

Disseminated Intravascular Coagulation (DIC)

DIC is a secondary disease that results from the abnormal widespread over-activation of the coagulation cascade (either the intrinsic or extrinsic pathway). This results in thrombi formation in the microcirculation and subsequent tissue hypoxia and infarction and microangiopathic hemolytic anemia.



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Pathophysiology

Bleeding State

[Bleeding State](#)

Over-activation of the coagulation cascade leads to consumption of platelets, fibrin, and clotting factors. Without these important factors for clotting, hemorrhage results.

Activation of Clotting Factors

[Activated Clogs](#)

DIC is initiated by the release of tissue factor, which activates Factor VII in the extrinsic pathway, or the intrinsic clotting pathway via large-scale endothelial injury (the resulting exposed collagen activates Factor XII). There are many different conditions that can cause either or both.

Deficiency of Clotting Factors

[Lacking available Clogs](#)

Over-activation of the coagulation cascade leads to consumption and thus deficiency of platelets, fibrin, and clotting factors.

Causes

Sepsis

[Sepsis-snake](#)

In sepsis, bacterial endotoxins cause endothelial injury and upregulate TNF which results in tissue factor expression on endothelial cells, thus activating the extrinsic pathways.

Trauma

[Trauma-spike](#)

Trauma leads to DIC via the release of tissue factor and activation of the extrinsic pathway. Extensive surgery and severe burns may also lead to DIC in a similar fashion. Hemorrhage is the major clinical presentation in trauma-induced DIC.

Obstetric Complications

[Complicated Pregnant-woman](#)

Tissue factor released from the placenta, dead retained fetus or amniotic fluid activates the extrinsic pathway. Hemorrhage is the major clinical presentation in obstetric-related DIC.

Acute Pancreatitis

[Acute-angle Pancreas-on-fire](#)

Pancreatitis is a hypercoagulable state and can lead to over-activation of the coagulation cascade.

Malignancy

[Malignant-man](#)

Malignancy is hypercoagulable and can lead to over-activation of the coagulation cascade.

Nephrotic Syndrome

[Nerd-frog](#)

Nephrotic syndrome is hypercoagulable and can lead to over-activation of the coagulation cascade.

Transfusion

[Transfusion-IV](#)

Acute hemolytic transfusion reactions due to ABO incompatibility may lead to DIC.