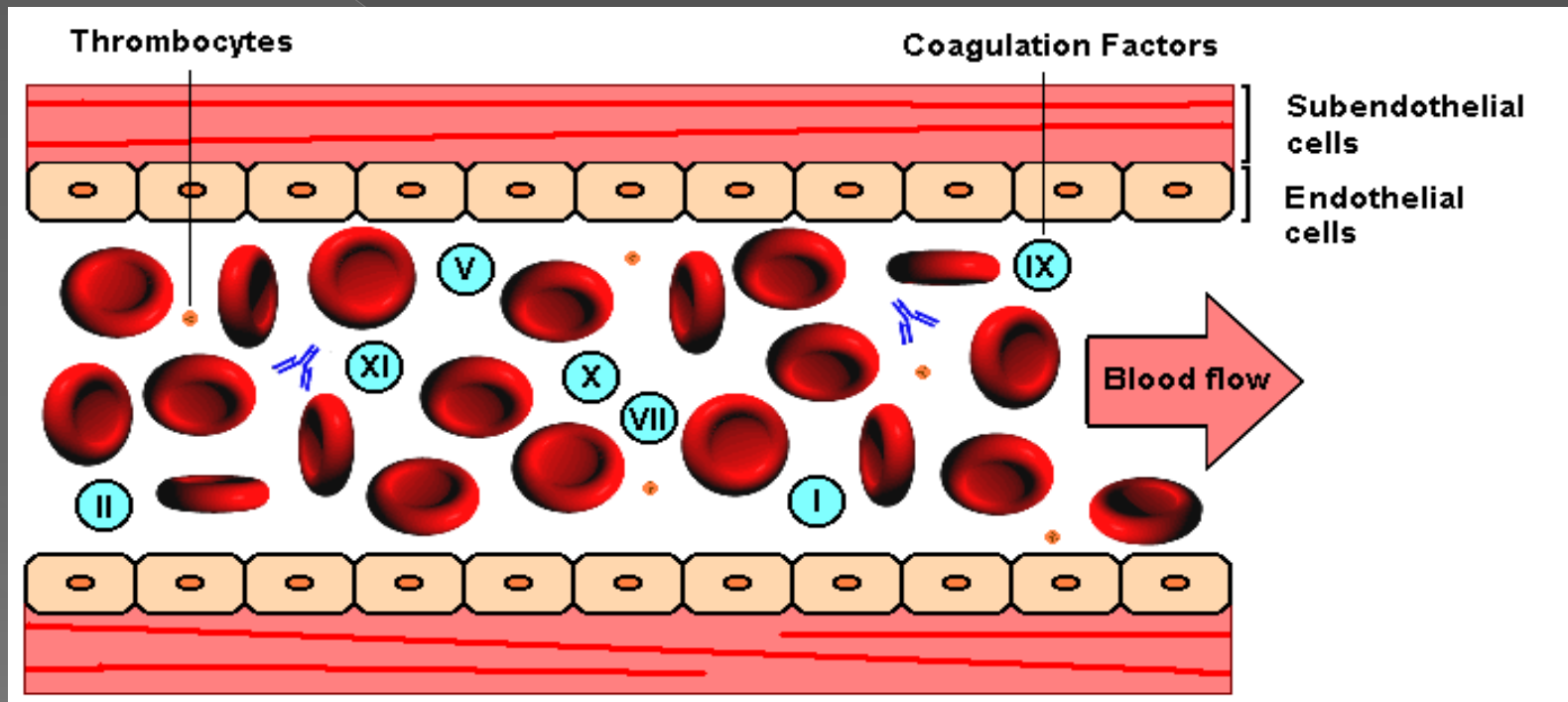


HAEMOSTASIS



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Definition

- ⦿ Hemostasis: derives from the Greek meaning “stopped of blood flow”.
- ⦿ Protective processes that have evolved in order to maintain a stable physiology.

Haemostatic components:

(1)- Extra-vascular :

The tissues surrounding blood vessels, involved in Hemostasis when local vessel is injured.

It plays a part in Hemostasis by providing back-pressure on the injured vessel through swelling and trapping of escaped blood.

(2)- Vascular:

The blood vessels through which blood flow, it depends on the size, amount, of smooth muscle within their walls and integrity of the endothelial cell lining.

(3) - **Intra-vascular:**

The platelets and plasma proteins that circulate within the blood vessels.

These components are involved in **Coagulation** (clot or thrombus formation) or **Fibrinolysis** (clot or thrombus dissolution).

Role of Coagulation and Plts in Hemostasis

- ◉ Coagulation: Is the process where by on vessel injury, ***Plasma protein, Tissue factors*** and ***Calcium*** interact on the surface of the platelets to form a ***Fibrin clot***.
- ◉ Platelets : ***provide*** a surface for the coagulation reaction, and ***interact*** with ***fibrin*** to form a stable platelet ***fibrin clot***.

