

Pathology /1st course.

EMBOLISM, SHOCK



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جامعة ساوة الاهلية

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كلية التقنيات الصحية والطبية

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قسم تقنيات الاشعة والسونار

Third . Stage

المرحلة الثالثة

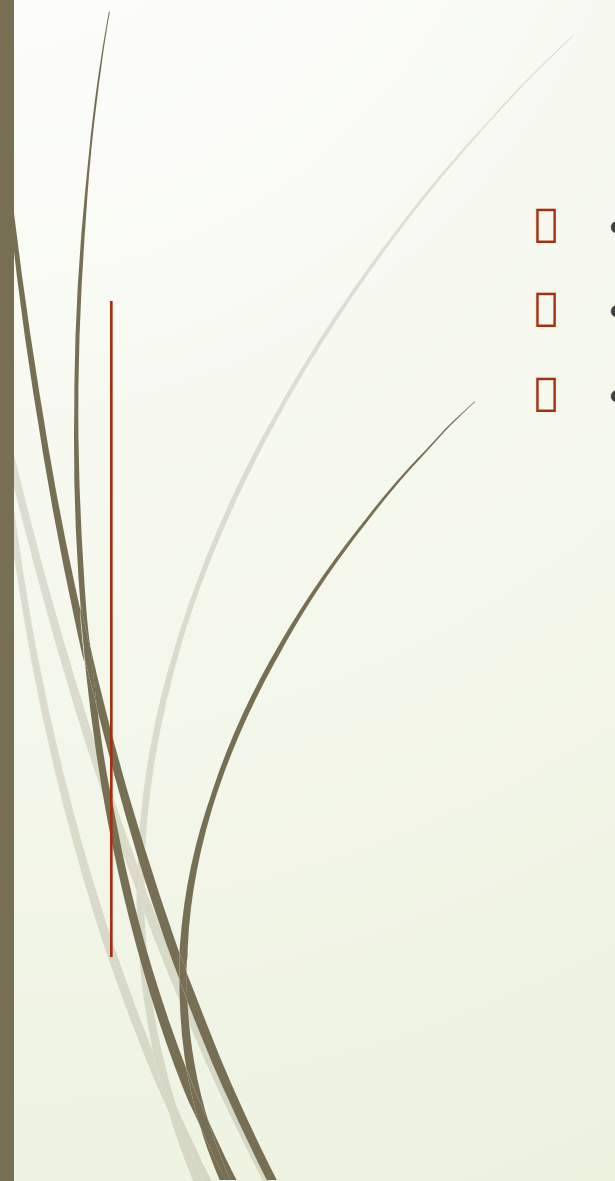
الجانب النظري محاضرة رقم 10

Lecture No. 10 Theoretical

تدريسي المادة : م.م. فاضل عوفي عواد

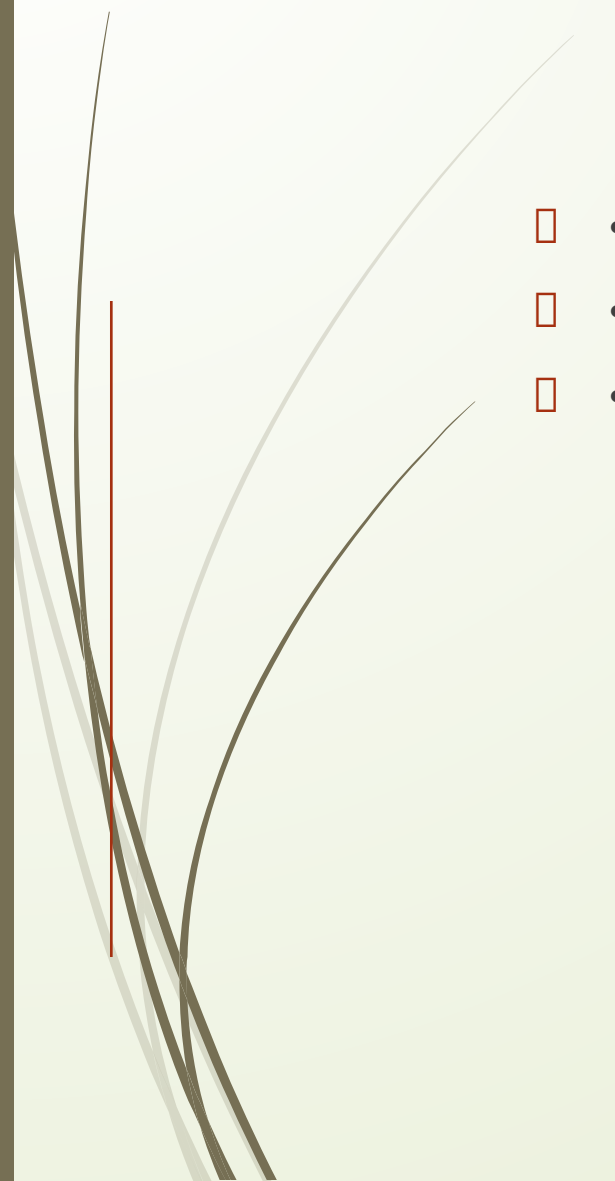


Embolism – Definition

- • Embolism: obstruction of a vessel by intravascular mass.
