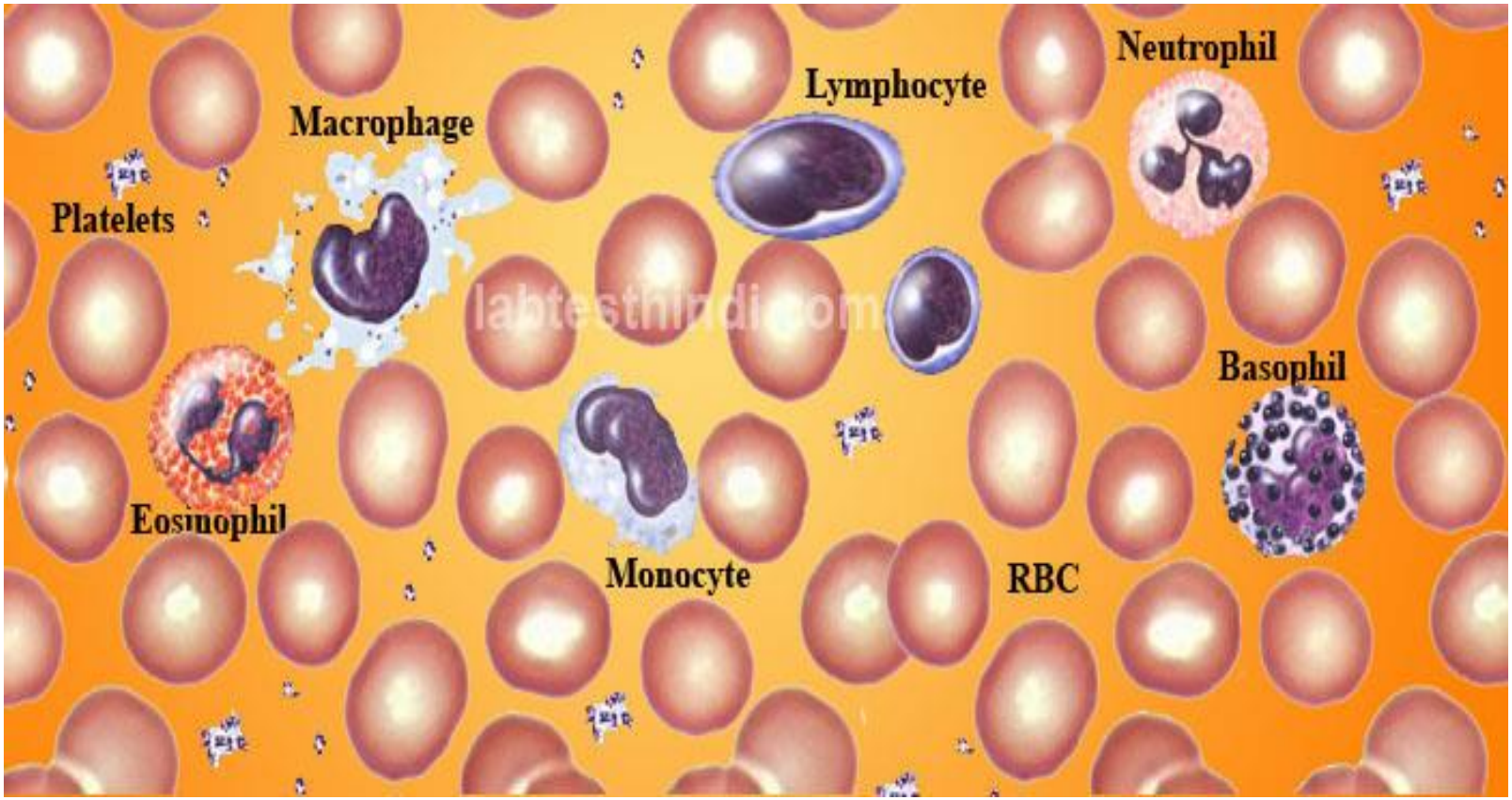
PERIPHERAL SMEAR EXAMINATION



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1. what do and mean differential leukocyte count