The stages hemostasis :

Primary :

Primary hemostasis includes the platelet and vascular response to vessel injury.

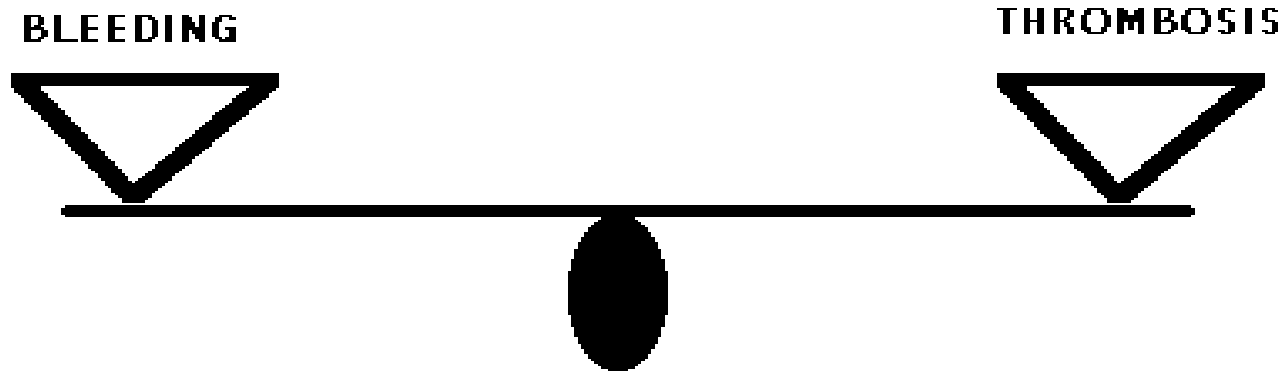
Secondary:

Secondary hemostasis includes the coagulation factors response to such injury.

- * Together, platelets, vessels, and coagulation factors combine to stop bleeding and allow for vessel repair through formation of a stable fibrin-platelet plug at the site of injury.

Concepts of Normal Hemostasis

- Under normal conditions, the formation and dissolution of thrombi is maintained in a balance.



CONC

- Without this balance one of 2 conditions may occur:
- **Excessive bleeding** : poor clot formation or excessive Fibrinolysis.
- **Vaso-occlusion** : uncontrolled formation of thrombin in vascular system

Hypo-coagulable states:

There are certain conditions associated with excessive bleeding .

Hyper-coagulable state:

related to uncontrolled thrombosis This is related to an appropriate formation of thrombi in the vascular vessels .

