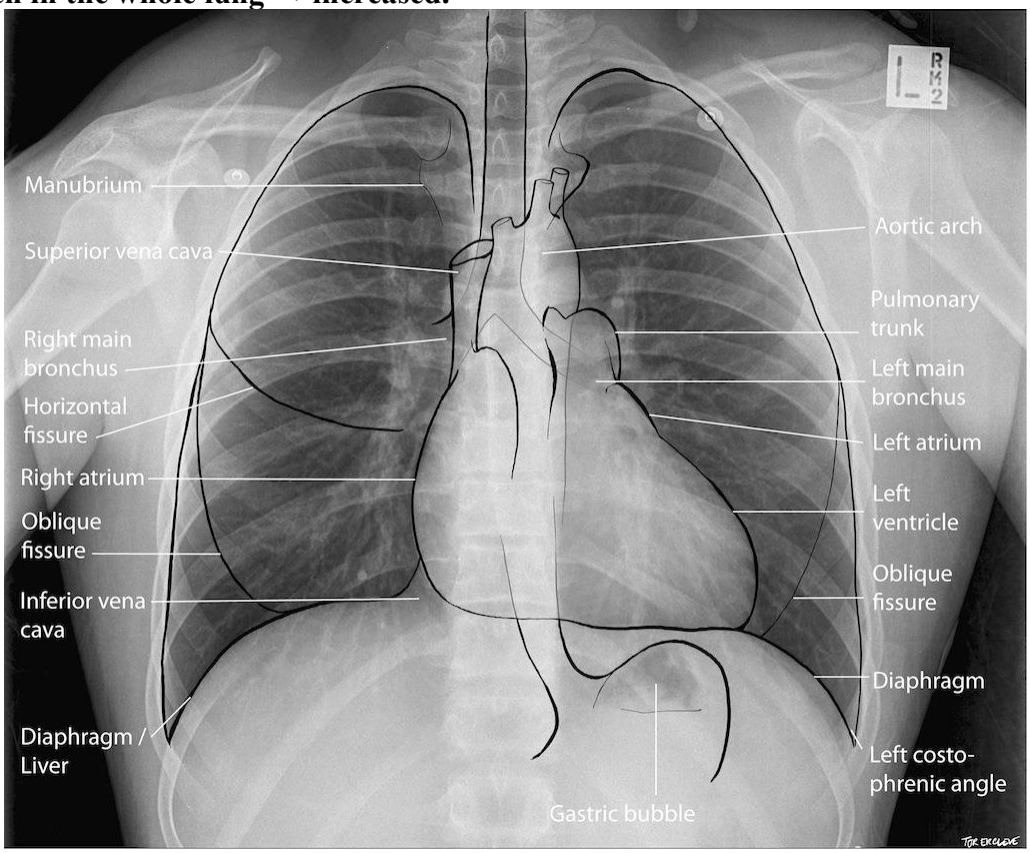
Arabian Gulf University – Kingdom of Bahrain
Year 5 – Pediatrics – 3rd Week
Discussion with Dr. Muna Al-Jufairi (Part 1)

- **Neonatal hypoglycemia:**
  - **Hypoglycemia**: when blood glucose level is < 2.7 mmol/L
  - **Causes of hypoglycemia in a newborn:**
    - ✓ Being an infant of a diabetic mother. Other complications in this infant include:
      - ❖ *Shoulder dystocia*: due to macrosomia resulting in brachial plexus injury.
      - ❖ *Polycythemia*: due to hypoxia. This will result consequently in hyperbilirubinemia.
      - ❖ *Respiratory Distress Syndrome (RDS):* because surfactant production is affected by hyperinsulinism.
      - ❖ *Congenital heart diseases and neural tube defects (sacral agenesis).*
      - ❖ *Outcomes of an infant of a diabetic mother*: developing diabetes in future due to autolysis of pancreatic β-cells. Notice that hypoglycemia, even if asymptomatic, can result in brain lesions which affect analytic thinking.
    - ✓ IUGR: due to decreased ability to store glycogen.
    - ✓ Glycogen storage diseases.
    - ✓ Sepsis.
    - ✓ Pancreatic β-cell hyperplasia or adenoma.
    - ✓ Hypopituitarism.
    - ✓ Adrenal insufficiency.
- **When there is a chest X-ray, how would you comment if lung vascularity is normal, increased or decreased?**
  - **Divide the lung into three parts, if vascularity is seen in 2/3 of the lung → this is normal; if vascularity is seen in 1/3 of the lung → decreased; if vascularity is seen in the whole lung → increased.**



- **Polycythemia in a newborn:**
  - **Polycythemia is considered when hematocrit (Hct) is > 60:**
    - ✓ If Hct is between 60-70 and patient is symptomatic → exchange transfusion; if patient is asymptomatic → hydration.
    - ✓ If Hct is > 70 → partial exchange transfusion is indicated → how to calculate it?
      - ❖ $$\frac{\text{Actual Hb} - \text{Desired Hb}}{\text{Desired Hb x weight x blood volume}}$$
- **Remember that in a patient with sickle cell disease, one and a half maintenance fluid must be given.**
- **Cyanosis:**
  - **Cyanosis is considered when there is ≥ 5 gm/dL deoxygenated hemoglobin in the blood resulting in bluish discoloration of skin and mucous membranes.**
  - **Cyanosis might be:**
    - ✓ Perihperal: which is caused by
      - ❖ Sepsis.
      - ❖ Vasomotor instability.
    - ✓ Central: which is caused by
      - ❖ *Cardiac*: represented by cyanotic heart diseases (5 T's):
        - ➢ Trancus arteriosus.
        - ➢ Transposition of great vessels.
        - ➢ Tricuspid atresia.
        - ➢ Tetralogy of Fallot.
        - ➢ Total anomalous pulmonary vascular return.
      - ❖ *Respiratory*:
        - ➢ Pneumonia.
        - ➢ Pneumothorax.
        - ➢ Pleural effusion.
        - ➢ Congenital anomalies of the lungs.
  - **Notice that hyperoxia test helps in differentiating between pulmonary and cardiac causes of cyanosis:**
    - ✓ Perform arterial blood gas in room oxygen then give 100% oxygen and perform arterial blood gas again:
      - ❖ If PaO_2 becomes > 150 mmHg after 100% O_2 → pulmonary causes of cyanosis.
      - ❖ If PaO2 remains < 100 mmHg despite 100% O_2 → cardiac cause of cyanosis.
  - **When Hb is increased → cyanosis becomes more clear due to increased percentage of deoxygenated hemoglobin. Example: suppose there are two patient:**
    - ✓ Patient (A) with Hb 21, saturation 85%
    - ✓ Patient (B) with Hb 10, saturation 85%
      - ❖ *In both patients, percentage of deoxygenated Hb is 15%*
      - ❖ *In patient (A):* 21 x 0.15 = 3.15 gm/dL
      - ❖ *In patient (B):* 10 x 0.15 = 1.5 gm/dL