Hyperemia

Hyperemia (congestion) is a condition in which capillaries are dilated and filled with blood.

Physiological hyperemia

- Blood vessels that are normally closed at rest open and dilate or leak only plasma (**vasa serosa**).
- This is a purely functional phenomenon occurring, for example, in working skeletal muscle.

Hyperemia in the oral cavity

Pathological hyperaemia

Peristatic

- Occurs in the vicinity of **inflammation**, when **mediators** (e.g. histamine) are released from damaged cells, causing maximal dilation of capillaries without corresponding opening of arterioles.
- Blood flow slows to a halt (*peristasis*) and erythrocytes fill the entire capillary, widening the interstices between the endothelium and allowing extravascular penetration of fluid with proteins (*exudation*) and blood cells (*infiltration*).

Venostatic (passive)

- Capillaries become engorged with blood when blood outflow through veins is restricted (oppression of a vein by tumors, thrombosis). This leads to an increase in hydrostatic pressure and **transudation** of fluid without protein (unlike inflammation, there are no mediators to cause opening of interstitial clefts in the capillary wall);
- So-called **venostatic oedema** occurs (e.g. ascites in portal hypertension conditioned by hepatic vein thrombosis);
- If the blood flow stops (congestion - venostasis), the relevant tissue undergoes hypoxemic necrosis, which is referred to as **hemorrhagic infarction** (e.g. in small bowel in thrombosis of the portal vein. However, a hemorrhagic infarction of the intestine in mesenteric artery thromboembolism will have the same picture);
- Necrosis is healed by **fibrosis** with stiffening of the organ - called **induction**;
- Organs are **dark purple** in venostasis (cyanotic induction, e.g. spleen in right-sided heart failure). An exception is the lung, in which congestion in left-sided heart failure takes the form of **rust induction** (erythrocyte breakdown extravascularly and the production of hemosiderinu, which is phagocytosed by alveolar macrophages).

Hyperemia in electrotherapy

Hyperemic effects can be targeted primarily by:

- by applying medium-frequency currents
- application of Interferential (IF) currents
- application of Diadynamic (DD) currents
- galvanotherapy

References

Related articles

- Inflammation

Source

- PASTOR, John. *Langenbeck's medical web page* [online]. [cit. 2009-09-01]. <https://langenbeck.webs.com/>.