Diseases Involving The Red Blood Cells

DEPT OF ORAL PATHOLOGY AND MICROBIOLOGY,

LEARNING OBJECTIVES:

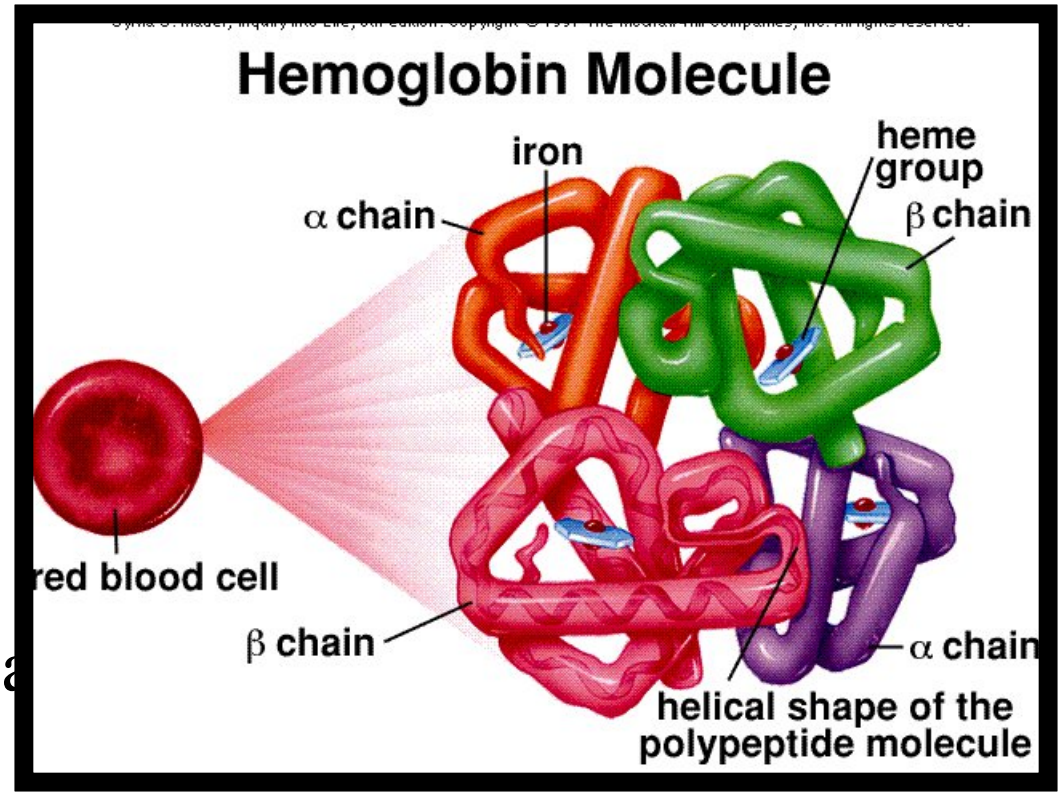
- At the end of lecture student should be able to
- Define anaemia
- Describe clinical features of thalassemia and sickle cell anaemia
- Lab investigations of thalassemia and sickle cell anaemia.

Thalassemia

- Genetically determined disorder of Hb synthesis with decreased production of either alpha or beta polypeptide chains of Hb molecules, which results from markedly decreases amounts of globin messenger RNA.

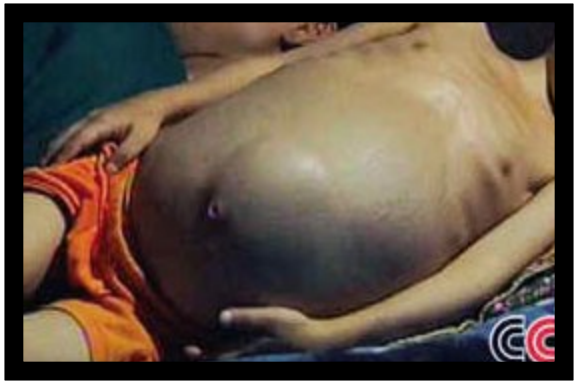
Types

- Presence and absence of globin chain
- Alpha thalassemia
- Beta thalassemia
- In heterozygous
- Thalassemia minor
- Thalassemia trait
- In homozygous
- Thalassemia major
- Homozygous β thala



Clinical Features

- Siblings are commonly affected
- Occurs within the first two years of life.
- Yellowish pallor of the skin
- Exhibits fever, malaise and generalized weakness.
- Splenomegaly and hepatomegaly

