

Semester-3

MSE-4

Topic - Blood Coagulation part 1

Blood Coagulation is the process by which blood changes from a liquid to a gel, forming a clot to stop bleeding after injury. It is a vital protective mechanism of the body.

Blood coagulation is a cascade of enzymatic reactions involving plasma proteins (clotting factors) that results in the formation of a fibrin clot.

Importance of Blood Coagulation

- > prevents excessive blood loss.
- > Helps in wound healing.
- > Maintains vascular integrity.
- > protects against infection.

Main components involved

A- Blood Vessels

Injury causes vasoconstriction, reducing blood flow

B. platelets.

Form a platelets plug at the injury site.

C. clotting factors:

> plasma proteins mostly synthesized in the liver

> many require vitamin K for activation

Steps of Blood Coagulation

Blood Coagulation occurs in three major stages:-

1. formation of prothrombin activator
This occurs through two pathways:-

a) Intrinsic pathway

> Triggered by damage inside the blood vessel

> Slower process

> Involves factors:-

$XII \rightarrow XI \rightarrow IX \rightarrow VII \rightarrow X$

b) Extrinsic pathway:-

> triggered by tissue injury