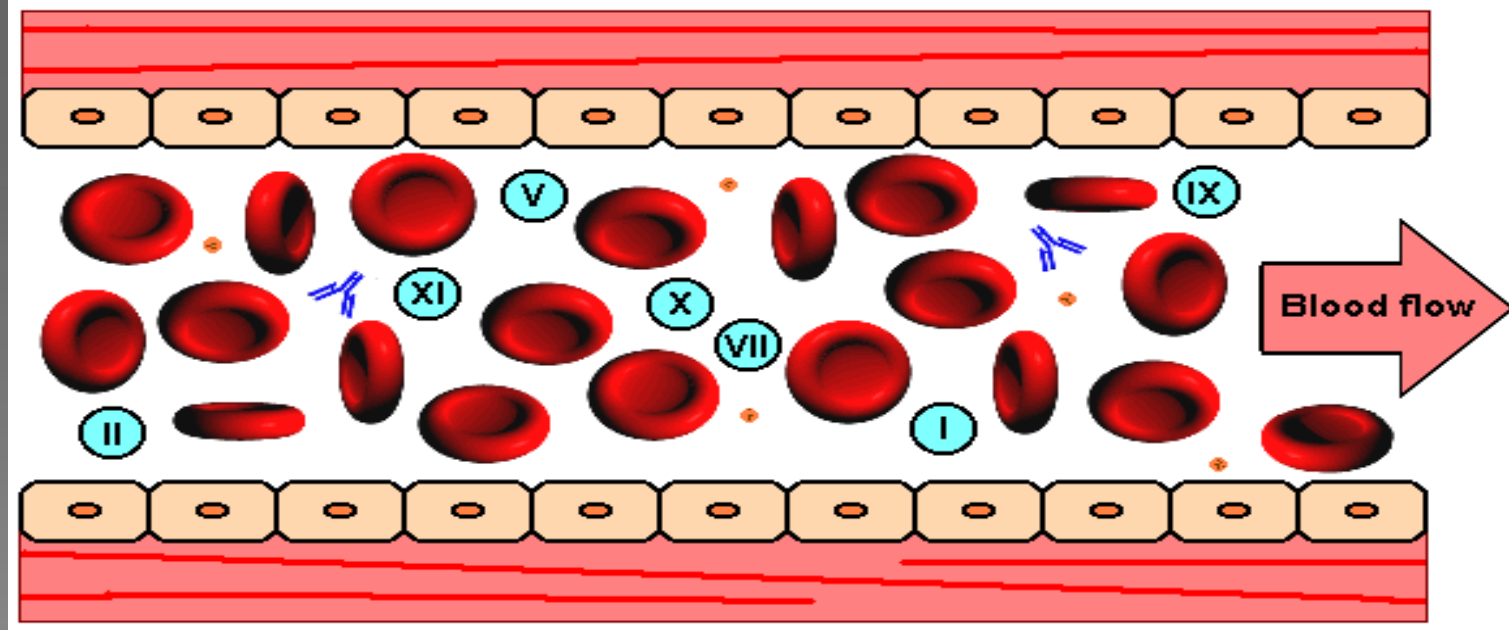
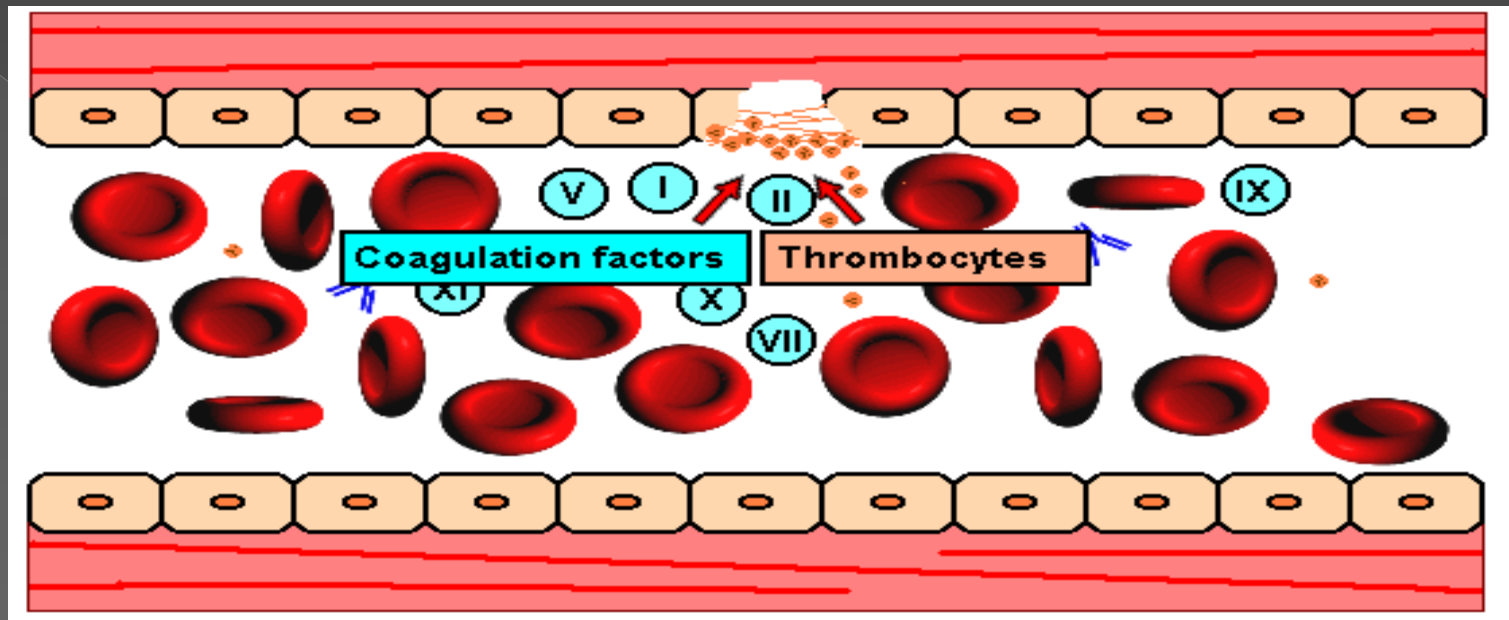
CONC

- ◉ In addition to Coagulation promotion, **vessel injury** initiates **Fibrinolysis** through endothelial cell release of **tissue Plasminogen activators (tPAS)**.
- ◉ **Tissue factors** (except **Ca** and **Tissue Thromboplastin**) normally circulate in the plasma as **inactive proteins**.
- ◉ On activation some factors form enzymatic proteins known as **Seiren Proteases** that **activate** other specific factors in the coagulation sequence.

Role of Blood Vessels in Hemostasis

- Blood flows through the vascular system to and from all parts of the body. The vascular system consists of capillaries, arteries, and veins.
- Blood normally carried within vessels whose physical capabilities include Contraction (narrowing) and Dilation, which are controlled by the smooth muscle of the vessel media.

- ◎ Vasoconstriction and Vasodilatation provide the means for control blood flow rate and blood pressure.
- ◎ Substances released from the endothelial cells and sub- endothelial smooth muscles also contribute to normal blood flow and prevent abnormal formation of clot.



Seminar's themes

- 1- Platelets structure and functions.
- 2- Hemostasis pathways.

THANKS