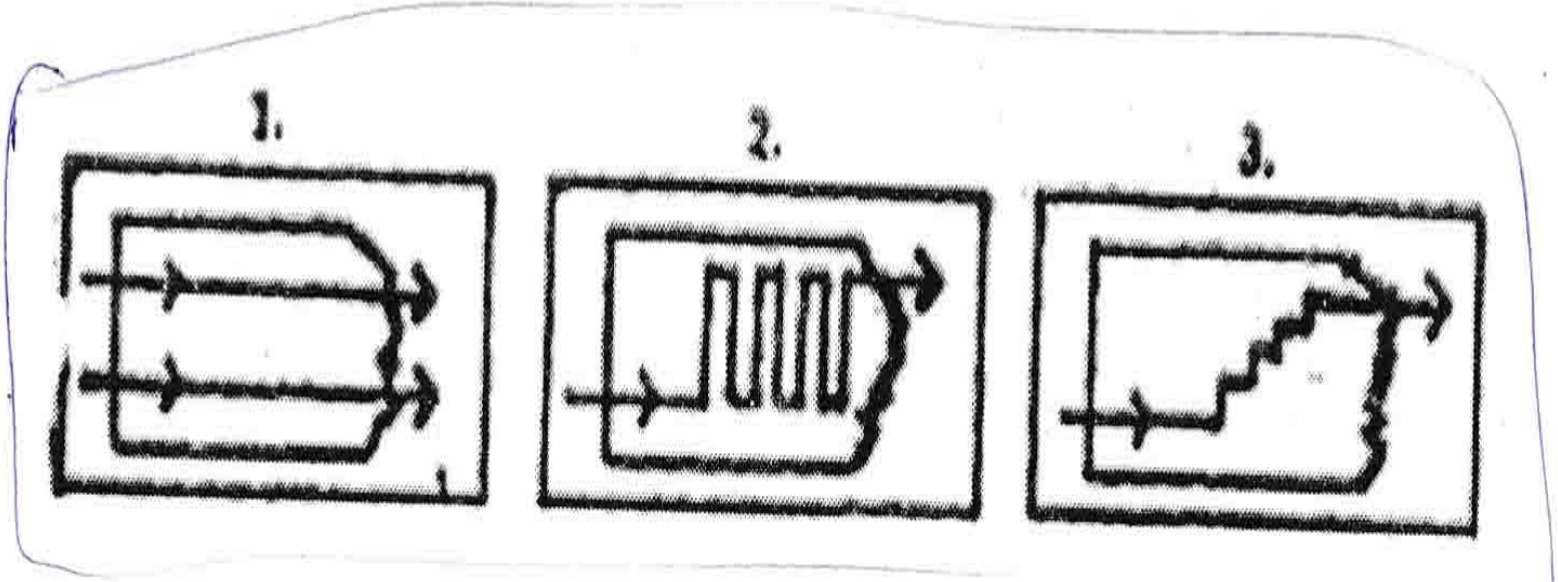
Ans: DLC means visual counting of WBC and their percentages in 100 cells

2. What are methods used for DLC

Ans: Longitudinal strip, Battle-ment, Zig Zag

These are :

1. Longitudinal strip method
2. Battle - ment method
3. Zlg - Zag method



3. How much is normal DLC ?

Ans :

Polymorphs	P	40 - 75%
Lymphocytes	L	20 - 45%
Monocytes	M	2 - 8%
Eosinophils	E	1 - 6%
Basophils	B	0 – 1%

4. Do automated hematology analysers provide DLC

Ans: Automated hematology analysers provide a DLC Which is accurate in 5 PART differential cell counter

5 . What is the color of the granules in WBC s

Ans : Neutrophils - pink

Eosinophil - Crimson red

Basophil - Purple

6.What are toxic granules?

Ans: These are coarse granules seen in neutrophils(strongly peroxidase positive)

Observed in bacterial infections. ex: pyogenic meningitis and enteric fever

7. What other information is provided by neutrophils

Ans:Hypersegmentation of the nucleus is a features of megaloblastic anemia

Drum stick on the nucleus is indicative of second X chromosome(corresponding to Barr body in buccal smear) in females

9. What is agranulocytosis

Ans: It is severe neutropenia resulting in susceptibility to bacterial infection

10.What are virocytes

Ans:

Virocytes are transformed lymphocytes with blastoid/monocytoid/plasmacytoid features

Ex: Infectious mononucleosis, flu, and measles

11. what are causes of neutrophilia

Neutrophilia

1. *Acute infections*
   (By bacteria, fungi, parasites and some viruses)
   i. Pneumonia
   ii. Acute appendicitis
   iii. Acute cholecystitis
   iv. Salpingitis
   v. Peritonitis
   vi. Abscess
   vii. Acute tonsillitis
   viii. Actinomycosis
   ix. Poliomyelitis
   x. Furuncle
   xi. Carbuncle
2. *Intoxication*
   i. *Uraemia*
   ii. Diabetic ketosis
   iii. Poisoning by chemicals
   iv. Eclampsia
3. *Inflammation from tissue dama*
   i. Burns
   ii. Ischaemic necrosis
   iii. Gout
   iv. Hypersensitivity reaction
4. *Acute haemorrhage*
   i. Acute haemolysis
5. *Neoplastic conditions*
   i. Myeloid leukaemia (CML)
   ii. Polycythaemia vera
   iii. Myelofibrosis
   iv. Disseminated cancers
6. *Miscellaneous conditions*
   i. Administration of corticost
   ii. Idiopathic neutrophilia