 - • Types: thrombus, fat, air, amniotic, septic.
 - • Causes ischemia and infarction.
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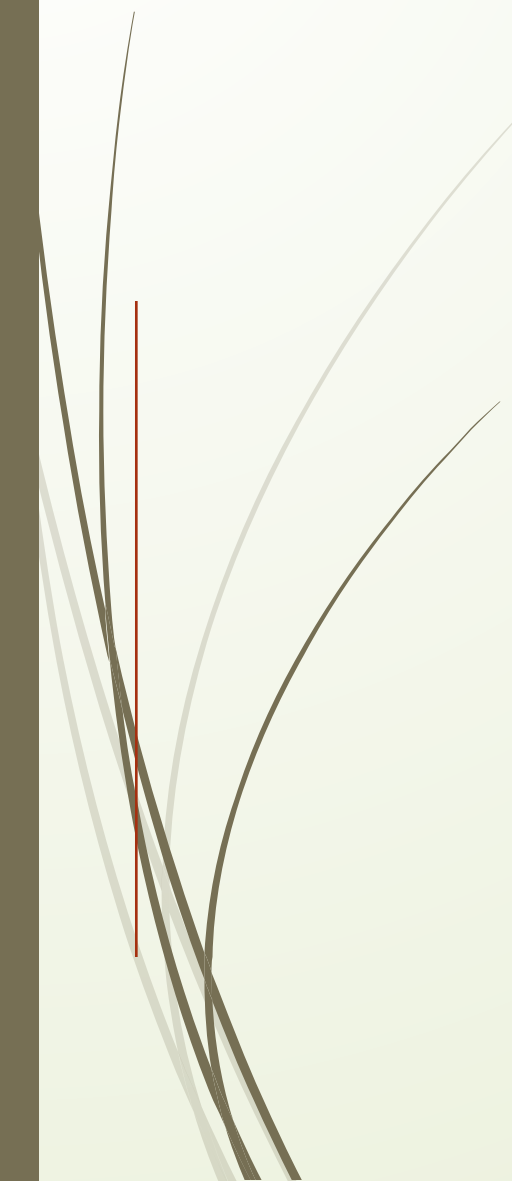


Basic Principles of Embolism

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- • Emboli migrate until lodging in small vessels.
 - • Most originate from thrombi.
 - • Effects depend on size, site, and speed.



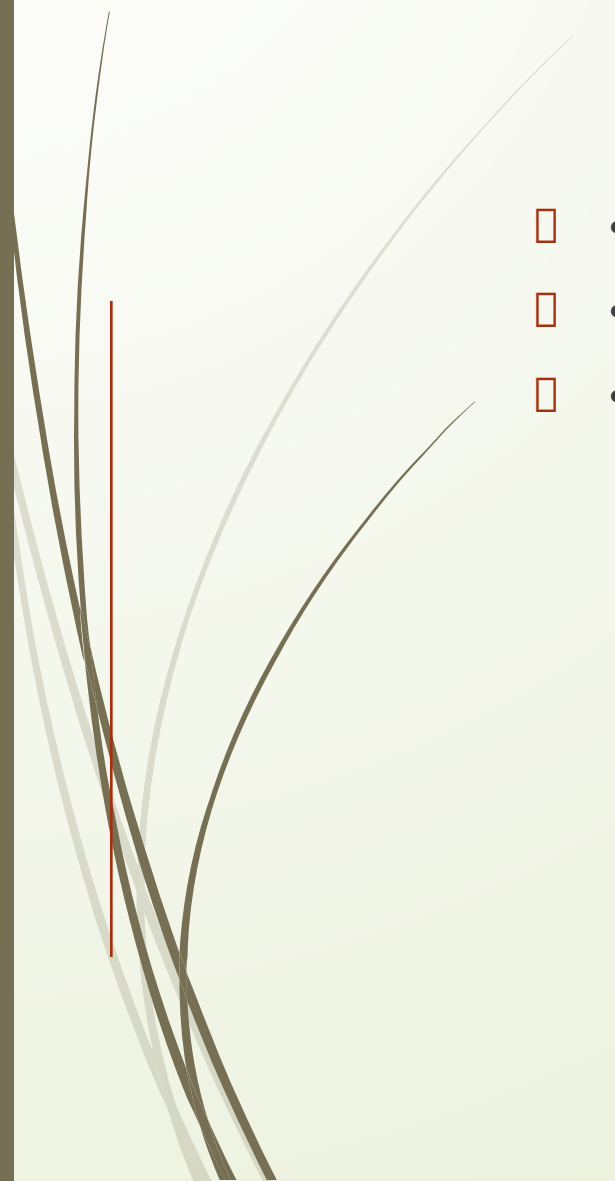
Types of Emboli



- • Thromboembolism (most common).
- • Fat embolism.
- • Air embolism.
- • Amniotic fluid embolism.
- • Septic emboli.

