

Muscular artery (histological slide, HE)

Construction

The wall consists of three layers:

1. *tunica intima*;
2. *tunica media*;
3. *tunica adventitia*.

Each of the layers has a specific function, the *tunica intima* is important for the exchange of substances between blood and tissues, the *tunica media* containing muscle cells controls the lumen of the blood vessels, and the *tunica adventitia* with ligaments, vessels and nerves provides vascular protection and nutrition

Tunica intima

- **Endothelium** is a single-layered squamous epithelium. Its cells lie on the basement membrane (recognizable only at the highest resolution).
- **Lamina elastica interna** is a thick layer of elastin that stains significantly dark when stained with elastic (Weigert resorcin fuchsin)

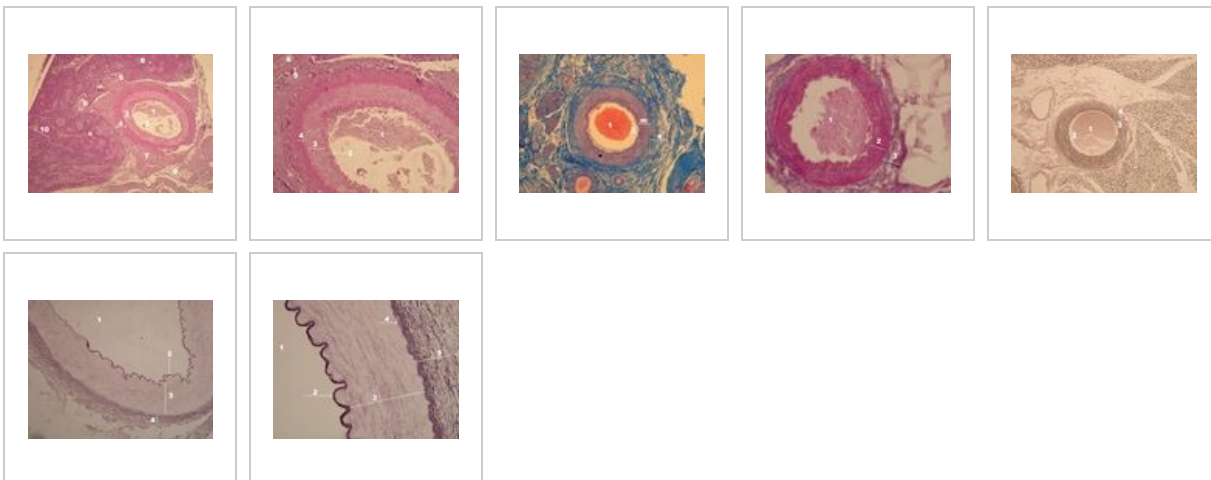
Tunica media

- Almost exclusively **smooth muscle cells**.
- At the interface between the *tunica media* and the *tunica adventitia* lies the *lamina elastica externa* (a proliferation of elastic fibers).

Tunica adventitia

It is made up of tissue containing collagen and elastic fibers. The matrix also contains cells of the immune system (e.g. macrophages). The *tunica adventitia* also includes vessels (*vasa vasorum*) and nerves (*nervi vasorum*, mainly belonging to the sympathetic nervous system).

Overview



Slide 1

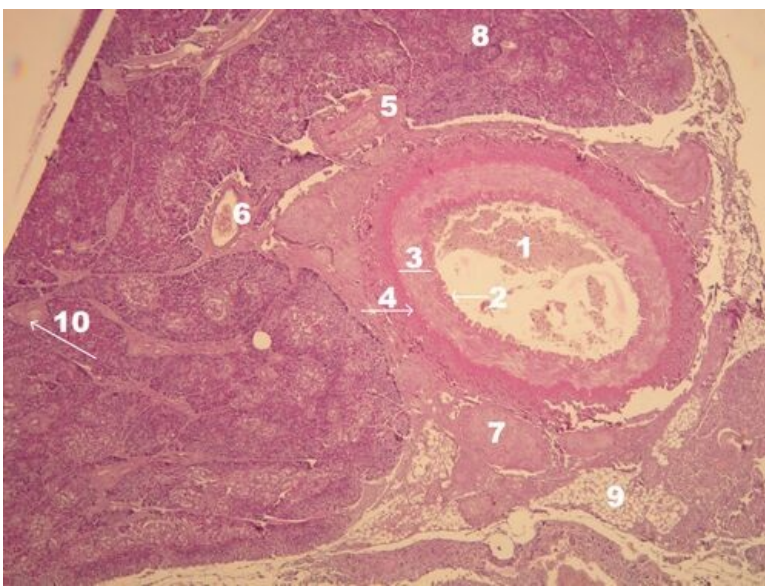
Name: Muscular artery – overview (HE)

