

HEMATOLOGY Lecture

CHAPTER 1: OVERVIEW OF HEMATOLOGY

A. DEFINITION OF TERMS

Hematology

- "Haima" → blood
- "Logos" → study
- Study concerned with normal and abnormal development of blood elements.
- Study of hemostatic mechanisms, hemorrhagic disease and thrombosis

Hemostasis

- "Process of stopping bleeding by interaction of:
 - Platelets
 - Blood vessels
 - Proteins

Blood

- Nutritive fluid circulating the body, carrying **nutrients, oxygen, and waste product.**
 - COMPOSITION:
 - RBC
 - WBC
 - Platelets

B. HISTORY

GREEK ERA

- **Hippocrates**
 - **"FATHER OF THE ART AND SCIENCE OF MEDICINE"**
 - 4 elements made up the human body
- **Aristotle**
 - Concept of "cooking" or "concoction" in the stomach
- **Erasistratus**
 - **"Plethora"**
 - Excess blood due to presence of undigested food, thus bleeding the patient is the solution to this.

ROMAN ERA

- **Aulus Cornelius Celsus**
 - Four signs of inflammation
 - Importance of anatomy

RENAISSANCE PERIOD

- **1628--- William Harvey**
 - 1st to completely describe the circulatory system
 - **Vesalius & Leonardo da Vinci**—aid via drawing.
- **1658 --- Swammerdam**
 - Discovered RBC's difference from mother cell,
 - 120 days life span; no nucleus
- **1666 --- Malpighi**
 - Pioneer of coagulation study
- **1674 --- Leeuwenhoek**
 - first to describe human RBC
 - improve and came up with microscope structure

19TH CENTURY

- **1846--- William Jones**
 - first to distinguished polymorphonuclear cells
 - Use *Aniline dye*
- **1865--- Alex Schultze**
 - Accurately described platelets
- **1879--- Ehrlich**
 - 1st complete classification of WBC
- **1882--- Giulio Bizzozero**
 - Describes platelet morphology and function
- **1891--- Romanowsky**
 - Mixtures of acidic and basic dyes have better stain
- **1816-1895--- Virchow**
 - **"FATHER OF MODERN PATHOLOGY"**
 - Studied cell function
 - 2 students:
 - **Karl Ludwig**-- hemoglobin carries oxygen
 - **E.F. Pfluger**-- CO₂ taken away to tissue and released in lungs

20TH CENTURY

- **1962 --- Max Perutz & John Kendrew**
 - Discover structure and function of hemoglobin.