University of Mosul
Lecture No.: 3
College of Veterinary Medicine
Date:
Unit of Scientific Affairs
Website:

Lecture title: Hematology-2-

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Summary:

Erythrocytes:

Normal & Abnormal :

Normal red cell : 2.0 um, Cross- sectional view. , 7.5 um Top view .

Abnormal morphology of Erythrocytes : Normocytic, Microcytic &Macrocytic.

Abnormalities of RBCs :

abnormal erythrocyte morphology :

is found in pathological states that may be:

1-Abnormalities in Size(Anisocytosis).

2-In Shape (Poikilocytosis).

3-In Hemoglobin content.

4-Presence of Inclusion bodies.

1-Variation in erythrocyte size(Anisocytosis).

a-Microcytosis :

Decrease in the red cell size. red cells are

Smaller than normal.

Found in :

1- Iron Deficiency anemia.
2- Lead poisoning .
3- Anemia of chronic disease.

b-Macrocytosis:

Morphology:

Increase in the size of a red cell.

Red cell are larger than normal .

May be or oval in shape, the diagnostic being different.

Found in:

1-Folate and B12 deficiency (oval).

2-Ethanol (round).

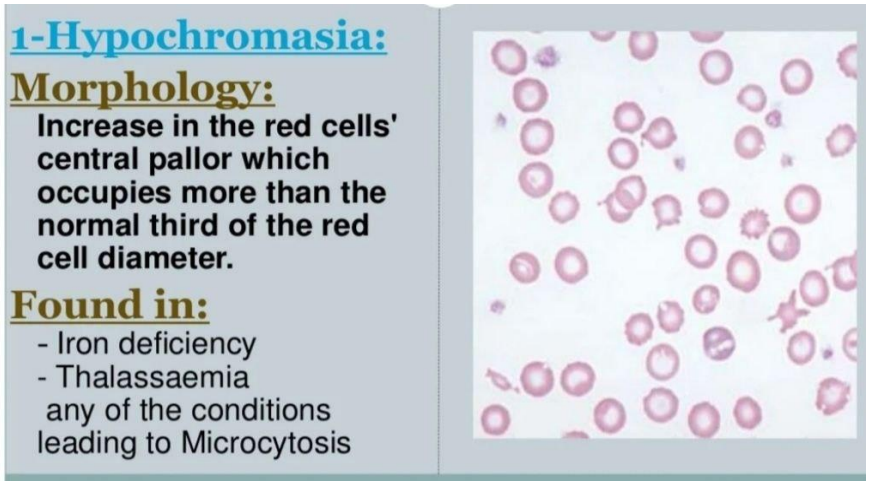
3-Liver disease(round).

4-Reticulocytosis(round).

2-Variation in Hemoglobin content :

