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Cellular Elements of the Human's Bone Marrow

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ABSTRACT: Examination of bone marrow may be a valuable diagnostic tool in the differential diagnosis of diseases such as:

- Diseases associated either with a decrease or increase in cellular elements in the peripheral blood.
- The appearance of abnormal cells in the peripheral blood.
- When a peripheral blood count indicates the presence of leukopaenia
- In cases of nonregenerative anemia
- When thrombocytopaenia appear in the peripheral blood.
- In confirming a diagnosis of leukemia and in differentiating it from a leukemoid reaction.

1. (E) TECHNIQUE FOR BONE MARROW EXAMINATION

The following steps are required for bone marrow examination

- Shaving and washing of the skin.
- Use skin antiseptic.
- Local or general anesthetic is required.
- Avoid any haemanhage during the aspiration of the biopsy of bone massow.
- If haemorrhage occuts, vessels should be clamped and the area carefully sponged in orden to avoid contamination of the biopsy with peripheral blaod.
- Bone marrow needles and syringe (Their size and length will depend upon the size of the bone going to be examined) A small bottle cantaining 10% buffered formaiin A test tube cantaining an anticoagulant (EDTA).

2. (S) STAINING OF BONE MARROW SMEAR ANY GOOD POLY CHROME STAIN SUCH AS:

- Wrights stain
- Wright- Giemsa
- May - Grunwald-Giemsa
- may be utilized Bone marrow smears should be exposed to stain for a longer period of time than is necessary peripheral blood smears

3. EXAMINATION OF BONE MARROW SMEAS

The following cells werecauntidabout 500 cells were countid and classified in the following table.