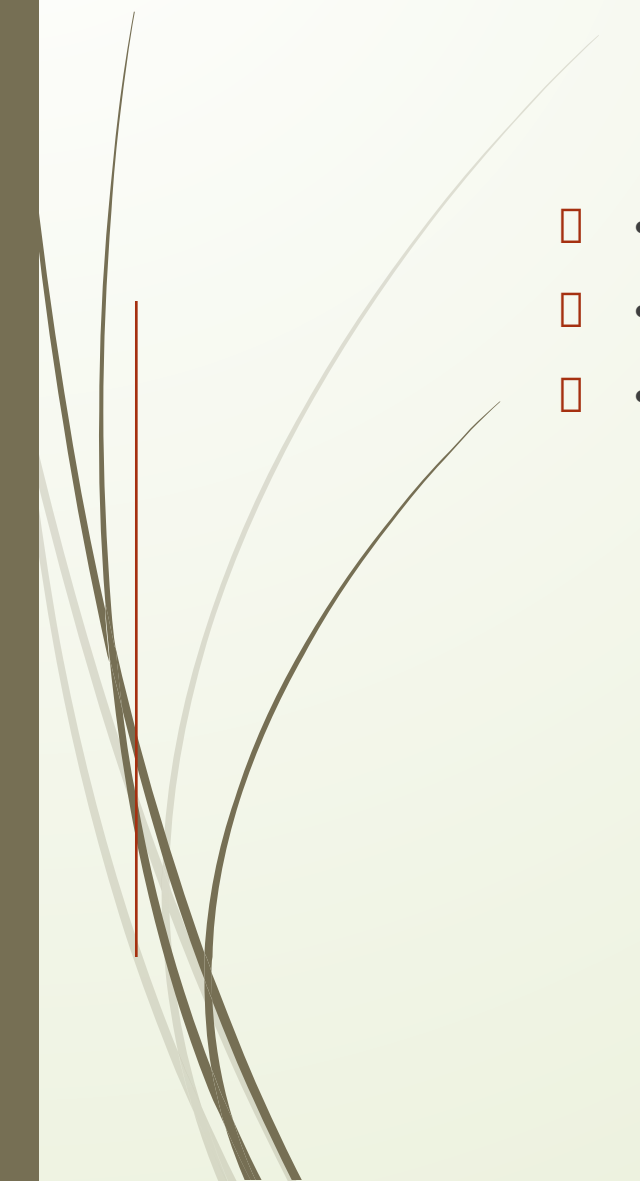


Pulmonary Embolism – Source

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- • Originates mainly from DVT.
 - • Enters right heart → pulmonary arteries.
 - • Risk factors: immobilization, surgery, cancer.