12 . What are causes of neutropenia

Neutropenia

1. *Infections*
   - i. Typhoid
   - ii. Brucellosis
   - iii. Measles
   - iv. Malaria
   - v. Kala azar
   - vi. Miliary tuberculosis
2. *Drugs and chemicals and physical agents*
   - i. Antimetabolites
   - ii. Benzene
   - iii. Nitrogen mustard
   - iv. Irradiation
3. *Haematological and other diseases*
   - *i. Aplastic anaemia*
   - ii. Pernicious anaemia
   - iii. SLE
   - iv. Gaucher's disease

age

13. what are causes of lympocytosis

Lymphocytosis

1. *Acute Infections*
   - i. Pertussis
   - ii. Infectious mononucleosis
   - iii. Viral hepatitis
2. *Chronic Infections*
   - i. Tuberculosis
   - ii. Brucellosis
   - iii. Secondary syphilis
3. *Haematopoietic Disorders*
   - i. CLL
   - ii. NHL

14. Name causes of lymphopenia

Lymphopenia

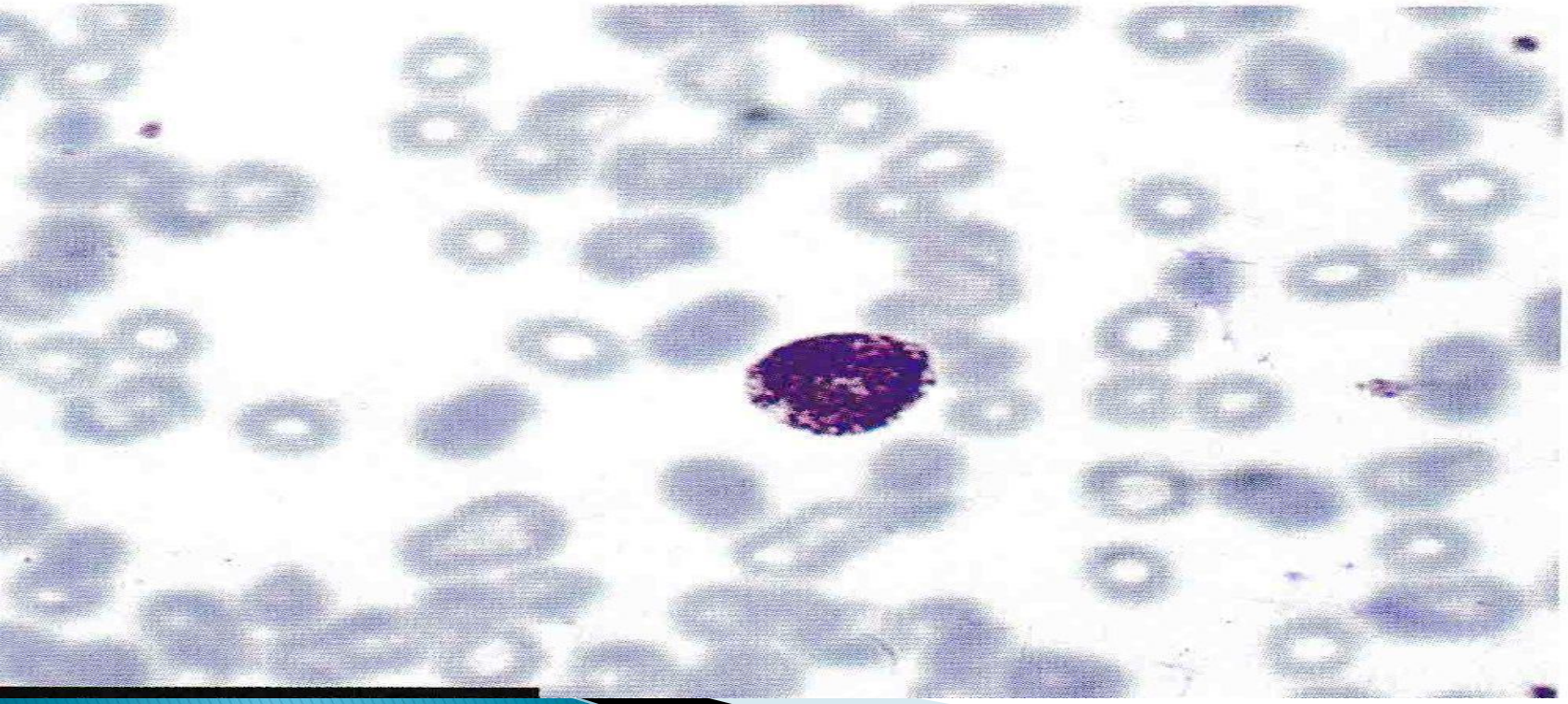
i. Aplastic anaemia
ii. High dose of steroid administration
iii. AIDS
iv. Hodgkin's disease
v. Irradiation

15. what are causes of monocytosis ?