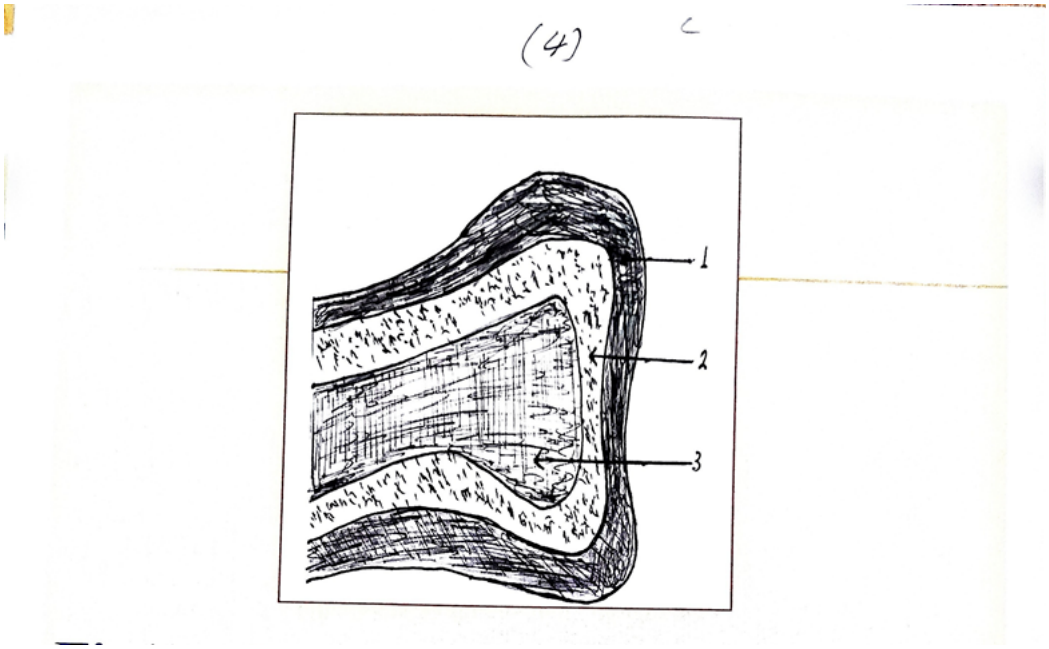
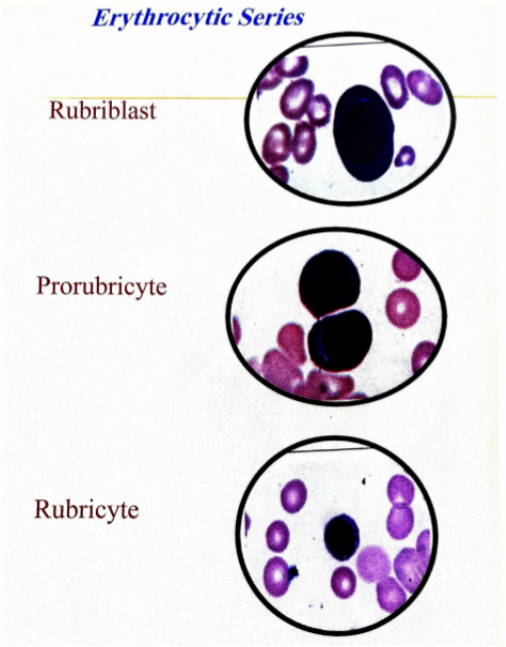
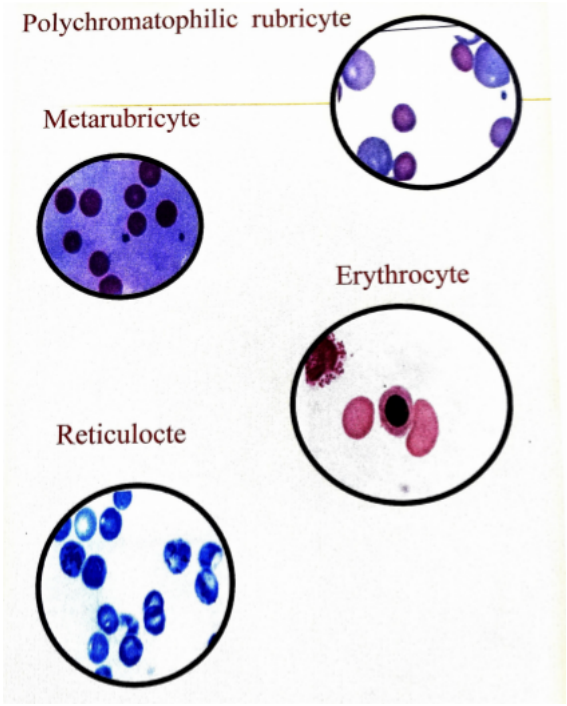


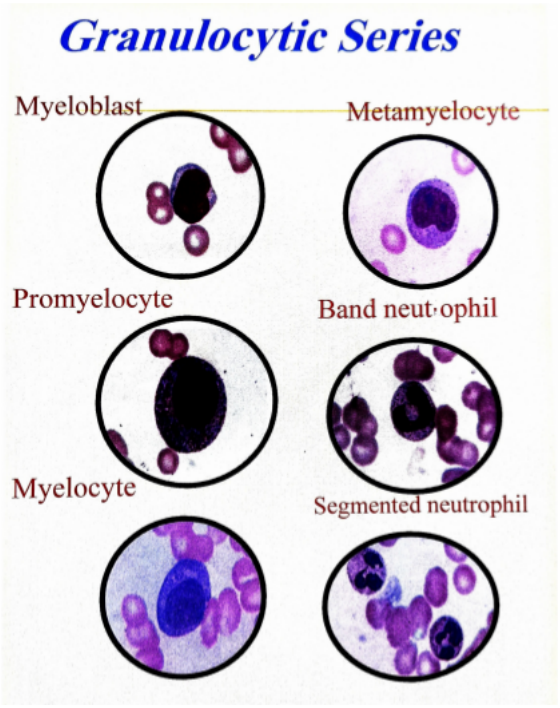
FIGURE 1. Layersof the bone marrow: • Stem cells layer • Differential proliferatinglayer of myeloblasts • Nondifferentiated nonproliferating

