Pathology MCQs Lecture 1 (**Thrombosis**)

1. Which of the following best describes Virchow’s Triad?

A) The three layers of a blood vessel: intima, media, and adventitia.
B) The three main factors contributing to pathological thrombosis.
C) The three phases of normal blood clot dissolution.
D) The three types of cardiac thrombi.

Answer: B)

Explanation: Virchow's Triad includes **endothelial injury**, **stasis (abnormal blood flow)**, and **hypercoagulability**. These are the primary pathological factors leading to thrombosis.

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2. Which of the following is TRUE about endothelial cells in thrombosis?

A) Endothelial cells promote thrombosis in their normal state.
B) Endothelial cells only play a role in venous thrombosis.
C) Endothelial injury disrupts the anti-thrombotic environment, leading to pathological thrombosis.
D) Endothelial cells become hyperactive during turbulent blood flow to prevent thrombosis.

Answer: C)

Explanation: Normal endothelial cells produce factors that prevent thrombosis. However, when they are injured (e.g., by atherosclerosis, hypertension, or smoking), they lose their protective function and promote clot formation.

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3. What is the primary role of "Lines of Zahn" in a thrombus?

A) Indicate the thrombus is formed postmortem.
B) Show that the thrombus formed in flowing blood, distinguishing it from

postmortem clots.
C) Represent areas of complete vessel occlusion.
D) Predict the likelihood of thrombus dissolution.

Answer: B)

Explanation: **Lines of Zahn** are alternating layers of pale platelets and fibrin with darker erythrocyte layers. They form in **antemortem thrombi** in flowing blood, unlike postmortem clots, which lack this pattern.

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4. What is a mural thrombus, and where is it commonly found?

A) A thrombus attached to the heart valves, found in infective endocarditis.
B) A thrombus that forms in the deep veins of the legs.
C) A thrombus attached to the wall of the heart chambers or aortic lumen.
D) A thrombus that completely occludes a blood vessel.

Answer: C)

Explanation: **Mural thrombi** are thrombi that are partially attached to the wall of the heart or aorta. They do not fully occlude the lumen and are often associated with conditions like myocardial infarction or atherosclerosis.

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5. Which condition is MOST likely to cause stasis of blood flow?

A) Atherosclerosis of peripheral arteries.
B) Aneurysms in large blood vessels.
C) Mitral valve stenosis leading to atrial dilation.
D) All of the above.

Answer: D)

Explanation: Stasis occurs when blood flow slows or becomes

turbulent. **Atherosclerosis**, **aneurysms**, and **mitral valve stenosis** all disrupt laminar blood flow, increasing the risk of thrombosis.

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6. What is the purpose of recanalization in the fate of a thrombus?

A) To completely dissolve the thrombus through fibrinolytic activity.
B) To create new channels within the thrombus, restoring partial blood flow.
C) To induce inflammation and fibrosis, leading to permanent vessel blockage.
D) To propagate the thrombus further down the vessel.

Answer: B)

Explanation: **Recanalization** is a process by which new vascular channels form within a thrombus, allowing some blood to flow through the previously obstructed vessel.

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7. Which of the following is a distinguishing feature of venous thrombi compared to arterial thrombi?

A) Venous thrombi form at sites of endothelial injury.
B) Venous thrombi are most commonly found in the lower extremities and are associated with stasis.
C) Venous thrombi are laminated with Lines of Zahn.
D) Venous thrombi are entirely fibrin-based without erythrocytes.

Answer: B)

Explanation: Venous thrombi predominantly form at sites of **stasis**, especially in the lower extremities (e.g., deep vein thrombosis). Arterial thrombi, on the other hand, are primarily associated with endothelial injury and turbulence.

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8. Which of the following is NOT a common cause of endothelial injury?

A) Atherosclerosis
B) Smoking
C) Hypertension
D) Hyperviscosity syndrome

Answer: D)

Explanation: **Hyperviscosity syndrome** contributes to stasis rather than endothelial injury. Atherosclerosis, smoking, and hypertension are direct causes of endothelial damage, promoting thrombosis.

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9. In hypercoagulability, which of the following is an example of a genetic cause?

A) Immobilization after surgery.
B) Mutation in the Factor V gene
C) Cancer.
D) Prosthetic cardiac valves.

Answer: B)

Explanation: Genetic causes of hypercoagulability include inherited mutations in clotting factors, such as **Factor V Leiden** and prothrombin gene mutations. The other options are acquired (secondary) causes.

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10. What is the significance of a mycotic aneurysm in the context of thrombosis?

A) It refers to an aneurysm caused by genetic mutations in the vascular wall.
B) It is an aneurysm caused by an infected thrombus, leading to vessel wall weakening.
C) It is an aneurysm that forms due to excessive thrombus recanalization.
D) It is an aneurysm that occurs exclusively in the brain.

Answer: B)

Explanation: A **mycotic aneurysm** occurs when an infected thrombus spreads to the vessel wall, causing inflammation and weakening. This can lead to rupture or other complications.

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11. Which of the following is a potential fate of a thrombus that fails to dissolve?

A) It may propagate further and completely obstruct the vessel.
B) It may fragment and cause embolization.
C) It may induce inflammation and organize into fibrous tissue.
D) All of the above.

Answer: D)

Explanation: A thrombus can have multiple outcomes, including **propagation**, **embolization**, **organization**, and **recanalization**. If it persists, it may lead to vessel obstruction, tissue ischemia, or fibrosis.

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12. What is the primary difference between an antemortem thrombus and a postmortem clot?

A) Antemortem thrombi are gelatinous, while postmortem clots are firm.
B) Antemortem thrombi show Lines of Zahn, while postmortem clots do not.
C) Antemortem thrombi are always sterile, while postmortem clots are infected.
D) Antemortem thrombi form only in veins, while postmortem clots form in arteries.

Answer: B)

Explanation: **Lines of Zahn** are a hallmark feature of antemortem thrombi formed in flowing blood. Postmortem clots lack this lamination and are often gelatinous and gravity-dependent.