Description: 1 – artery lumen, 2 – intima and membrana elastica interna, 3 – tunica media, 4 – membrana elastica externa,

5 - other muscle-type artery, 6 - vein, 7 - peripheral nerve (autonomic nervous system),

8 – pancreatic parenchyma - light circles are the islets of Langerhans (endocrine part of the pancreas), dark circles are

serous acini (exocrine part of the pancreas), 9 – adipose tissue, 10 – muscular artery branches into arteries of smaller caliber, which



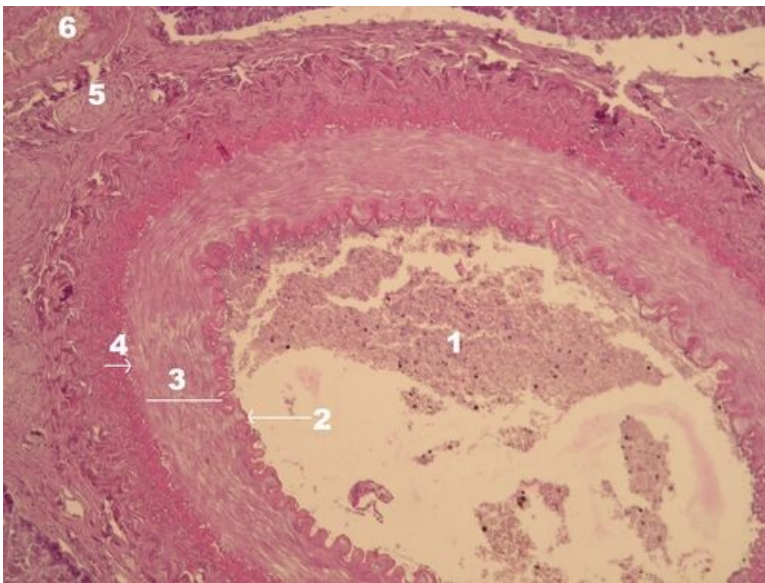
they run in fibrous septa through the parenchyma

Slide 2

Name: Muscular artery - wall layers (HE)

Description: 1 - artery lumen, 2 - membrana elastica interna and tunica intima, 3 - tunica media, 4 - membrana elastica externa,

5 - nerve on cross-section, 6 - another artery of muscular type and smaller caliber



Slide 3

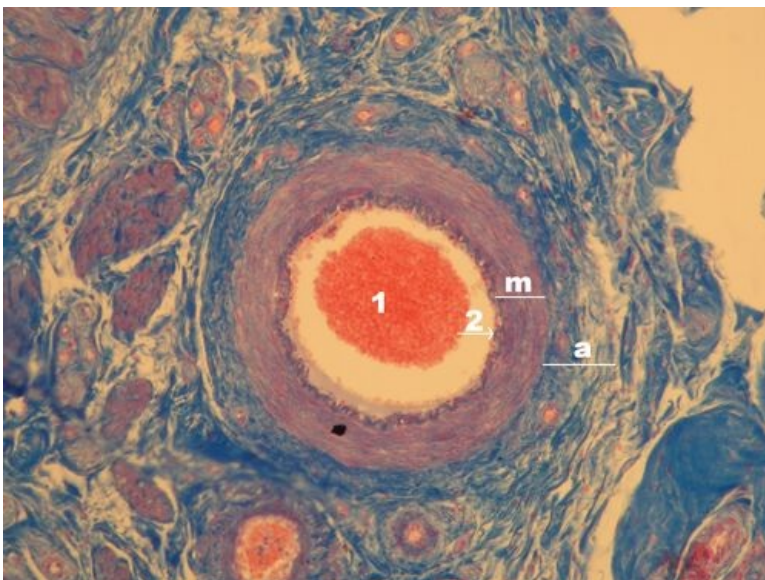
Name: Muscular Artery - overview (AZAN)

