Module II: BLOOD AND IMMUNITY; WEEK 2

Learning Objectives:

By the end of the CBL, students will be able to

- Correlate the changes in structure and function of the different types of Hemoglobin in health and in disease states.
- Correlate different Hb electrophoresis pattern
- Relate normal and abnormal haemostatic mechanisms with the coagulation cascade
- Relate blood and blood components transfusion and transfusional reactions

CLINICAL CASE

Moula Bux and his wife are sitting in the waiting room of their family physician, Dr. ABC. They are a young couple, who are first cousins and have been married for just two years and have a son, Sumar, whom they have brought in for a follow-up visit to the doctor. They are concerned because Sumar has recently been suffering from repeated infections. Although the boy seemed to be a happy and healthy newborn, he has grown increasingly listless over the past few months. He has lost much of his appetite and his complexion has become pale. The parents believe that their son has become anemic due to his poor diet; both Moula Bux and his wife themselves suffered from jaundice as babies.

The family is called in to see the physician , who, after exchanging pleasantries, reviews the boy's symptoms and examines him . On examination he is short statured and pale. He has prominent facial and frontal bones. His spleen is enlarged and palpable 4cm below his left costal margin. The blood reports reveal:

Table 1. Blood Sample Results

Hemoglobin (Hb)	5.2g/dL
MCV	59fl
MCHC	25

WBC	4,200
Platelets	3,89,000
Reticulocyte count	4.8%
Hypochromic, microcytic red cells , target cells, nucleated red cells , polychromasia	

Questions

1. How can the physical signs be explained?
2. Why is the boy short statured and have prominent facial and frontal bones?
3. Why the spleen is enlarged?
4. Analyze the blood report?
5. Why reticulocyte count increases against low MCV?
6. What is the most likely condition child is suffering from?
7. What condition could thalassemia be confused with on the basis of the red cell indices?
8. How do these parameters (red cell indices) change in anemia of chronic disease and iron deficiency anemia?
9. Why patients of thalassemia are asymptomatic at birth?
10. Role of interfamily marriages in thalassemia?
11. What further advised you give to the parents?
12. What is the mode of hereditary transmission for this disease?
13. What is Hb F? Wow does it differ from adult hemoglobin?
14. What is the ultimate prevention?