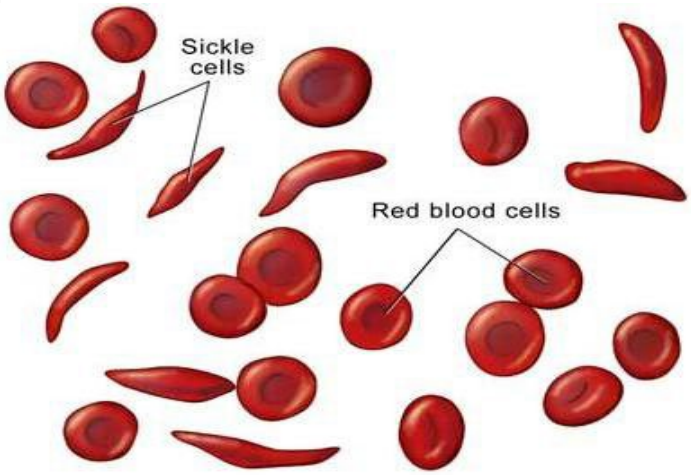


Thalassemia – X-ray features

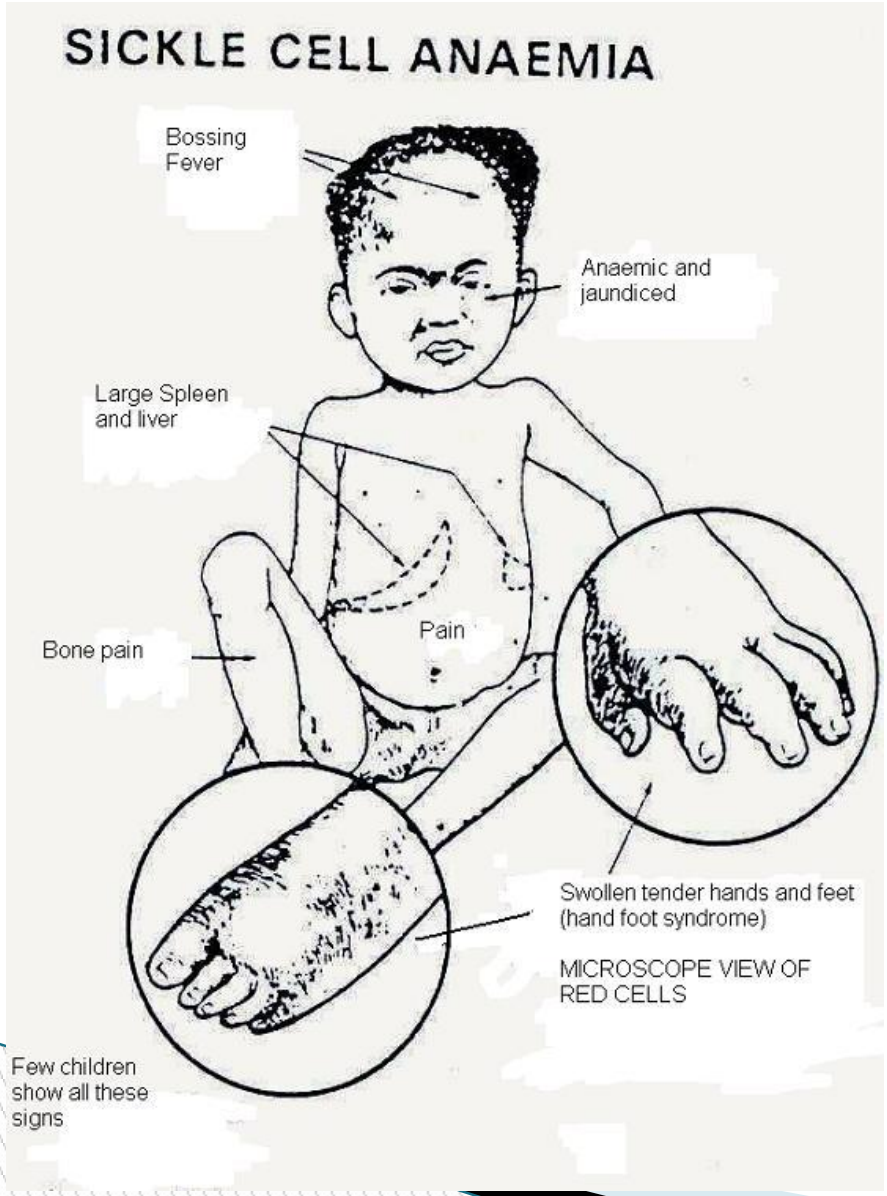
- Rib within a rib appearance
- Skull- Extreme thickening of medulla and inner and outer cortex become poorly defined.
- Hair on end or crew cut appearance in parietal bones
- Intraoral- peculiar trabecular pattern of maxilla and mandible
- Coarsening of trabeculae and blurring and disappearance of some- salt and pepper effect

