓ Start with rehydration and broad-spectrum antibiotics which is changed when the diagnosis is confirmed.

- **Case (3): a child (known case of sickle cell disease) presenting to emergency with pain in lower limbs (vasoocclusive crisis).**

- **What are the types of SCD crisis?**

Vasoocclusive crisis (most common)	<ul style="list-style-type: none"> • Ischemia/infarction of bone. infarction in other organs can produce: stroke (brain), acute abdomen or autosplenectomy. • Managed by analgesics and hydration
Sequestration crisis	<ul style="list-style-type: none"> • Rapid accumulation of blood in spleen • Spleen is acutely enlarged and tender • ↓Hb, ↑reticulocytes • Managed by supportive care and transfusion → eventually splenectomy



Acute chest syndrome	<ul style="list-style-type: none">• Pulmonary infiltrate associated with respiratory symptoms (e.g. cough, dyspnea and chest pain).• Most commonly caused by <i>S.pneumoniae</i> infection• Management: hydration, analgesics, oxygen and antibiotics
Aplastic crisis	<ul style="list-style-type: none">• Temporary cessation of RBC production often caused by parvovirus 19 virus.• ↓Hb, ↓reticulocytes• Management: blood transfusion
Hyperhemolytic crisis	<ul style="list-style-type: none">• Rapid hemolysis. often occurs in patients with other hemolytic diseases (e.g. G6PD deficiency)• Management: blood transfusion

- **Case (4): an 8 years old (known case of DM type-I) presents to the emergency with diabetic ketoacidosis.**

- **What are the signs and symptoms?**
 - ✓ Flushed, hot, dry skin.
 - ✓ Polyuria and polydypsia.
 - ✓ Drowsiness and confusion.
 - ✓ Kussmaul breathing (rapid deep breathing).
 - ✓ Fruity breath odor.
 - ✓ Abdominal pain, nausea and vomiting and loss of appetite.
- **What investigations would you request?**
 - ✓ Blood: to look for glucose level, ketones/acetone.
 - ✓ Urinalysis: for ketones.
 - ✓ Anion gap: you will find metabolic acidosis and the value will be > 16
- **How would you manage this case?**
 - ✓ Rehydration: by calculating fluid maintenance and deficit depending on the degree of dehydration (mild 5%, moderate 10% or severe 15%).
 - ✓ Electrolytes correction:
 - ❖ You will correct hyponatremia by calculating the deficit.
 - ❖ Potassium: before correcting its level you have to make sure that the kidney is functioning (wait until the patient passes urine) then administer a high dose of potassium.

- **Case (5): a 2 years old child presented to hospital with fever and cough.**

- **What is your differential diagnosis?**
 - ✓ Bronchiolitis: there will be wheezing.
 - ✓ Croup: inspiratory stridor and barking cough.
 - ✓ Epiglottitis: the course is severe and acute. Stridor is also present.
 - ✓ Pneumonia.
 - ✓ Cystic fibrosis: it is a chronic disease with multi-system involvement.
 - ✓ Tuberculosis.
 - ✓ Congestive heart failure: which is characterized by
 - ❖ History of underlying heart disease.
 - ❖ Murmurs might be present.
 - ❖ Gallop rhythm.
 - ❖ Peripheral edema.
- **What investigations would you request?**
 - ✓ CBC and differential: to rule out infection.
 - ✓ Chest X-ray.
 - ✓ Neck X-ray: for (thumb sign) in epiglottitis and (steeple sign) in croup.
 - ✓ Nasopharyngeal aspiration: for bronchiolitis.
 - ✓ Sweat electrolytes: to diagnose cystic fibrosis.
 - ✓ ECG: when a cardiac cause is suspected.