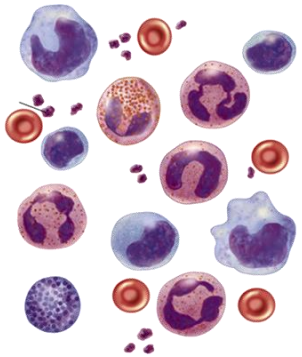
National university Sudan
Faculty of Medical Laboratory Sciences
Advanced Hematology MLS –HEMA-324

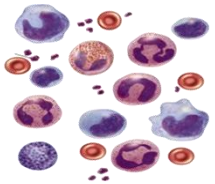
LEUCOCYTES BENIGN DISORDERS



U. Taiba Mohamed Abdalla
Lecture(14)

LEUCOCYTES BENIGN DISORDERS

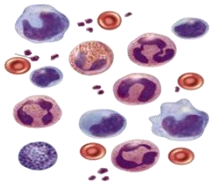
Quantitative changes (LYMPHOCYTOSIS)



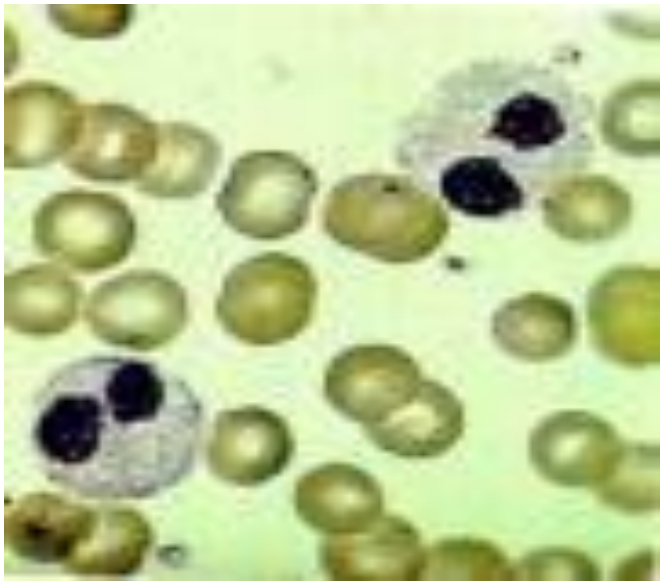
- Infectious Mononucleosis
  - Epstein-Barr virus
  - Saliva from infected person is the main contagion
  - Virus infect epithelial cells and B cells
  - Infection in children under the age of 10 does not cause illness and result in life long immunity
  - Clinical features
    - Fever, malaise, fatigue, sore throat, diagnostic red spots at the junction of soft and hard palate, splenomegaly
    - Blood picture shows leucocytosis (10 – 20 x 10^9/L) due to absolute increase in the number of lymphocytes
    - Diagnosis is by serological tests
    - There is no specific treatment

LEUCOCYTES BENIGN DISORDERS

Qualitative changes (MORPHOLOGY)

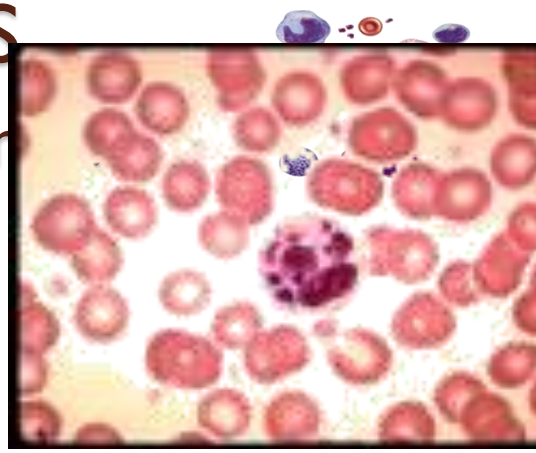


- Congenital
  - Pelger-Huet anomaly
  - Is a genetic disorders with an autosomal dominent inheritance pattern , neutrophis whose nucleus is hyopsegmented
    - Bilobed and occasional unsegmented neutrophils
    - Autosomal recessive disorder