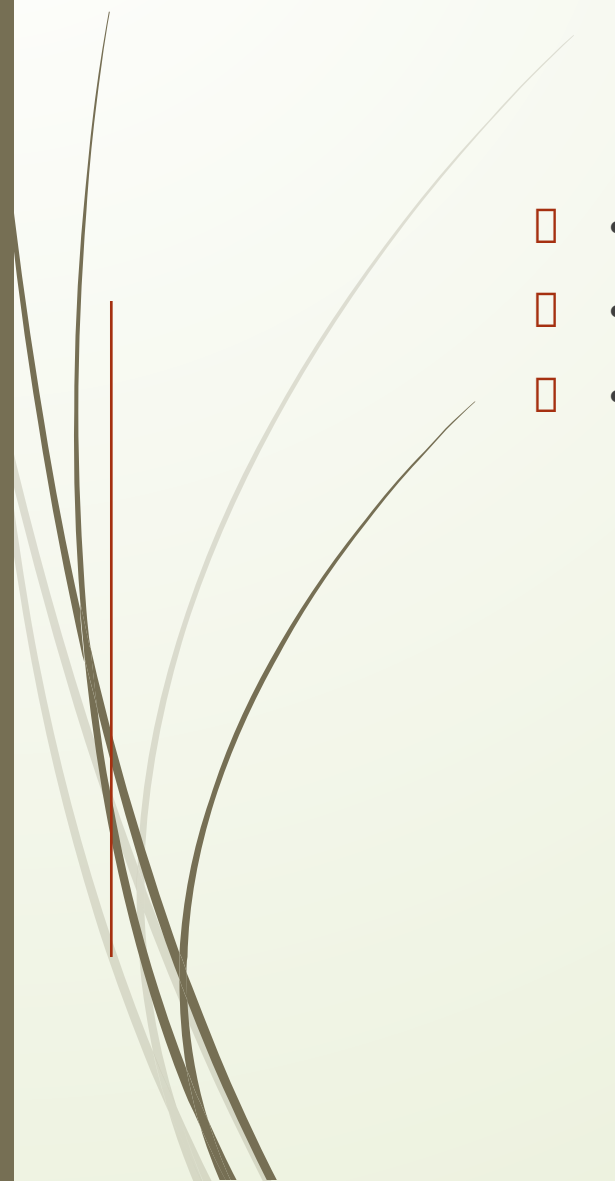


Pulmonary Embolism – Pathophysiology

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- • Vascular obstruction → increased pulmonary pressure.
 - • Impaired gas exchange.
 - • May lead to right-sided heart failure.



Pulmonary Embolism – Clinical Features

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- • Small PE: asymptomatic.
 - • Moderate: dyspnea, chest pain.
 - • Massive: collapse, sudden death.



Systemic Embolism – Origin

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- • Mostly from left heart mural thrombi.
 - • Also from atherosclerotic plaque debris.



Systemic Embolism – Sites

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- • Lower limbs (70%).
 - • Brain.
 - • Intestines.
 - • Kidneys.
 - • Spleen.

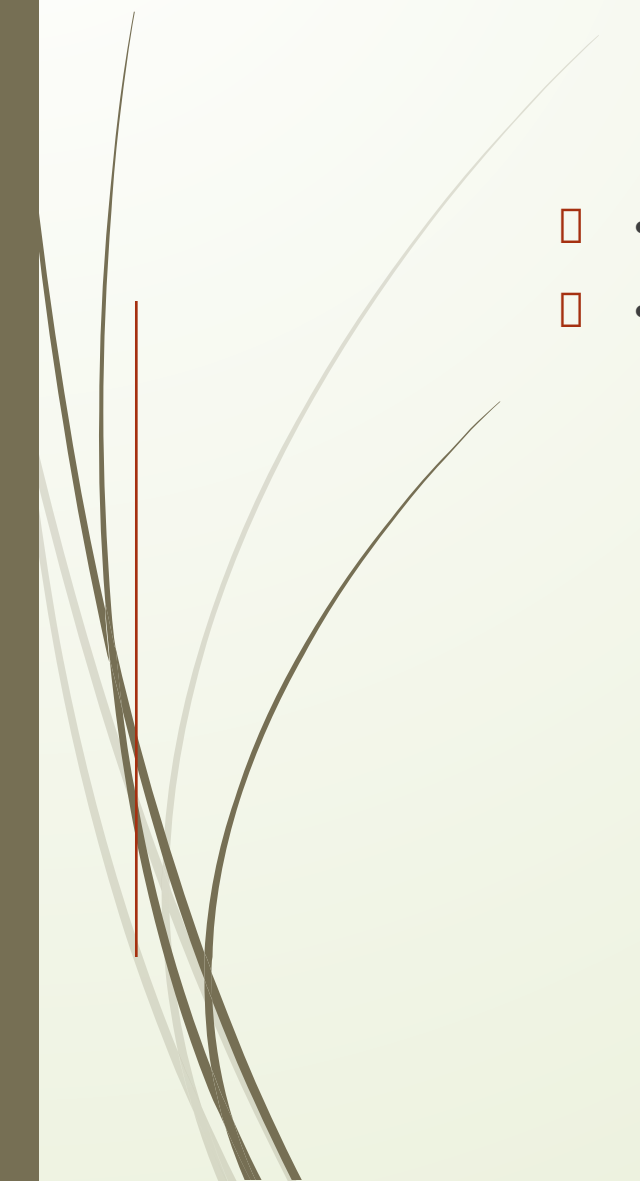


Systemic Embolism – Effects

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- • Acute ischemia.
 - • Stroke.
 - • Organ necrosis.
 - • Infarction depending on vessel.

