OSCE Example by Dr. Salma Ajarmeh: Anemia

**A 7-year-old male patient presented to you in the ER with yellowish discoloration of the skin. You are now in front of his mother. Take the relevant history. Mention what will you examine for. Request the relevant investigations to reach a diagnosis.**

**Dr. Salma plays the role of the patient’s mother.**

أضف المعلومات الواردة في هذا التبييض إلى المعلومات الأخرى الموجودة في دوسيات الأوسكي. لم يكن المقصود من محاضرة الدكتورة شرح كامل عن كيفية أخذ السيرة المرضية للأنيميا. كانت المناقشة مقصورة فقط بالحالة أعلاه بالإضافة إلى قليل من معلومات أخرى لا دخل لها بالحالة من هنا وهناك أثيرت بواسطة الطلاب.

## History

1. **Duration of the chief complaint: When did the yellowish discoloration start?**

Yesterday evening.

1. **Does he have a previous similar complaint?**No
2. **Is there a similar condition in home?**No
3. **History of URTI?**

Viral infections can trigger hemolysis

**First: Question about the jaundice to determine its type: Pre-hepatic, hepatic, post-hepatic:**

1. **Color of urine and stool?**No change in color of stool… The urine? It was darker in color.
2. **Are there any associated symptoms?**Yes… He had little abdominal pain
3. **Did he have fever? Diarrhoea? Vomiting?**No [You exclude Hepatitis A]

### You are now thinking of a hemolytic process, ask the relevant questions:

1. **Did he take any drugs?**What drugs? You need to specify! You will not get the mark if you did not specify the names of drugs.

The two most important drugs are: Bactrim + Spetrin & Aspirin

**Did he take Bactrim, septrin or aspirin?** Paracetamol?“NO, he did not.

1. **Did he eat فول?**- “Wrong question… You need to be more specific”.

* **Did he eat or smell green فول?**
* Yes, yesterday the first, we had some in our house.

*What is the difference between eating and smelling: Hemolysis is more severe in eating than just smelling.*

**PH:**

1. **Prenatal history: History of abortions** 🡺 Hydrops fetalis 🡺 الولد كان منفخ + HF + Pleural effusion + Pulmonary edema + Anemia

*N.B. There are >30 causes of hydrops fetalis*

* *Hydrops fetalis: abnormal accumulation of serous fluid in the fetal tissues, as in erythroblastosis fetalis.*
* *Erythroblastosis fetalis: a grave hemolytic anemia that, in most instances, results from development in an Rh-negative mother of anti-Rh antibody in response to the Rh factor in the (Rh-positive) fetal blood; it is characterized by many erythroblasts in the circulation, and often generalized edema (hydrops fetalis) and enlargement of the liver and spleen; the disease is sometimes caused by antibodies for antigens other than Rh. Syn: congenital anemia, hemolytic anemia of newborn, neonatal anemia, anemia neonatorum, hemolytic disease of newborn, fetal erythroblastosis, Rh antigen incompatibility.*

1. **Neonatal history:** Jaundice and exchange transfusion

**FH:**

1. **Splenectomy, recurrent blood transfusions, cholecystectomy?**“No”.
2. **G6PD: الخوال وأبناء الخالات?**  
   “No history”.

By then you must have a provisional diagnosis “G6PD deficiency”.

## Physical Examination

Generally: Jaundice and pallor

Vitals: Tachycardia + Tachpnea + Drop in O­2 saturation

ENT: Search for a focus

CVS: R/O HF (Gallop rhythm + Murmur due to hyperdynamic circulation)

RS: Basal crackles (due to HF)

## Investigations

**Hematology:**

1. CBC:
   1. Hb
   2. MCV: If low, thalassemia and iron-deficiency anemia
   3. RDW:

* Increased in 🡺 Iron deficiency anemia
* Normal to decreased in 🡺 Thalassemia

1. Blood film:   
   - Intravascular hemolysis 🡺 Schizocytes (syn: Schistocyte)
2. G6PD enzyme level: You can not request this test in the acute phase. You will get false-ve result. Because reticulocytes contain a high percentage of this enzyme. Therefore, you can request this test at least >7 days after the acute attack.
3. Puryvate kinase level.
4. Direct Coomb Test 🡺 If +ve, think of autoimmune causes
5. Hb electrophoresis

**Chemistry:**

1. Urine analysis:

* Indication of intravascular hemolysis 🡺 Hemoglobinuria

1. LFT: This test must be requested even if you are sure of a diagnosis of a hemolytic anemia.
2. Bilirubin: Direct and indirect
3. Biochemical test to prove intravascular hemolysis: LDH can be low. The more specific is haptoglobin level.
4. KFT: R/O ARF

**Serology:**

1. Hepatitis screen

## **Management**

1. **Stabilize the patient: ABC**

* Oxygen
* Hydration

1. **Blood transfusion**: Only if Hb level is <6.5-7 gm/dL

* A complication of blood transfusion: Fluid overload
* Iron chelators: used in thalassemia and sickle cell anemia:
  + Desferioxamine
  + Desferal: New drug that made a breakthrough 🡺 Desferioxamine is only given parenterally. This drug can be given orally.

1. **Education of the family**