LEUCOCYTES BENIGN DISORDERS

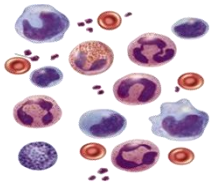
Qualitative changes (MORPHOLOGY) cor



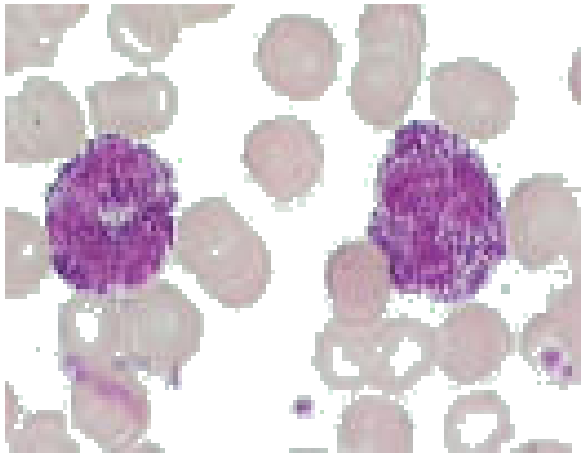
- Neutrophil hyper-segmentation
  - Rare autosomal dominant condition
  - Neutrophil function is essentially normal
- May-Hegglin anomaly
- Also called Dohle leucocyte inclusions with giant plateletes , rare genetic disorders of the blood plts that causes them to be large .
  - Neutrophils contain basophilic inclusions of RNA
  - Occasionally there is associated leucopenia
  - Thrombocytopenia and giant platelet are frequent

LEUCOCYTES BENIGN DISORDERS

Qualitative changes (MORPHOLOGY) contd.

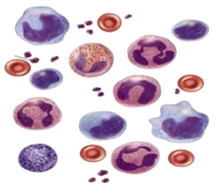


- Alder's anomaly
- Most charactersitic finding is the metachromatic granules surrounded by a clear zone seen in lymphoctes .
  - Granulocytes, monocytes and lymphocytes contain granules which stain purple with Romanowsky stain
  - Granules contain mucopolysaccharides

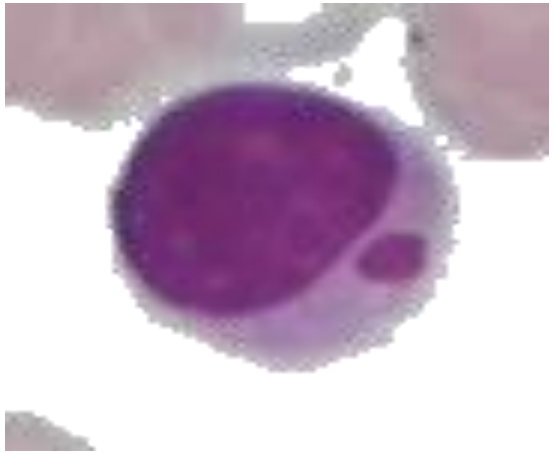


LEUCOCYTES BENIGN DISORDERS

Qualitative changes (MORPHOLOGY) contd.

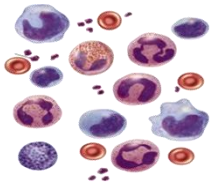


- Chediak-Higashi syndrome
- Is a rare disorders that arises from a mutation of a lysosomal trafficking regulator protein which leads a decrease in phagocytosis ,
  - Autosomal recessive disorder
  - Giant granules in granulocytes, monocytes and lymphocytes
  - Partial occulocutaneous albinism
  - Depressed migration and degranulation
  - Recurrent pyogenic infections
  - Lymphoproliferative syndrome may develop
  - Treatment is BMT



LEUCOCYTES BENIGN DISORDERS

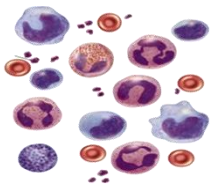
Qualitative changes (MORPHOLOGY) contd.



- Acquired
  - **Toxic granulation**
  - Changes in granulocyte cells seen on examination of the blood film of patients with inflammatory conditions , dark coarse granules found in granules found particulary in neutrophils .
  - **Dohle bodies**
  - Are light blue gray , oval , basophilic , leucocyte inclusions located in pheripheral cytoplasm of the neutrophils . Seen in infections , measles , leukemia .
  - **Pelger cells**
  - **Hypersegmented neutrophils**

LEUCOCYTES BENIGN DISORDERS

Qualitative changes (FUNCTIONAL)



- Chronic granulomatous disease
- Also known as Bridge- Good syndrome , certain cells of the immune system have difficulty forming the reactive oxygen compounets used to kill certain ingested pathogens , this leads to the formation of granutoma in many organs . Mainly cause by the mutation in the X chromosome.