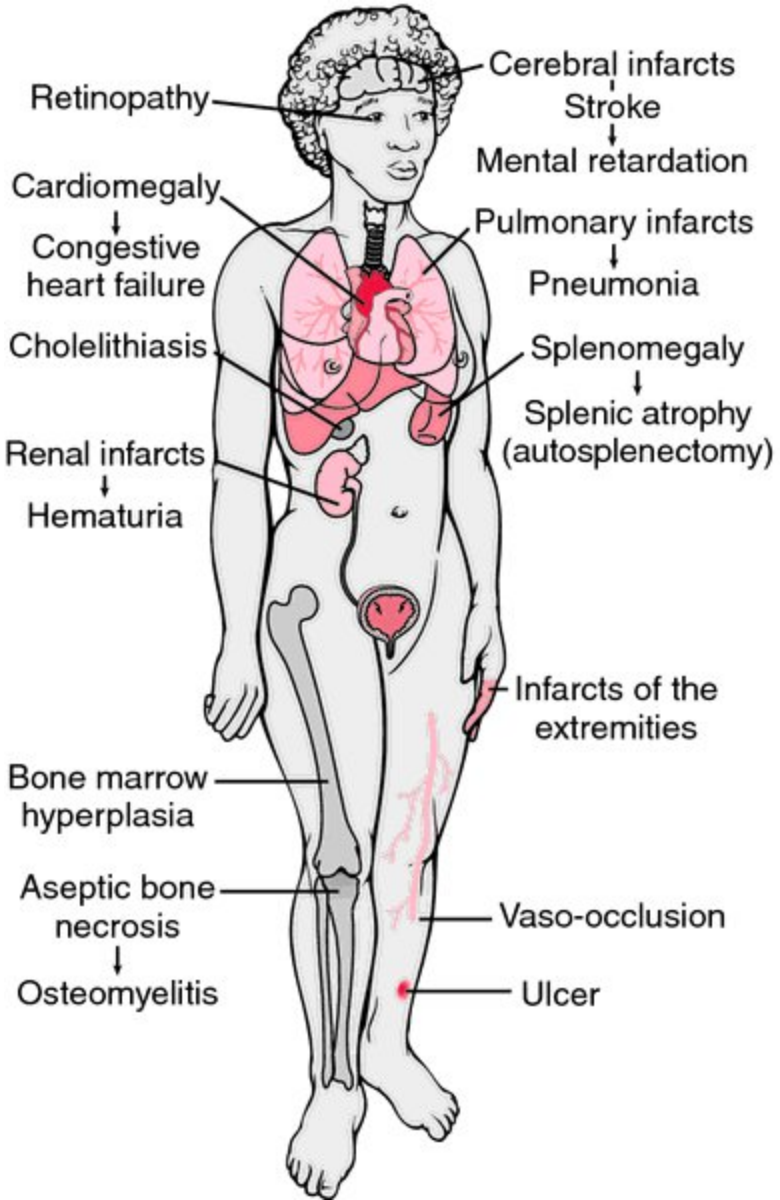
Sickle syndrome

- Hereditary type
- Characterized by production of structurally abnormal HB
- HbA is genetically altered to produce substitution of valine for glutamine at 6^{th} position