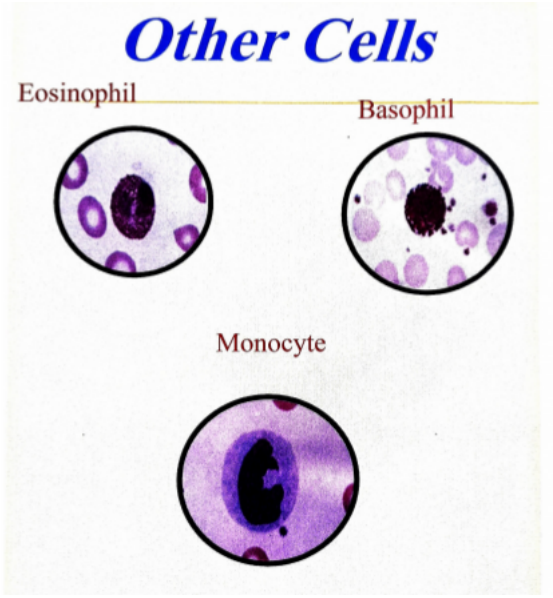
3.1 Eryhr Series Granl Series Thrumbo.Series LymphSeries

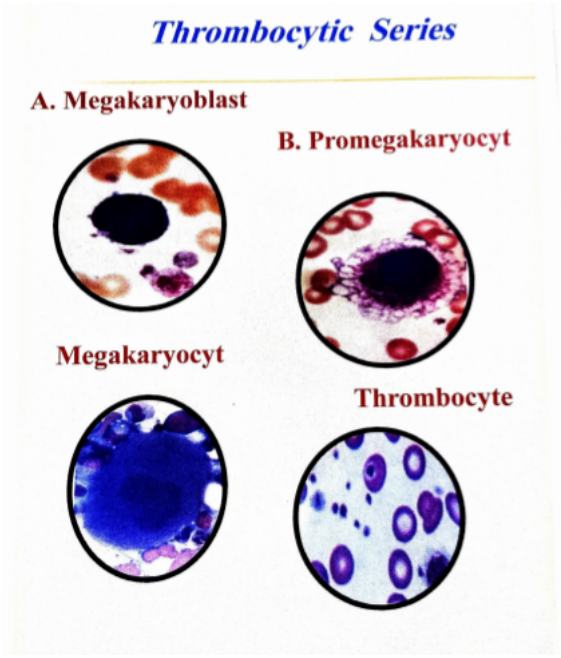
1. Rubriblast 2Pronbrisyte 2.Promyekoyte 2.Promegakaryocyte
2. 2 Prolymphocyte 3.Bunphic 3. Myelocyte
3. 3. Megakaryocyte 3. Lymphocyte 1. Mydoblast
4. 1. Megakaryoblast 1.Lymphoblast sugu 4.Mctamyclocyte
5. 4.Thrombocyte 4.Thrombocyte 4.Thrombocyte SNomoctromic SBand Cell 6 Meanutrioyte
6. Segmemted Cell 1Rricalcye - iaa () Ja(1114)a, Schalm:

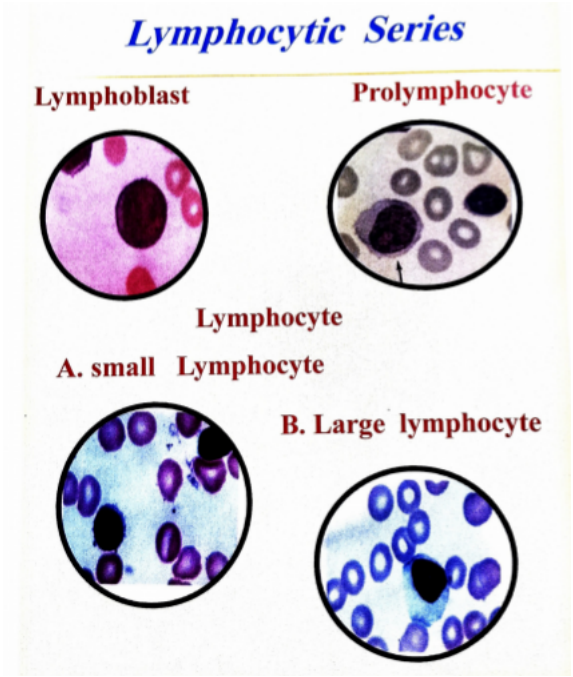


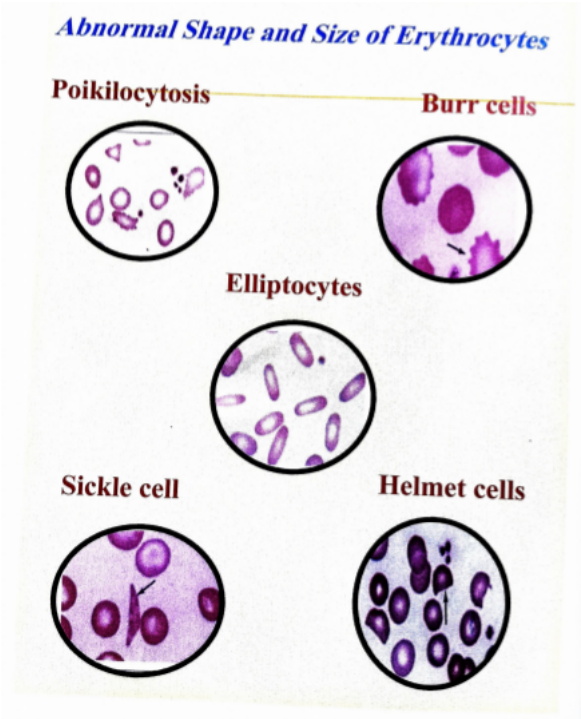

Polychromatophilic rubricyte
Metarubricyte
Erythrocyte
Reticulocte

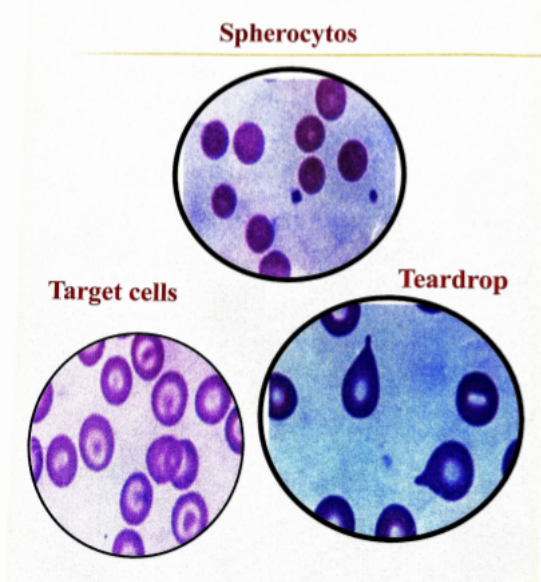

Granulocytic Series
Myeloblast
Metamyelocyte
Promyelocyte
Band neut·ophil
Myelocyte
Segmented neutrophil