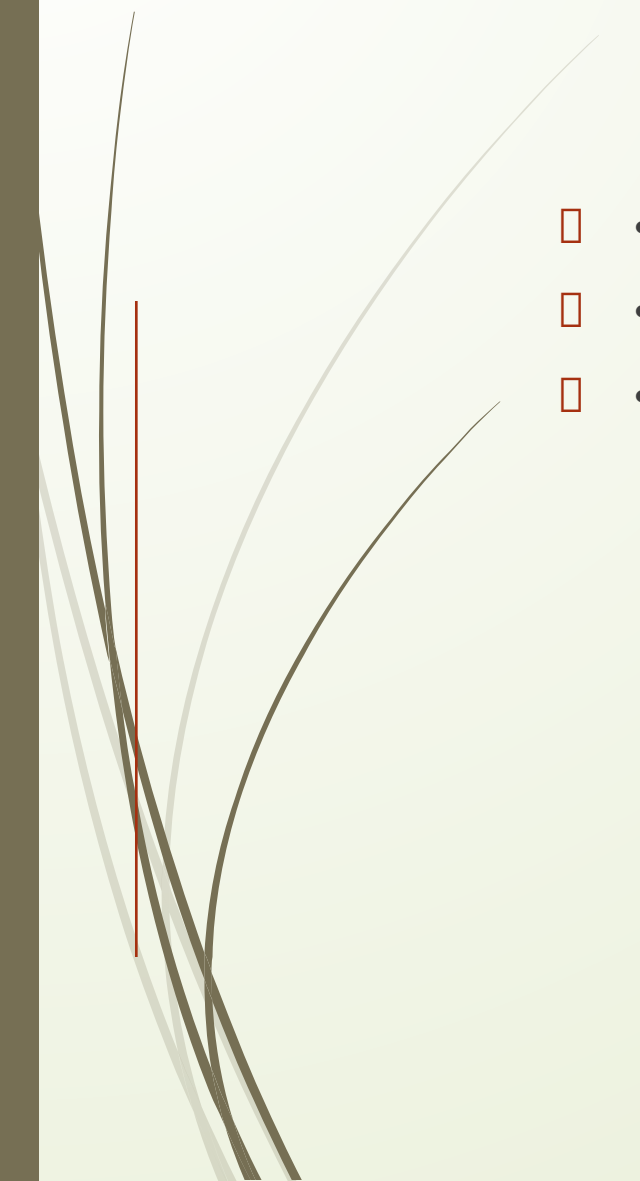


Infarction – Definition

- • Ischemic necrosis due to vessel occlusion.
 - • Causes: thrombosis, embolism, torsion, compression.
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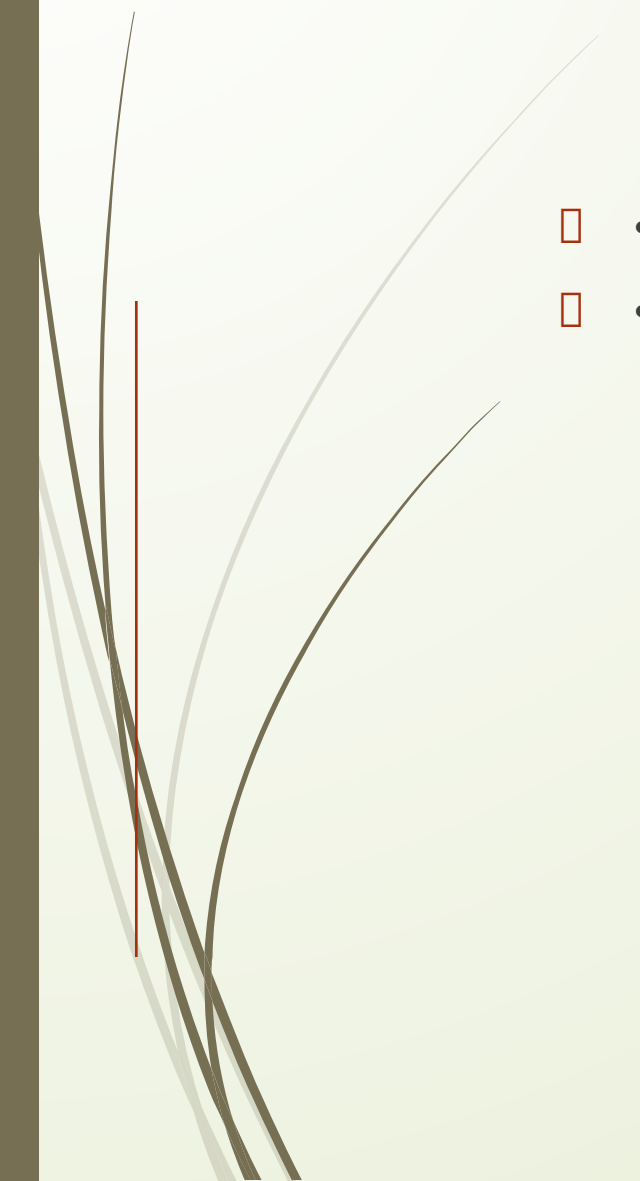


