Tishk International University Science Faculty
Medical Analysis Department

Pathology

Hemodynamic disorders - 4, Infarction

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Infarction:
Definition
Types
Morphology
Factors that influence the development of infarction.

Objectives

1. **To define the term “infarction”.**
2. **To explain it’s types.**
3. **Describe it’s histological changes.**

INFARCTION

An infarct is an area of ischemic necrosis caused by occlusion of either the arterial supply or the venous drainage in a particular tissue e.g. myocardial, cerebral, pulmonary and bowel infarction.

- **Most infarcts result from thrombotic or embolic events, and almost all result from arterial occlusion.**
- **Although venous thrombosis may cause infarction, it more often merely induces venous obstruction and congestion.**

Morphology

- **Infarcts are classified on the basis of their color (reflecting the amount of hemorrhage) therefore,**
- **Infarcts may be either red (hemorrhagic) or white (anemic).**

Red (hemorrhagic) infarcts occur:

1. **with venous occlusions (such as in ovarian torsion).**
2. **in loose tissues (such as lung).**
3. **in tissues with dual circulations (e.g., lung and small intestine).**

White (anemic) infarcts occur in:

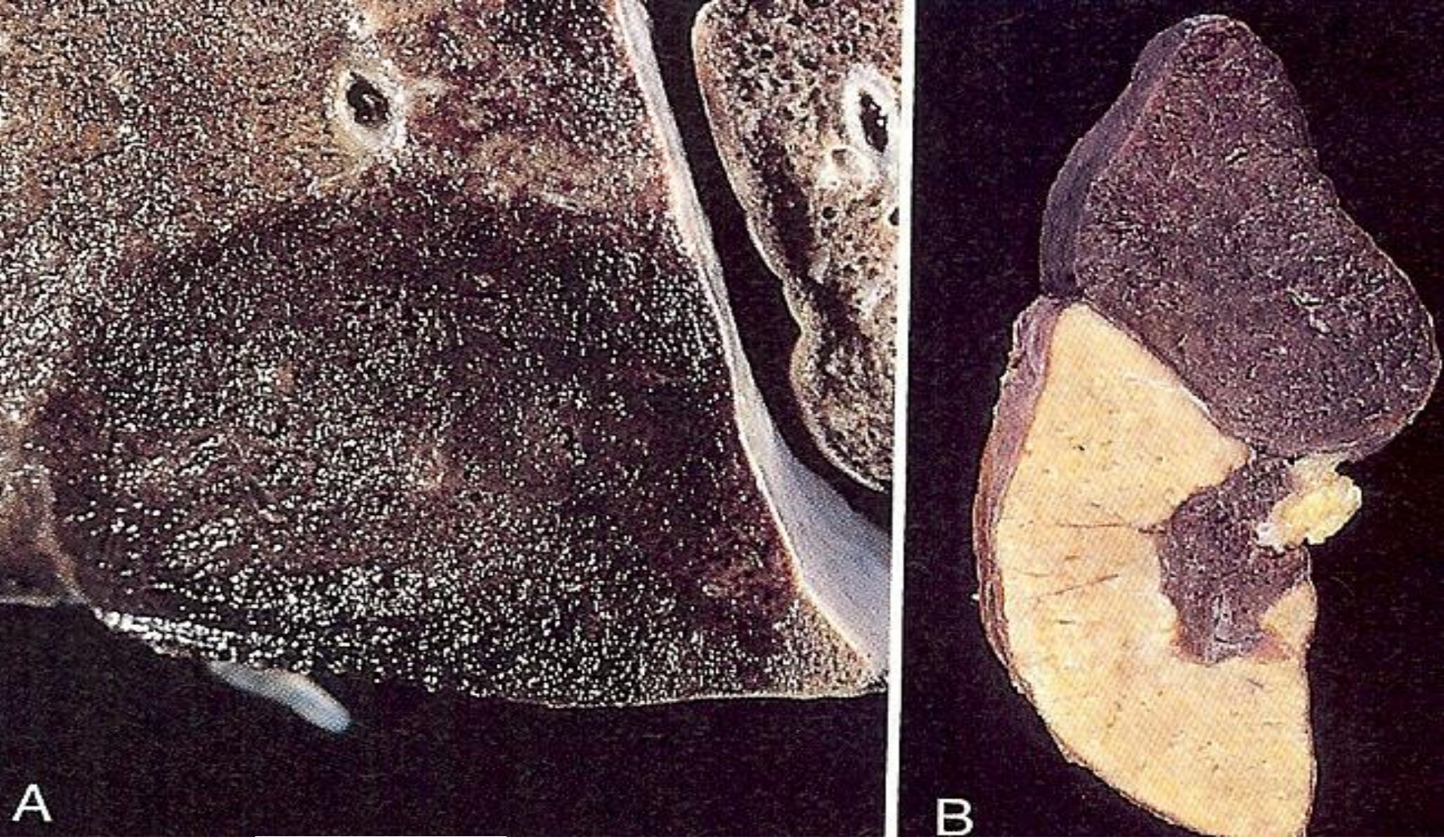
1. **arterial occlusions.**
2. **in solid organs such as heart, spleen, and kidney.**
3. **with end-arterial circulation.**

Morphology

- **Gross: Most infarcts are wedge-shaped, with the occluded vessel at the apex and the periphery of the organ forming the base.**
- **Micro: The dominant histologic characteristic of infarction is coagulative necrosis.**

- **An inflammatory response begins along the margins of infarcts within a few hours and is usually well defined within 1 or 2 days,**
- **followed by gradual degradation of the dead tissue with phagocytosis of the cellular debris by neutrophils and macrophages.**

Most infarcts are ultimately replaced by scar tissue.



A, Hemorrhagic, roughly wedge-shaped pulmonary red infarct.

B, sharply demarcated white infarct in the spleen.

Congested bowel with hemorrhagic (Red) infarction.

Myocardial infarction
(Posterolateral pale infarct)

Infarct (cont.)

The consequences of a vascular occlusion can range from no or minimal effect, all the way up to death of a tissue or even the individual.

Factors Influence Development of an Infarct:

(1) *anatomy of the vascular supply*;

(2) *the rate of development of the occlusion*;

(3) *the vulnerability of a given tissue to hypoxia*;

(4) *the blood oxygen content.*

Summary

- **Infarct is an area of ischemic necrosis caused by occlusion of the blood supply.**
- **Infarcts are classified on the basis of color to either red (hemorrhagic) or white (pale) infarcts.**
- **The dominant histologic feature of infarction is coagulative necrosis**
- **Most infarcts are ultimately replaced by scar tissue.**

What is an embolus?

A. An intravascular mass that forms in one anatomic site.

B. A freely movable, intravascular mass that is carried from one anatomic site to another by the blood.

C. An intravascular mass that forms in the legs.

D. An intravascular mass that forms in the brain.

E. An intravascular mass that forms in the foramen ovale.

Ischemic necrosis of which organ appears grossly as red infarction:-

A. Brain.

B. Heart.

C. Ovary.

D. Spleen.

E. Kidney

Thank you