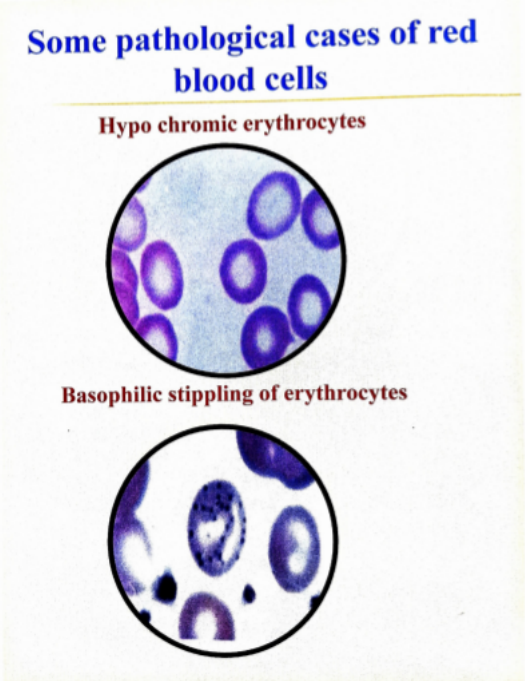

Other Cells
Eosinophil
Basophil
Monocyte

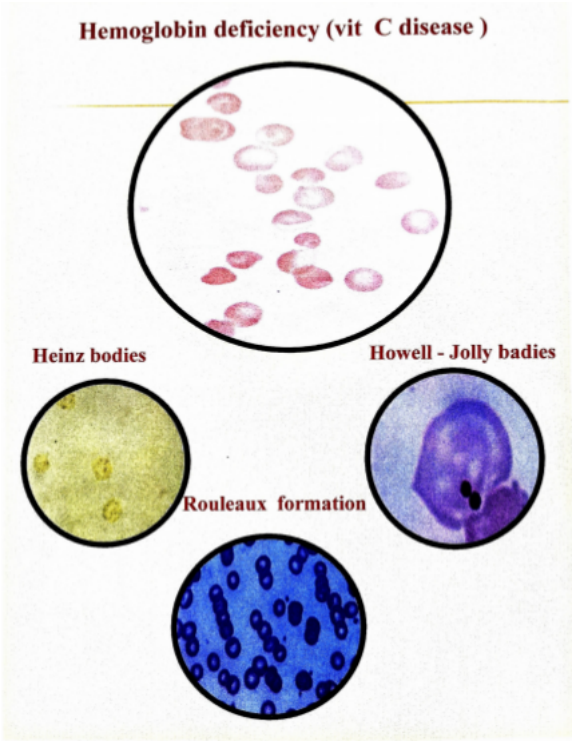

Thrombocytic Series
A. Megakaryoblast
B. Promegakaryocyt
Megakaryocyt
Thrombocyte

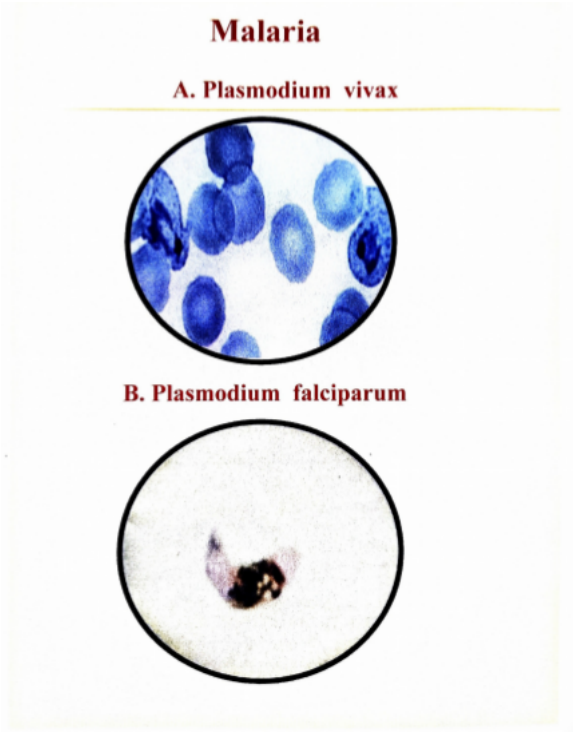

Lymphocytic Series
Lymphoblast
Prolymphocyte
Lymphocyte
A. small Lymphocyte
B. Large lymphocyte