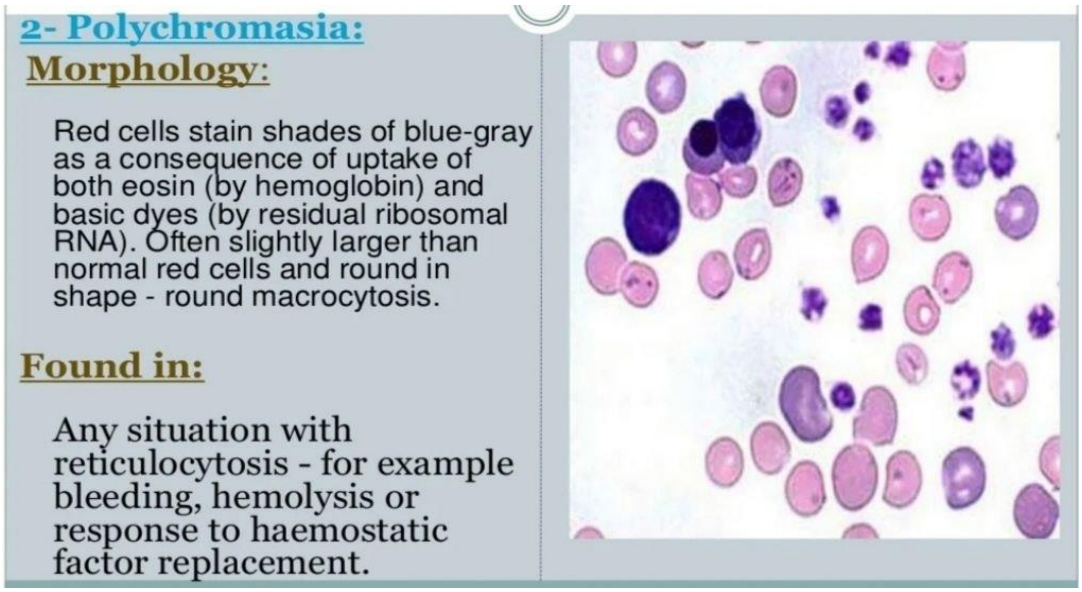
1-Hypochromasia

Morphology:



2- Polychromasia:

Morphology:



3-Poikilocytosis:

Abnormality in shape may be of the following types:

1-Spherocytosis .

2-Target cells .

3-Ovalocytes.

4-Elliptocytosis

5-Tear Drop cells .

