Hemolytic anemia

Life span of RBC → 120 days

Life span of fetal RBC → 100 days

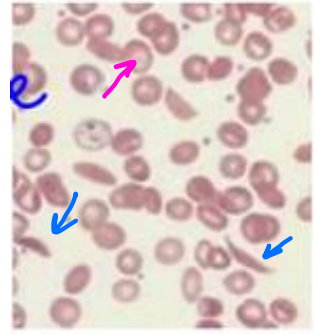
Evidence of hemolysis

- ✓ Splenomegaly
- ✓ ANEMIA

* BILIRUBIN Unconjugated ↑

* LDH ↑

* Reticulocyte counts ↑: > 2%



Lab evidence of hemolysis

✓ ICTERUS +

(Sickle RBC

Central pallor → ⊙ Spherocyte

Ⓝ RBC ⊙ Target RBC

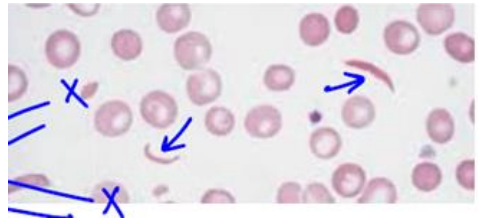
β-Thalassemia

* Transfused RBC $t_{1/2}$ = 60 days

Sticky RBC  : Autosplenectomy

Sickling Crisis

Sickle cell anemia



HB elec trophoresis report

✓ HbS HbA_2 HbF

Reason for hemolysis in sickle cell anemia — Rigid RBC

Patter of inheritance — AR

Hallmark clinical feature

* 1. Auto splenectomy
2. Bone pain

(n) Hb electrophoresis

* HbA 95%
HbA_2 2%
HbF 3%

Sickling Crisis

1. O_2
2. Saline
3. Blood Transfusion
4. Opoids inj

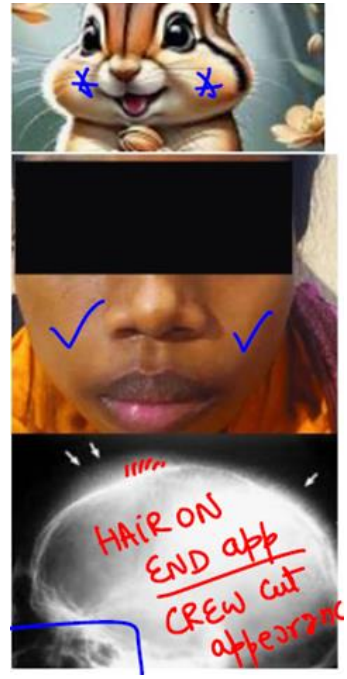
AR

Beta-Thalassemia

Microcytic hypochromic anemia

MCV < 80 fL
MCH < 20 pg

Hallmark features
1. Chipmunk facies *
2. Spleno-hepatomegaly



Investigation of choice — gene sequencing *
High performance liquid chromatography
Hb electrophoresis

First line management
Treatment of choice

PRBC Tx

allogenic Hematopoietic stem cell Tx

* NESTROFT: Naked eye single Tube RBC Osmotic fragility Test

Screening test for thalassemia

Best for prenatal diagnosis of thalassemia

CHORIONIC VILUS sampling > Amniocentesis

1 unit of packed RBC raises Hb by ↑ 1gm or 3% ↑ Hematocrit

Hematopoiesis basics

Starts in yolk sac at 2 weeks of gestation

HbF production begins at 14 weeks "

Major type of haemoglobin at birth HbF

Shifts towards the bone marrow and HbA become major Hb by 1 year of age

HbA = 95%.
" A_2 = 2%.
" F = 3%.