Infarction – Types

- • White infarct: heart, kidney, spleen.
 - • Red infarct: lung, intestine.
 - • Influenced by tissue blood supply.
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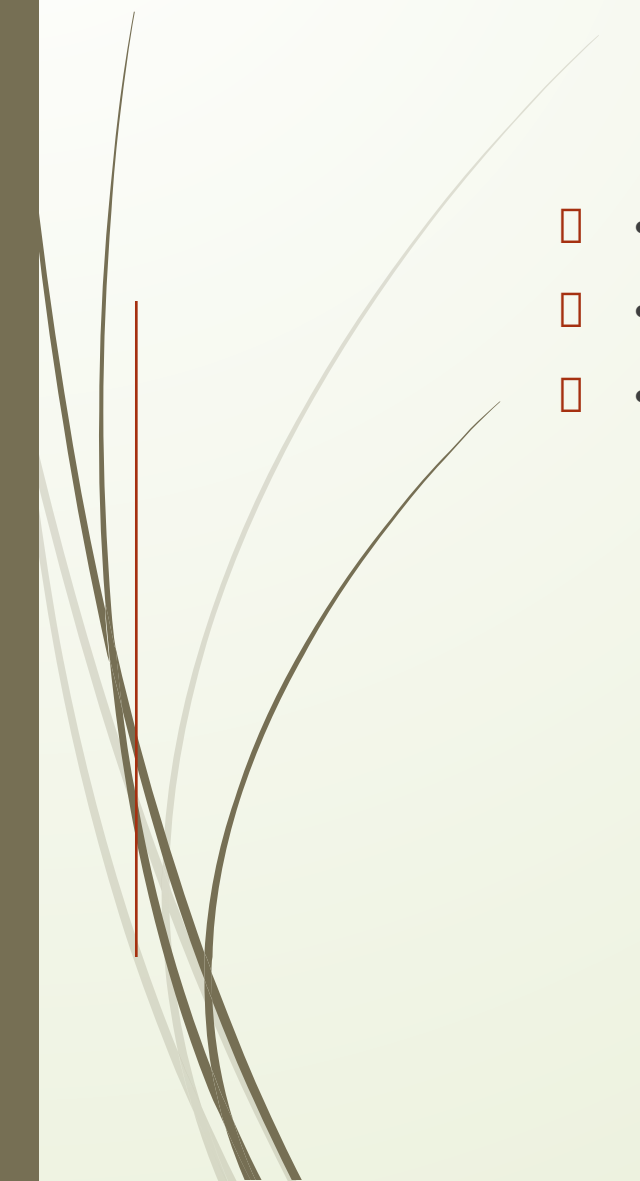


Shock – Definition & Types

- • Systemic hypoperfusion.
 - • Types: hypovolemic, cardiogenic, septic, anaphylactic, neurogenic.
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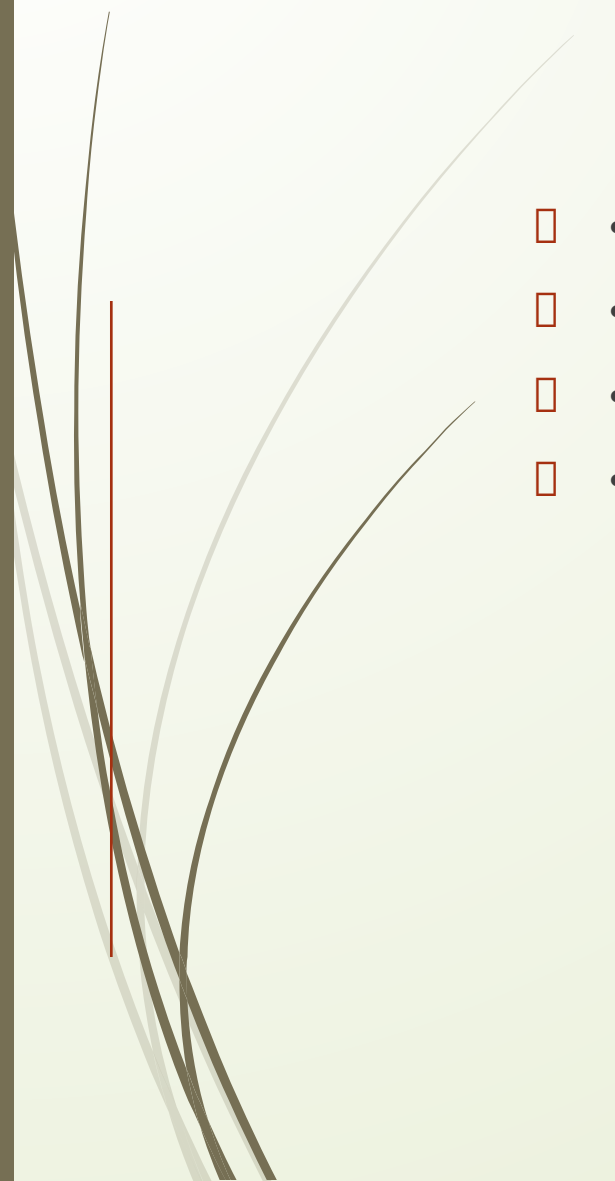
Shock – Stages



- • Compensated: tachycardia, vasoconstriction.
- • Progressive: worsening perfusion.
- • Irreversible: organ failure.



