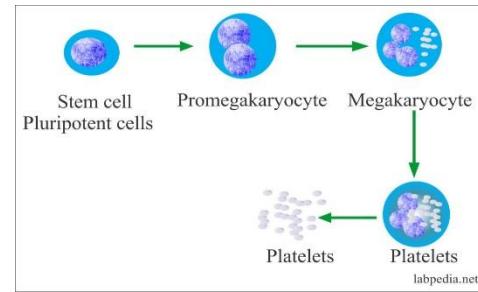




Platelets count (PLC)

Thrombocyte (thrombo= clot, cyte= cell) or platelets (small plate) are the smallest components of blood, with a diameter of 2-3 nanometers, and a lifespan of 7-10 days, colorless, oval shaped, no nucleated (they are not considered cells), cytoplasm contain golgi apparatus, few mitochondria, endoplasmic reticulum and lysosomes, which formed by separated from cytoplasm of megakaryocyte.



Why make platelets counts:

It is counted when disorder in clotting, bleeding, bone marrow.

Platelets functions:

- 1-It plays an important role in blood clotting because of its ability to stick to each other.
- 2-vasoconstriction in haemostasis.
- 3-important in repair blood vessels.
- 4-maintain vascular integrity.
- 5-transfer and storage ADP, thromboxane, Ca^{2+}



Counting methods:

Direct that include:

1-formalin citrate (by haemocytometer) 2- ammonium oxalate.

Indirect method (by blood film)

Procedure of manual method:

- 1- Preparing the blood film by using Giemza or Leishman stain (like in DLC).
- 2- Choosing the field of test so that it is monolayer.
- 3- Microscopic examination (by oil lens 100X).

In platelets count two methods:



a-count 100 cells by DLC table and multiple platelet number with total WBC (platelets number × Total WBC).

b-take mean of platelets after count it in 20 fields then multiple with 15000.

$$\text{platelet count} = \frac{\text{number of platelets in 20 fields}}{20} \times 15000$$

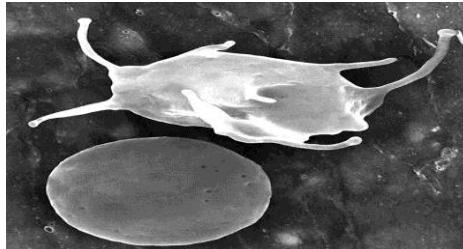
Normal range = 150000—240000 per mm³

A lower number than normal is called **thrombocytopenia**, because of taking drugs or some diseases, symptoms of it bleeding in the gums or nose in any part of the body.

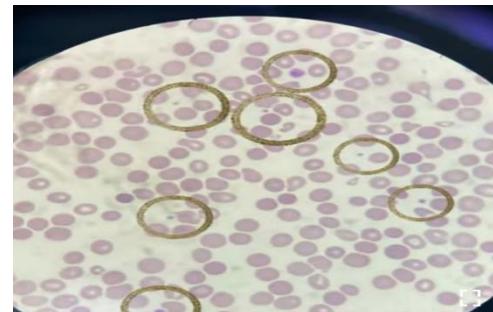
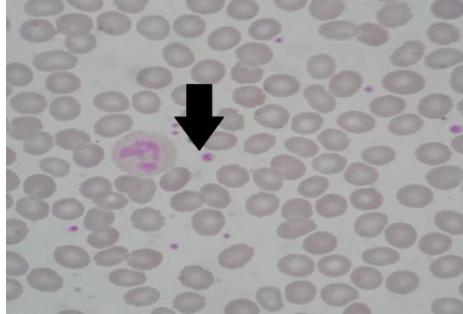
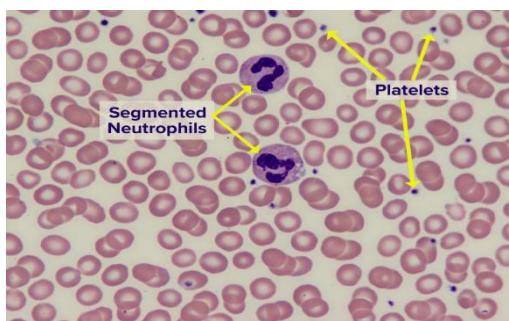
In the case of an increase in its number than normal, it is called **thrombocytosis**, that indicator or occurrence of rapidly clot.

Abnormal range may because, drugs, cancer, chemotherapy, take alcohol, kidney disease and inherited conditions.

In electron microscope



in light microscope



References:

1-Laposata, M. (2014). *Laboratory Medicine Diagnosis of Disease in Clinical Laboratory* 2/E. McGraw-Hill Education.

2- Hoffbrand AV, Steensma DP. Hoffbrand's essential haematology. John Wiley and Sons; 2019 Dec 31.