Description: 1 - artery lumen, 2 - tunica intima and membrana elastica interna, m - tunica media, a - tunica adventitia

Slide 4

Name: Muscular artery - layers of the wall (AZAN)

Description: 1 - artery lumen, 2 - tunica media, 3 - tunica adventitia



Slide 5

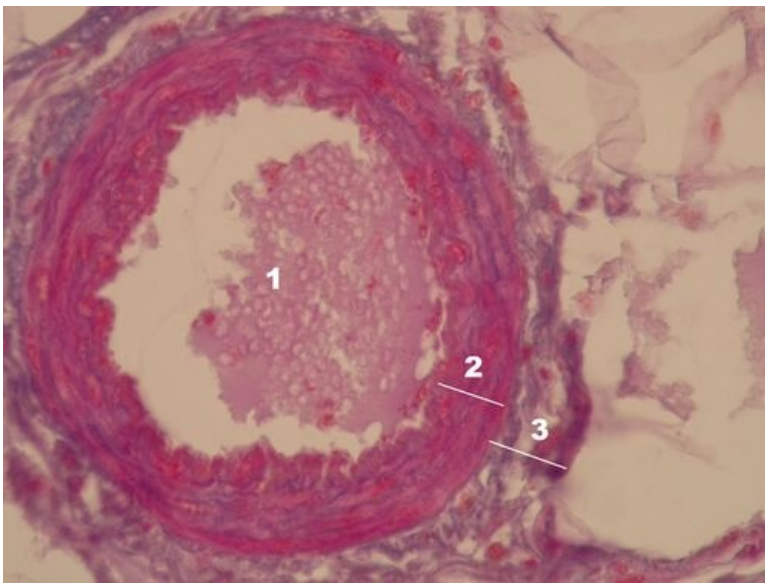
Name: Muscular Artery - overview (silver plating)

Description: 1 - artery lumen, 2 - membrana elastica interna, 3 - tunica media, 4 - tunica adventitia

Slide 6

Name: Muscular artery - overview (Weigert resorcin-fuchsin)

Description: 1 - artery lumen, 2 - membrana elastica interna, 3 - tunica media, 4 - tunica adventitia

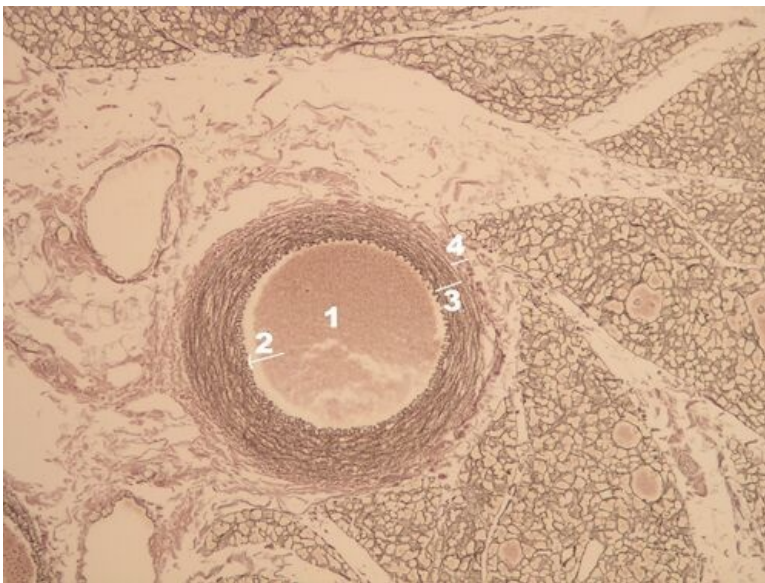


Slide 7

Name: Muscular artery - wall layers (Weigert resorcin-fuchsin)

Description: 1 - artery lumen, 2 - membrana elastica interna, 3 - tunica media, 4 - membrana elastica externa,

5 - tunica adventitia



Epithelia

Kidney (slide)

Thyroid gland (slide)