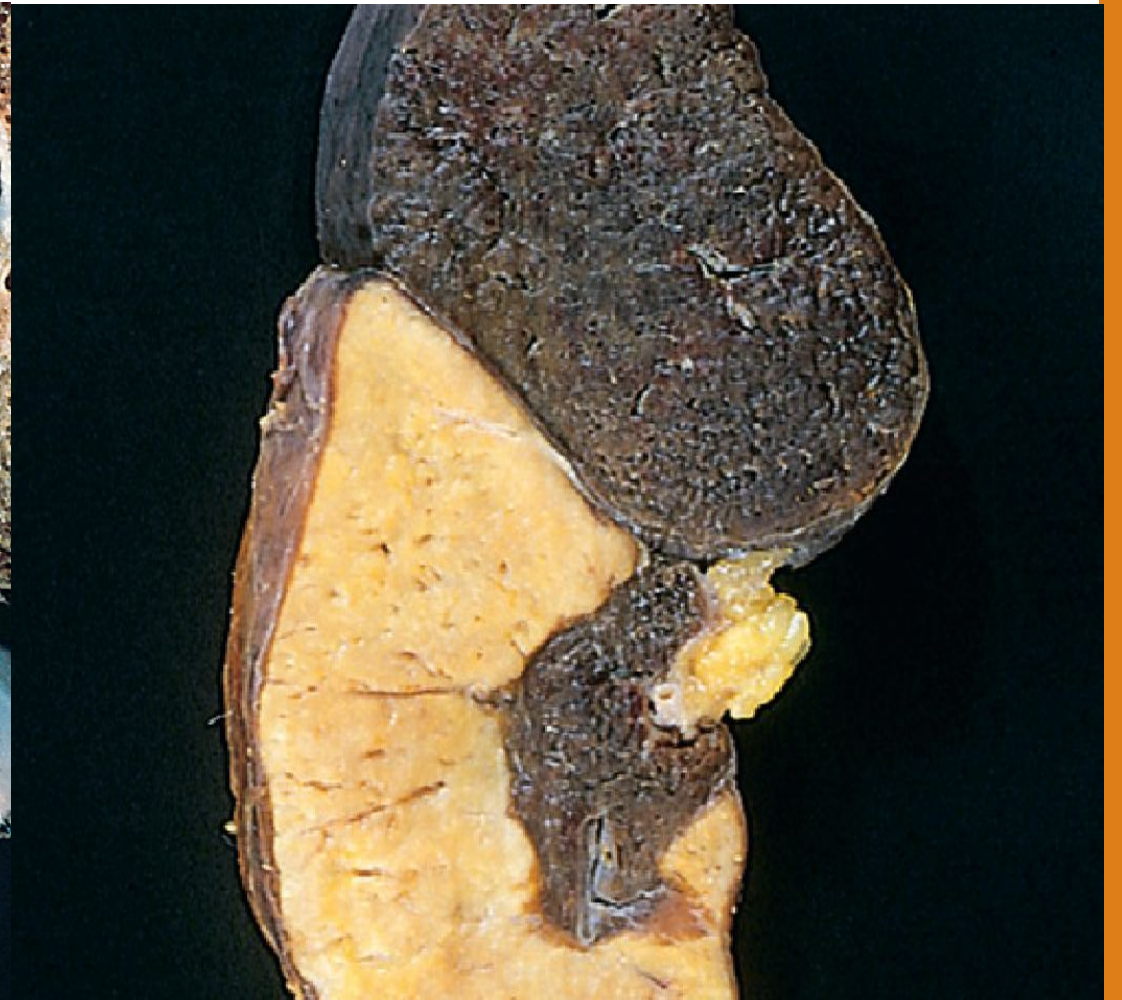
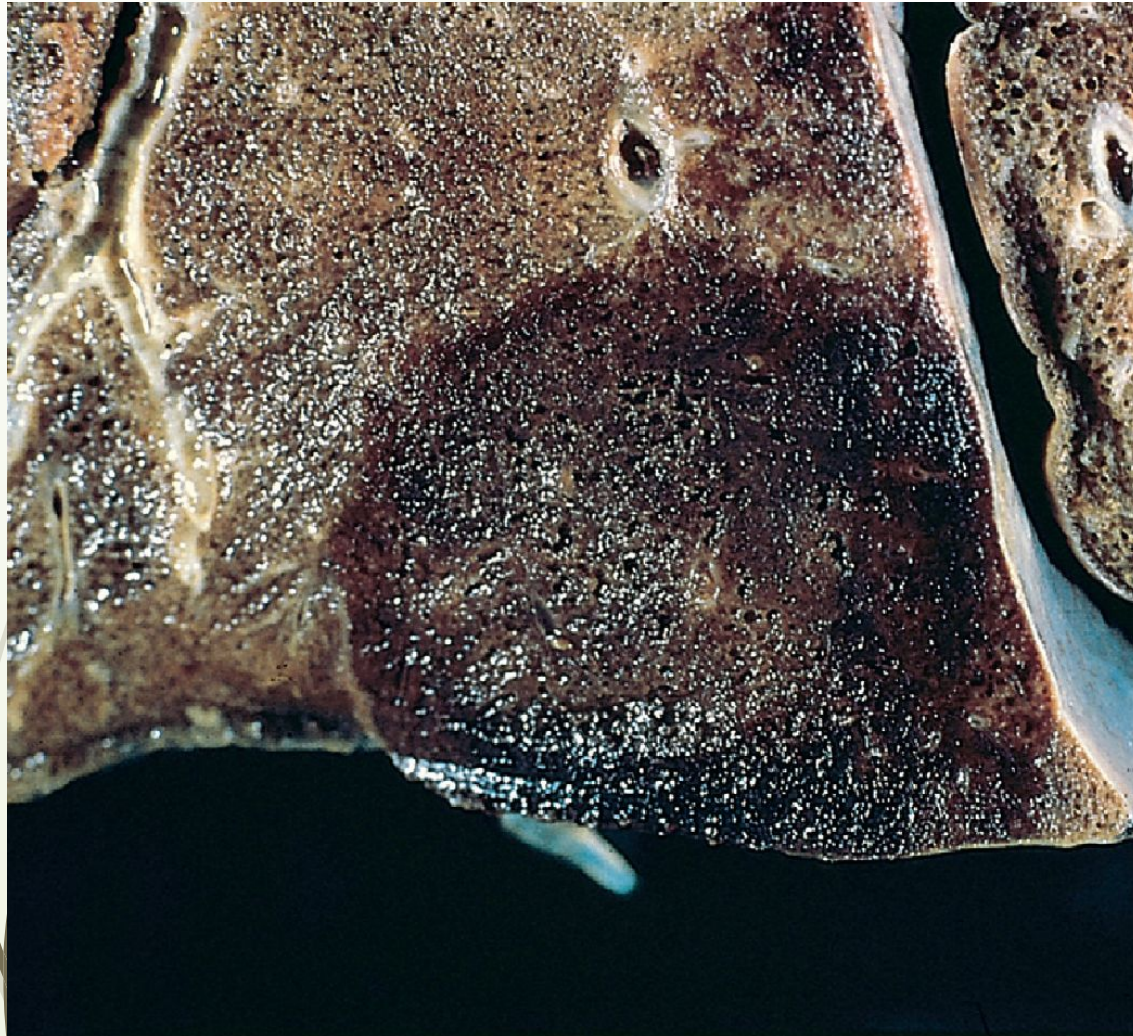
Shock – Clinical Manifestations