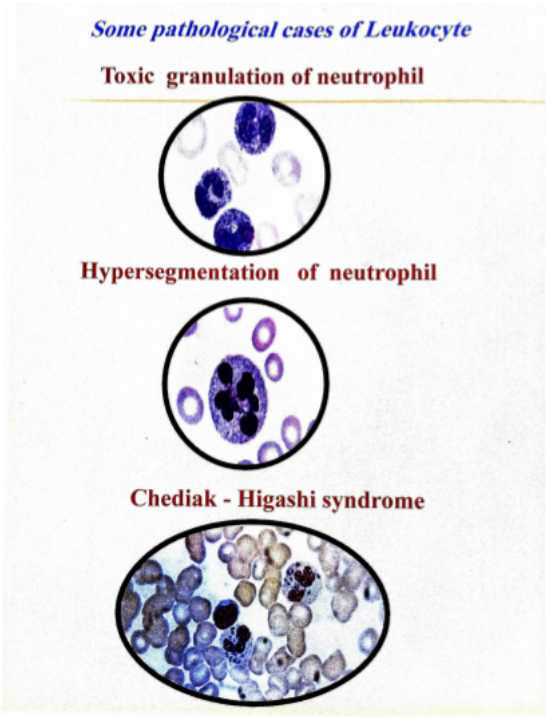

Abnormal Shape and Size of Erythrocytes
Poikilocytosis
Burr cells
Elliptocytes
Sickle cell
Helmet cells

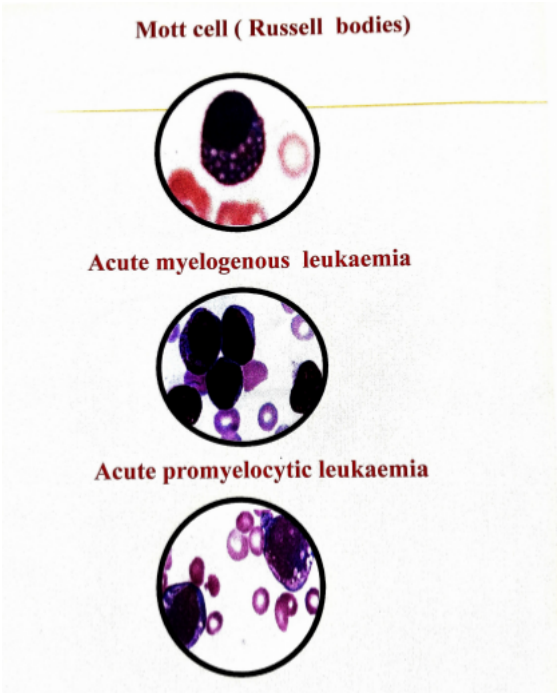

Spherocytos
Target cells
Teardrop

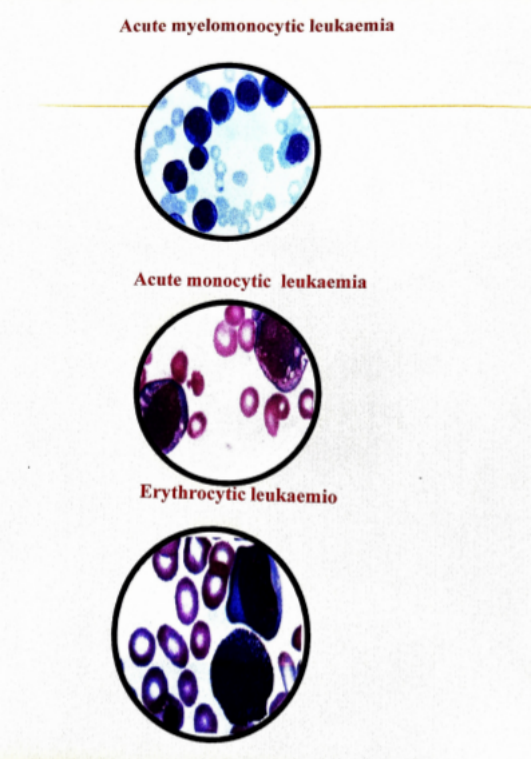

Some pathological cases of red blood cells
Hypo chromic erythrocytes
Basophilic stippling of erythrocytes


Hemoglobin deficiency (vit C disease)
Heinz bodies
Howell - Jolly badies
Rouleaux formation


Malaria
A. Plasmodium vivax
B. Plasmodium falciparum


Some pathological cases of Leukocyte
Toxic granulation of neutrophil
Hypersegmentation of neutrophil
Chediak - Higashi syndrome


Mott cell (Russell bodies)
Acute myelogenous leukaemia
Acute promyelocytic leukaemia



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