1. *Bacterial infections*
   i. Tuberculosis
   ii. SABE
   iii. Syphilis
2. *Protozoal infections*
   i. Malaria
   ii. Kala azar
   iii. Trypanosomiasis
3. *Haematopoietic disorders*
   i. Monocytic leukaemia
   ii. Hodgkin's disease
   iii. Multiple myeloma
   iv. Myeloproliferative disorders
4. *Miscellaneous conditions*
   i. Sarcoidosis
   ii. Cancer of ovary, breast, stomach

16 . Name causes of basophilia ?

i. Chronic myeloid leukemia
ii. Polycythaemia vera
iii. Myxoedema
iv. Ulcerative colitis
v. Hodgkin's disease
vi Urticaria pigmentosa



17. what are causes of Eosinophilia

Eosinophilia

1. *Allergic disorders*
   - i. Bronchial asthma
   - ii. Urticaria
   - iii. Hay fever
   - iv. Drug hypersensitivity
2. *Parasitic infestations*
   - i. Roundworm
   - ii. Hookworm
   - iii. Tapeworm
   - iv. Echinococcosis
3. *Skin diseases*
   - i. Pemphigus
   - ii. Dermatitis herpetiformis
   - iii. Erythema multiforme
4. *Pulmonary diseases*
   - i. Löeffler's syndrome
   - ii. Tropical eosinophilia
5. *Haematopoietic diseases*
   - i. Chronic myeloid leukaemia
   - ii. Polycythaemia vera
   - iii. Hodgkin's disease
   - iv. Pernicious anaemia
6. *Miscellaneous conditions*
   - i. Rheumatoid arthritis
   - ii. Polyarteritis nodosa
   - iii. Sarcoidosis
   - iv. Irradiation

- **18 . what is normal leukocyte count range**

Ans:

4000-11000 cells/cumm

- **19 . what is leukocytosis**
- A: Increased leucocyte count more than upper normal limit(11000 cells/cumm)

- **20 . what is leukopenia**
- Decreased leukocyte count below 4000 cell/cumm

21.What is leukemoid reaction

- A Leukemoid reaction is an increase in the whie blood cell count, which mimic leukemia.
- The reation is due to an infection or another disease

- **22.What is leukemia**

Ans:Leukemia is a malignant state of haemopoetic tissue cahracterized by wide spread proliferation of leucopoietic cells in bone marrow with or with out appearances of premature cells in peripheral blood

- **23. Classify leukaemia**

Ans:

Acute

- AML
- ALL

Chronic

- CML
- CLL

- **24. What are differences between CML and leukemoid reaction**

- Ans:

Leukemoid reaction	CML
TLC -10000-50000	2,00,000
Basophilia - Negative	Positive
Eosinophilia - Negative	Negative
NAP score - Increased(150-300)	Decreaed(0-40)
Ph chromosome- Negative	positive
No splenomegaly	splenomegaly

- **25. What is thrombocytopenia and mention conditions?**
- A: Decreased platelet count below the lower normal limit(<1.5 lakhs) of normal range

Thrombocytopenia

- Decreased production
  - Aplastic anemia
  - Acute leukemia
  - Viral infections *Parvovirus *CMV
  - Amegakaryocytic thrombocytopenia (AMT)
- Increased destruction
  - Immune thrombocytopenia
  - Idiopathic thrombocytopenic purpura (ITP)
  - Neonatal alloimmune thrombocytopenia (NAITP)
  - Disseminated intravascular coagulation (DIC)
  - Hypersplenism
- **Pseudothrombocytopenia-** due to clumpping of pltelates in EDTA bulb

- **26. What is thrombocytosis and mention conditions**
- Ans: Increased platelet count more than upper limit(> 4.0 lakhs) of normal range

Thrombocytosis

- Reactive thrombocytosis

✓Post infection

✓Inflammation

✓Juvenile rheumatoid arthritis

✓Collagen vascular disease

- Essential thrombocythemia

27. How do you assess adequacy of platelets by blood smear study

Ans: Average number of platelet count per oil immersion(100x) field x 20,000/mm^3