Colon (slide)

Oviduct (slide)

Bronchus (slide)

Urinary bladder (slide)

Abdominal skin (slide)

Esophagus (slide)

Vagina (slide)

Lungs (slide)

Small intestine (slide)

Pancreas (slide)

Parotis (slide)

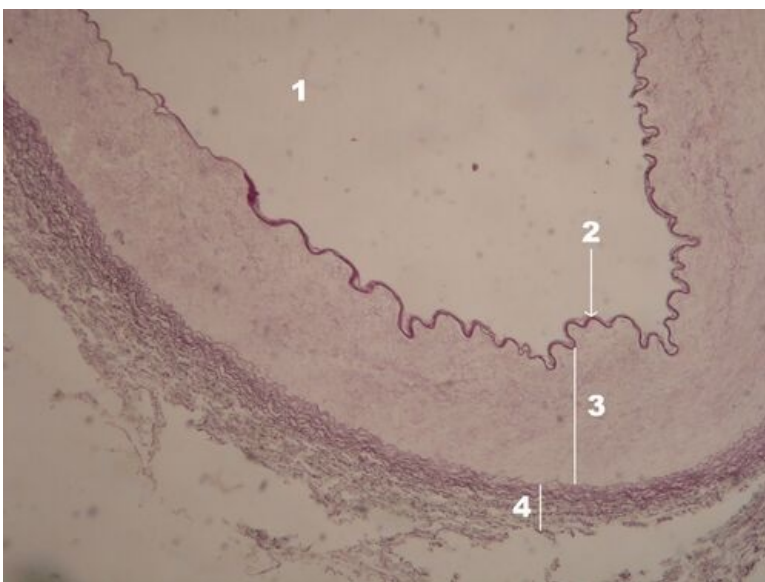
Submandibularis (slide)

Mamma lactans (slide)

Mamma nonlactans (slide)

Stomach fundus (slide)

Adrenal gland (slide)



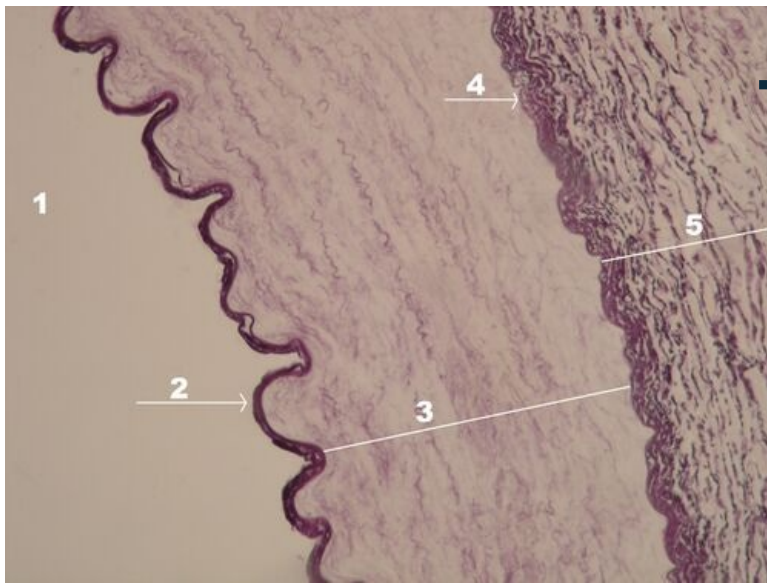
Study materials for the preparation

Arteries

Links

Related Articles

- Muscular artery (histological slide, WRF)
- Elastic artery (histological slide)
- Vein (histological slide, HE)
- Cellular foundations of medicine module (3rd Faculty of Medicine UK)



References

- MUDR. EIS, Václav – MUDR. JELÍNEK, Štěpán – MUDR. ŠPAČEK, Martin. *Histopathologický atlas* [online]. ©2006. [cit. 2010-04-

15]. <<http://histologie.lf3.cuni.cz/histologie/atlas/index.htm>>.

- JUNQUIERA, L. Carlos – CARNEIRO, Jose – KELLEY, Robert O.. *Basics of histology*. 7. edition. H&H 1997, 1997. 502 pp. ISBN 80-85787-37-7.