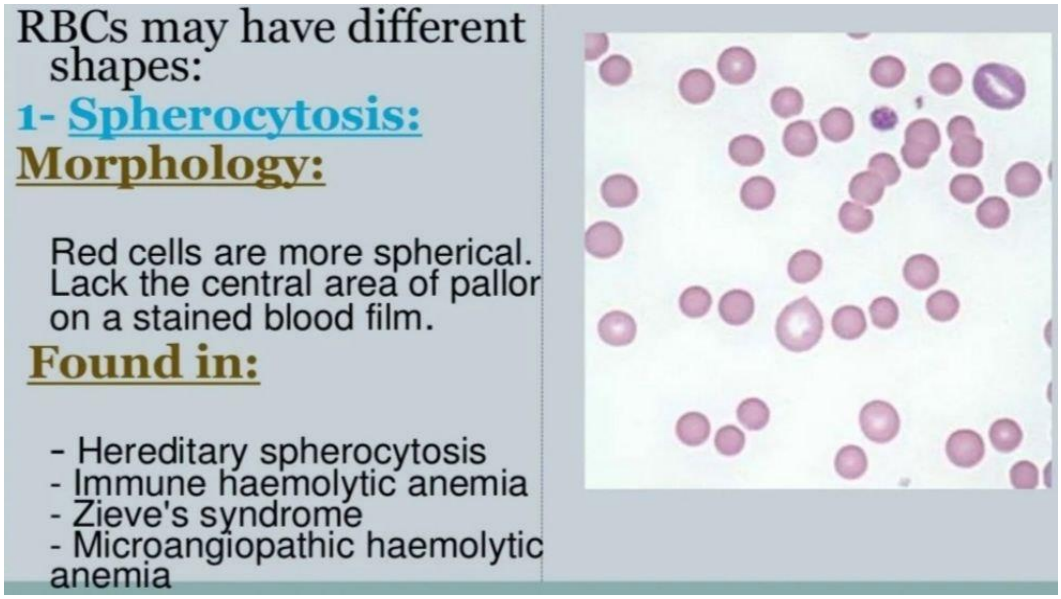
6-Sickle cells

7-Rouleaux formation

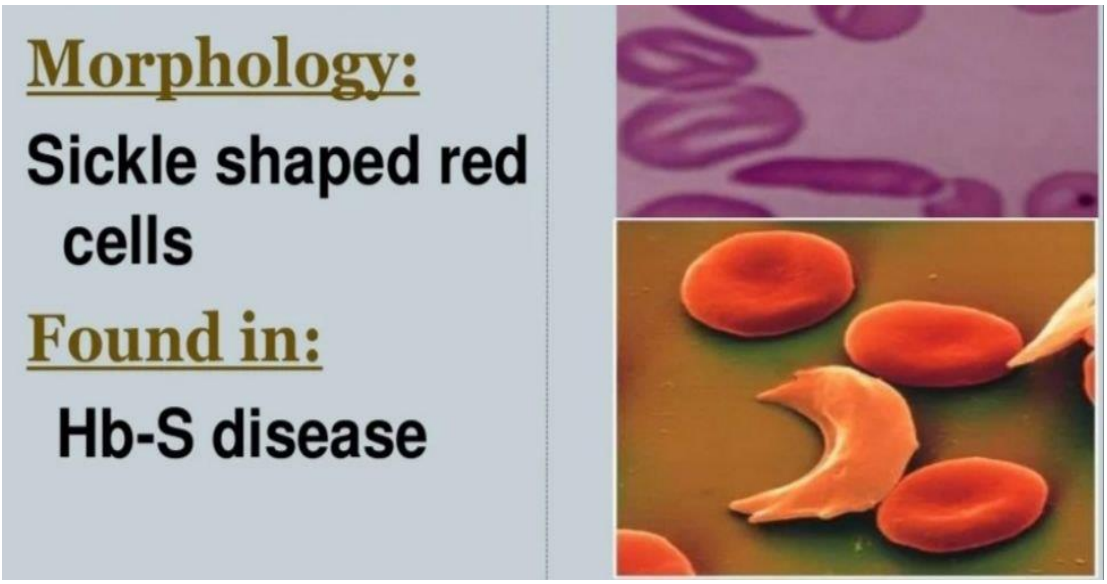
8-Red cell-agglutination

9-Acanthocytosis

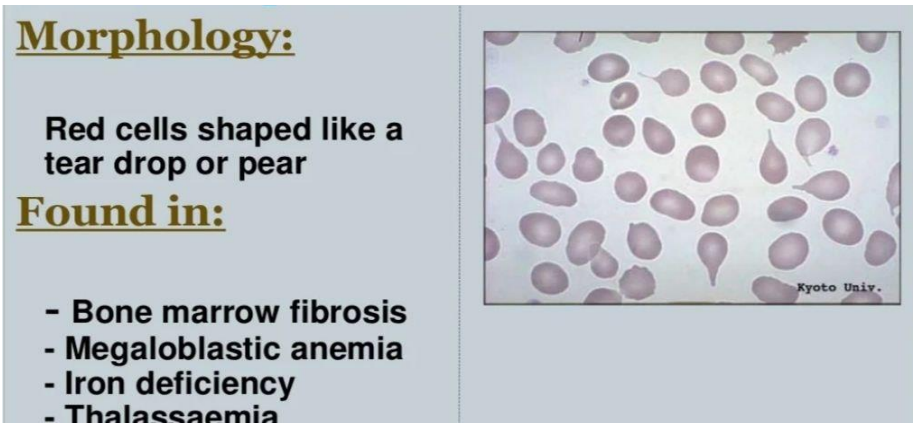
10-Schistocytosis



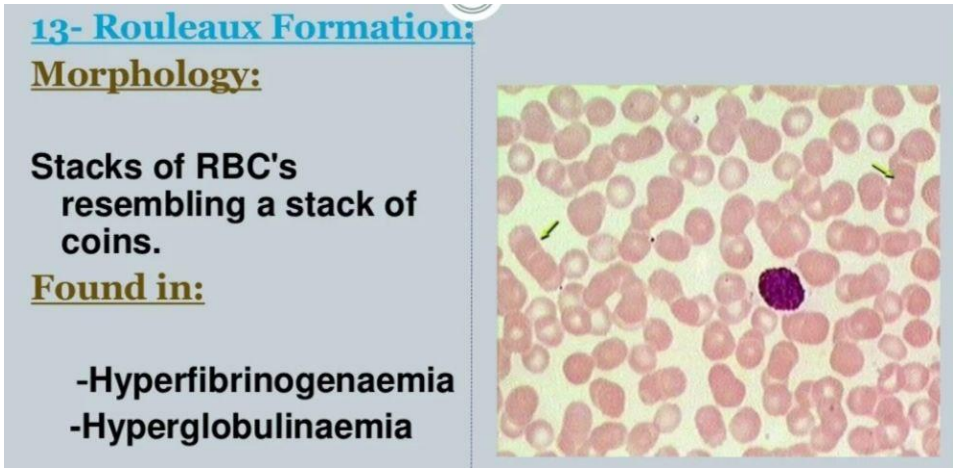
2- Sickle Cells



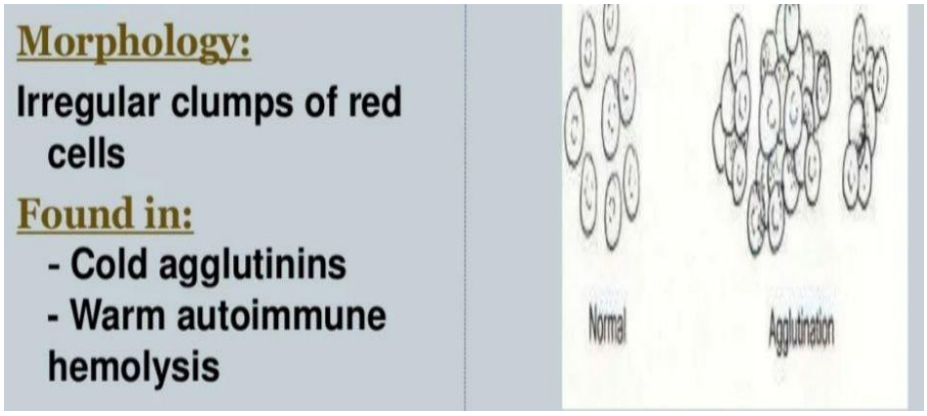
3-Tear Drop Cells



4-Rouleaux Formation



5-Red Cell - agglutination



4-Inclusions in RBC:

