

Hemodynamic Disorders 1

fluid and electrolytes disturbance

increased volume :

HYPEREMIA

an active process resulting from arteriolar dilation and increased blood inflow, as occurs at sites of inflammation or in exercising skeletal muscle.
 clinically: Hyperemic tissues are redder than normal because of engorgement with oxygenated blood

CONGESTION

a passive process resulting from impaired outflow of venous blood from a tissue.
 It can occur systemically, as in cardiac failure, or locally as a consequence of an isolated venous obstruction
 clinically: Congested tissues have an abnormal blue-red color (cyanosis) that stems from the accumulation of deoxygenated hemoglobin in the affected area.

examples

pulmonary congestion

acute pulmonary congestion is marked by blood-engorged alveolar capillaries and variable degrees of alveolar septal edema and intraalveolar hemorrhage.
 chronic pulmonary congestion, the septa become thickened and fibrotic, and the alveolar spaces contain numerous macrophages laden with hemosiderin ("heart failure cells") derived from phagocytosed red cells

HEPATIC CONGESTION

central areas are red and slightly depressed compared with the surrounding tan viable parenchyma, creating "nutmeg liver"
 centrally located hepatocytes are prone to necrosis more than the periportal hepatocytes which is better oxygenated because of their proximity to hepatic arterioles

microscopic findings

- centrilobular hepatocyte necrosis.
- Hemorrhage.
- hemosiderin-laden macrophages

Cut surfaces of hyperemic or congested tissues feel wet and typically ooze blood

hemorrhage

extravasation of blood from vessels, is most often the result of damage to blood vessels, defective clot formation, or Trauma, atherosclerosis, or inflammatory or neoplastic erosion of a vessel wall

Subcutaneous bleeding clinical symptoms

Petechiae

are minute (1 to 2 mm in diameter) hemorrhages into skin, mucous membranes, or serosal surfaces

Causes

- low platelet counts (thrombocytopenia).
- defective platelet function.
- loss of vascular wall support, as in vitamin C deficiency

Purpura

slightly larger (3 to 5 mm) hemorrhages

same causes as petechiae, as well as:

- trauma.
- vascular inflammation (vasculitis).
- increased vascular fragility

Ecchymoses:

are larger (1 to 2 cm) subcutaneous hematomas (also called bruises).

Extravasated red cells are phagocytosed and degraded by macrophages: the characteristic color changes of a bruise