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- • Hypotension.
 - • Tachycardia.
 - • Cold skin (except septic).
 - • Multi-organ dysfunction.

General Question on All Topics

- سؤال شامل:
- اشرح العلاقة بين: (الانصمام – الجلطة – الاحتشاء – الصدمة)
- وكيف يمكن أن يؤدي كل واحد منها إلى الآخر ضمن سلسلة اضطرابات الهيموديناميك.





SUMMARY

EMBOLISM

- An embolus is a solid, liquid, or gaseous mass carried by the blood to a site distant from its origin; most are dislodged thrombi.
- Pulmonary emboli derive primarily from lower-extremity deep vein thrombi. Their effects depend mainly on the size of the embolus and the location in which it lodges. Consequences may include right-sided heart failure, pulmonary hemorrhage, pulmonary infarction, or sudden death.
- Systemic emboli derive primarily from cardiac mural or valvular thrombi, aortic aneurysms, or atherosclerotic plaques; whether an embolus causes tissue infarction depends on the site of embolization and the presence or absence of collateral circulation.
- Fat embolism can occur after crushing injuries to the bones; symptoms include pulmonary insufficiency and neurological damage. Amniotic fluid embolism may follow childbirth and can give rise to fatal pulmonary and cerebral manifestations. Air embolism can occur upon rapid decompression, most commonly in divers; it results from sudden bubbling of nitrogen dissolved in blood at higher pressures.

SUMMARY

SHOCK

- Shock is defined as a state of systemic tissue hypoperfusion resulting from reduced cardiac output and/or reduced effective circulating blood volume. The major types of shock are cardiogenic (e.g., myocardial infarction), hypovolemic (e.g., blood loss), and septic (e.g., infections).
- Shock of any form can lead to hypoxic tissue injury if not corrected.
- Septic shock is caused by the host response to bacterial or fungal infections; it is characterized by endothelial cell activation, vasodilation, edema, disseminated intravascular coagulation, and metabolic derangements.

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Any questions?

*Thank
You*