

Other Forms of Thrombocytopenia

Pseudothrombocytopenia

Hemodilution

Mechanical Thrombocytopenia

Hemangiomas

Massive Hemorrhage

Description:

A wide range of clinical conditions can be associated with thrombocytopenia. Examples include:

Pseudothrombocytopenia:

Autoantibodies that are active exclusively in calcium-depleted environments can cause platelet clumping in vitro. Because physiological circulation contains adequate ionized calcium, this phenomenon occurs only when blood is collected into EDTA-anticoagulated tubes (the standard matrix for complete blood counts). Consequently, the automated counter reports an artificially low platelet count, and platelet aggregates are visible on the peripheral blood smear. However, when the blood count is performed using citrate or hirudin anticoagulated whole blood, platelet counts remain within the reference range. Pseudothrombocytopenia is generally a transient, benign artifact and requires no therapeutic intervention.

Hemodilutional Thrombocytopenia: Following the administration of large volumes of intravenous fluids (e.g., following massive blood loss requiring protocolized massive transfusion, or for volume resuscitation in septic shock), dilution of all intravascular cellular components occurs, including platelets. A proportional, parallel decrease across all cell lines strongly suggests a hemodilutional etiology.

Mechanical Thrombocytopenia: Platelets can undergo mechanical destruction due to shear stress, such as during extracorporeal circulation using blood pumps (e.g., ECMO, continuous renal replacement therapy [CRRT], or cardiopulmonary bypass), dysfunctional mechanical heart valves, severe valvular heart disease, large visceral hemangiomas (Kasabach-Merritt syndrome), etc.

References:

Thomas L, Labor und Diagnose, 2023, Release 5: <https://www.labor-und-diagnose.de/index.html>

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