Clinical features



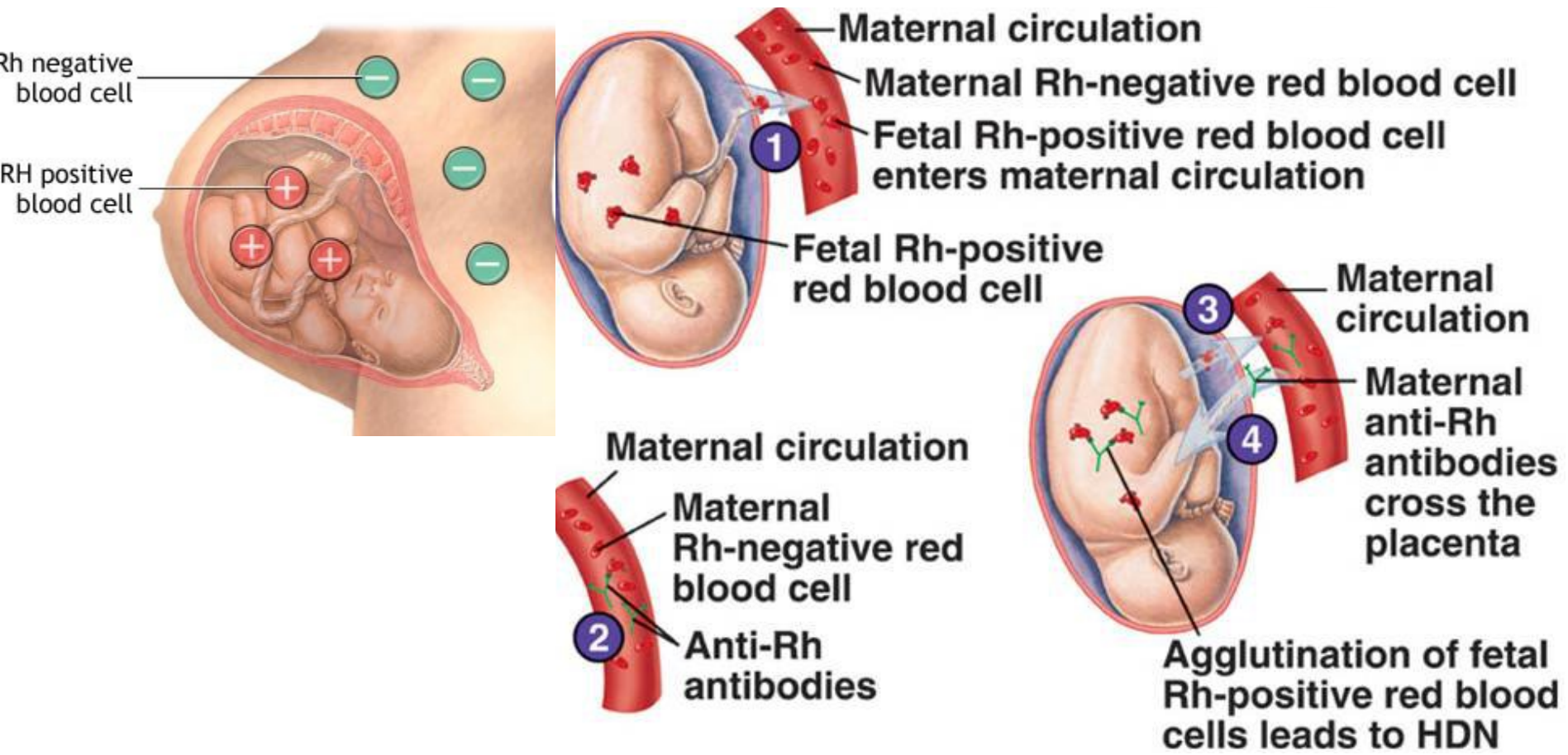


Sickle syndrome - oral manifestations

- Significant bone changes in the dental radiograph.
- Mild to severe generalized osteoporosis
- Loss of trabeculation of jaw bones with the appearance of large, irregular marrow spaces.
- Prominent in alveolar bone.

Erythroblastosis Fetalis

- Congenital hemolytic anemia due to Rh incompatibility results from the destruction of fetal blood brought about by reaction between maternal and fetal blood factors.
- It is due to the inheritance by the fetus of a blood factor from the father that acts as a foreign antigen to the mother.

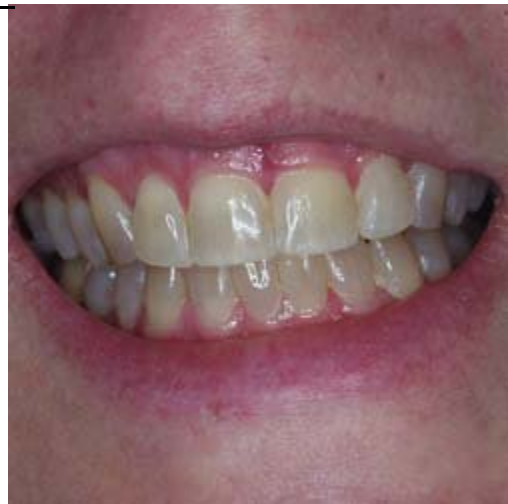


PATHOGENESIS OF ERYTHROBLASTOSIS FETALIS

Oral Manifestation

- Deposition of blood pigment in enamel and dentin in developing teeth, giving them green, brown or blue hue.
- Enamel hypoplasia-usually involves incisal edges of ant. Teeth and middle portion of deciduous cuspid and 1st molar crown.
- Characteristic ring like defect occurs –

Rh Hump



SUMMARY:

- Types of Anemia -Thalassemia, Sickle cell
- Clinical features
- Lab investigations

References

- Basic Pathology. Kumar, Cortan, Robbin. sixth edition.
- Shafers Oral Pathology.
- Basics of hematology. Kwathilkar.3rd edition.
- Neville Oral Pathology


Thank You!