Abnormal structures which are present in red cells are called inclusions .these are normally absent in red cells.

These includes:

1-Howell-Jolly Bodies .

2-Siderocytes .

3-Heinz Bodies .

4-Basophilic Stippling.

5-Parasites of Red Cell

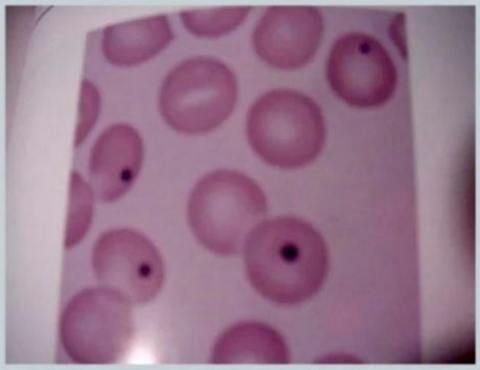
1- Howell-Jolly Bodies:

Morphology:

Small round cytoplasmic red cell inclusion with same staining characteristics as nuclei

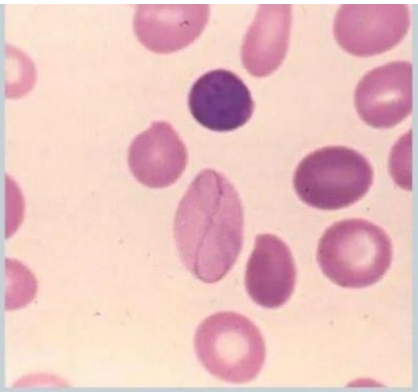
Found in:

- Post splenectomy
- Megaloblastic anemia

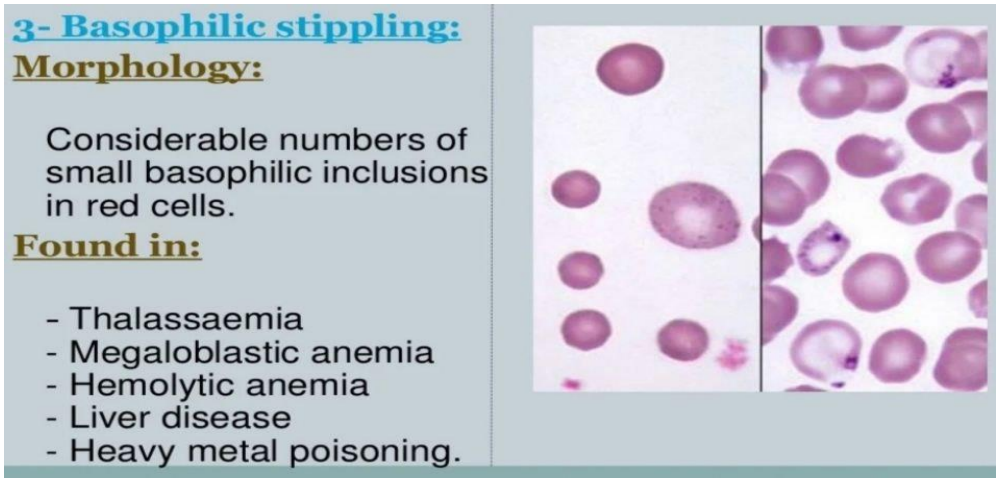


2- Cabot Rings:

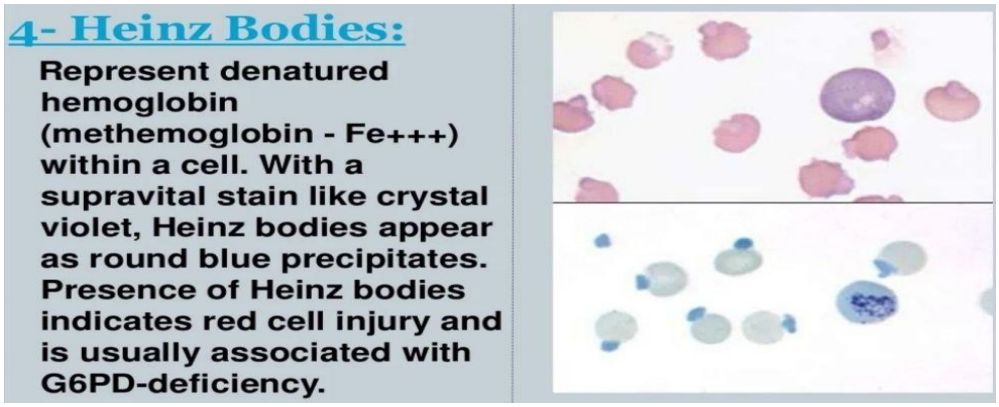
Reddish-blue threadlike rings in RBCs of severe anemia's. These are remnants of the nuclear membrane and appear as a ring or figure 8 pattern. Very rare finding in patients with Megaloblastic anemia, severe anemia's, lead poisoning, and dyserythropoiesis.



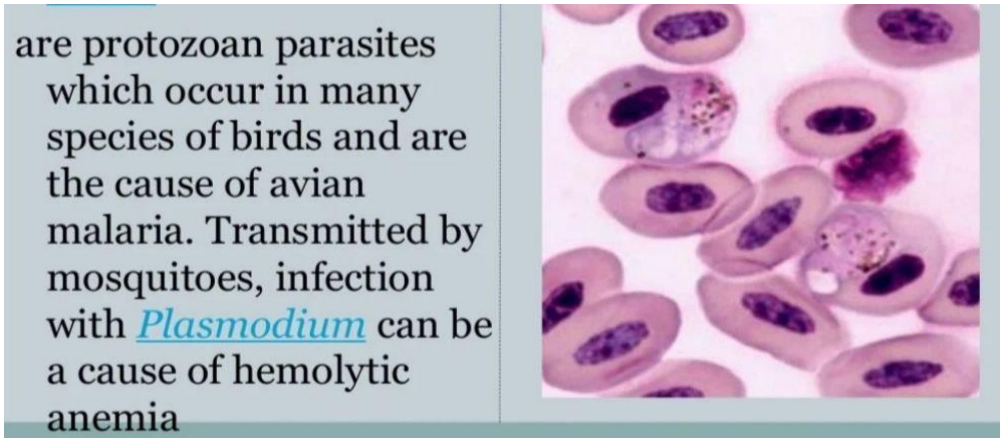
3-Basophilic stippling:



4-Heinz Bodies:



5-Parasites of Red Cell:



References:

Coles ,E.H. (1986) Veterinary Clinical Pathology. WB Saunders Company Philadelphia and London,