

CVS HISTOLOGY

Practical 2024



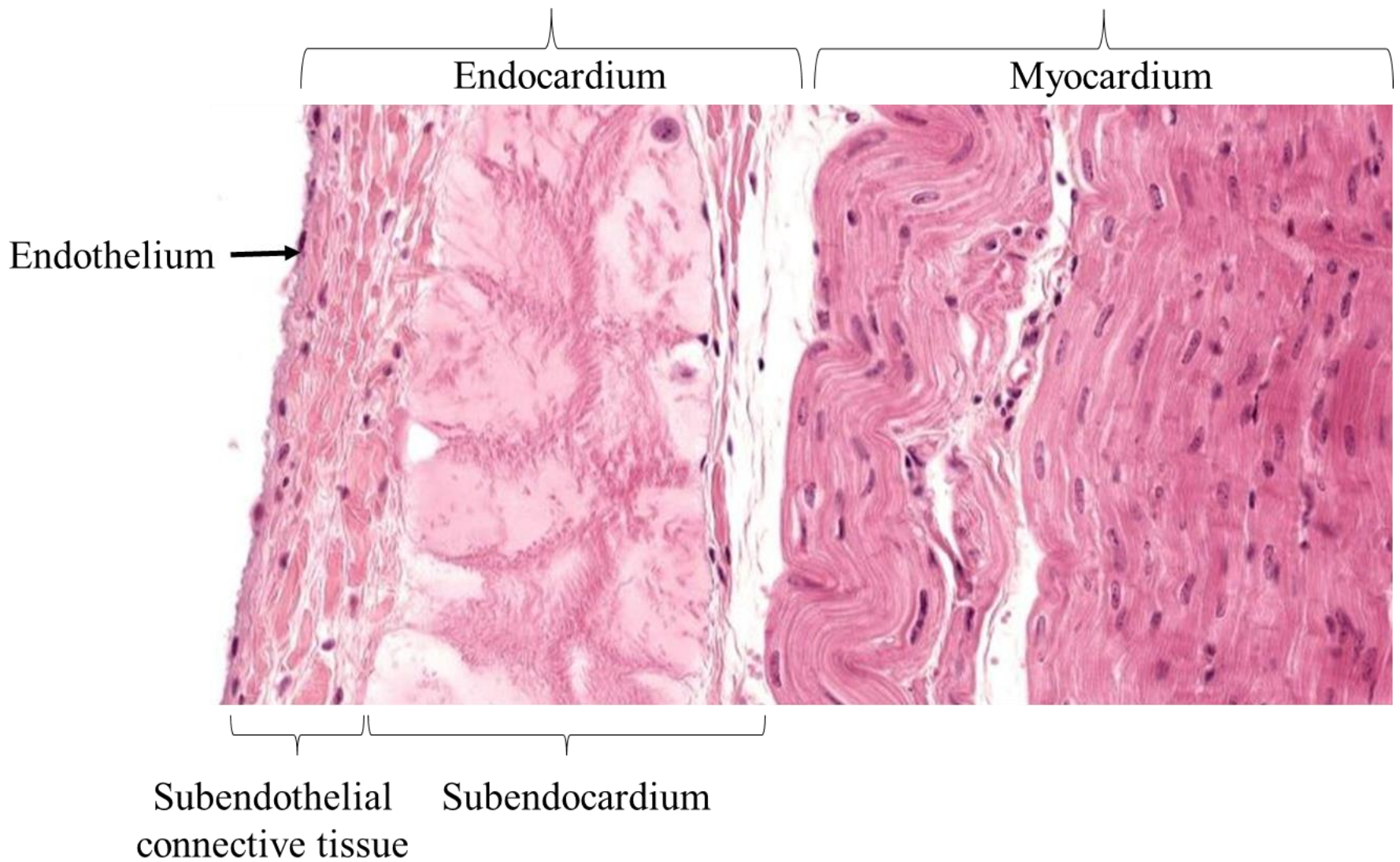


Fig.1: Wall of the heart showing the endocardium and myocardium. Note the layers of the endocardium. The light colored structures in the subendocardium are Purkinje fibers.

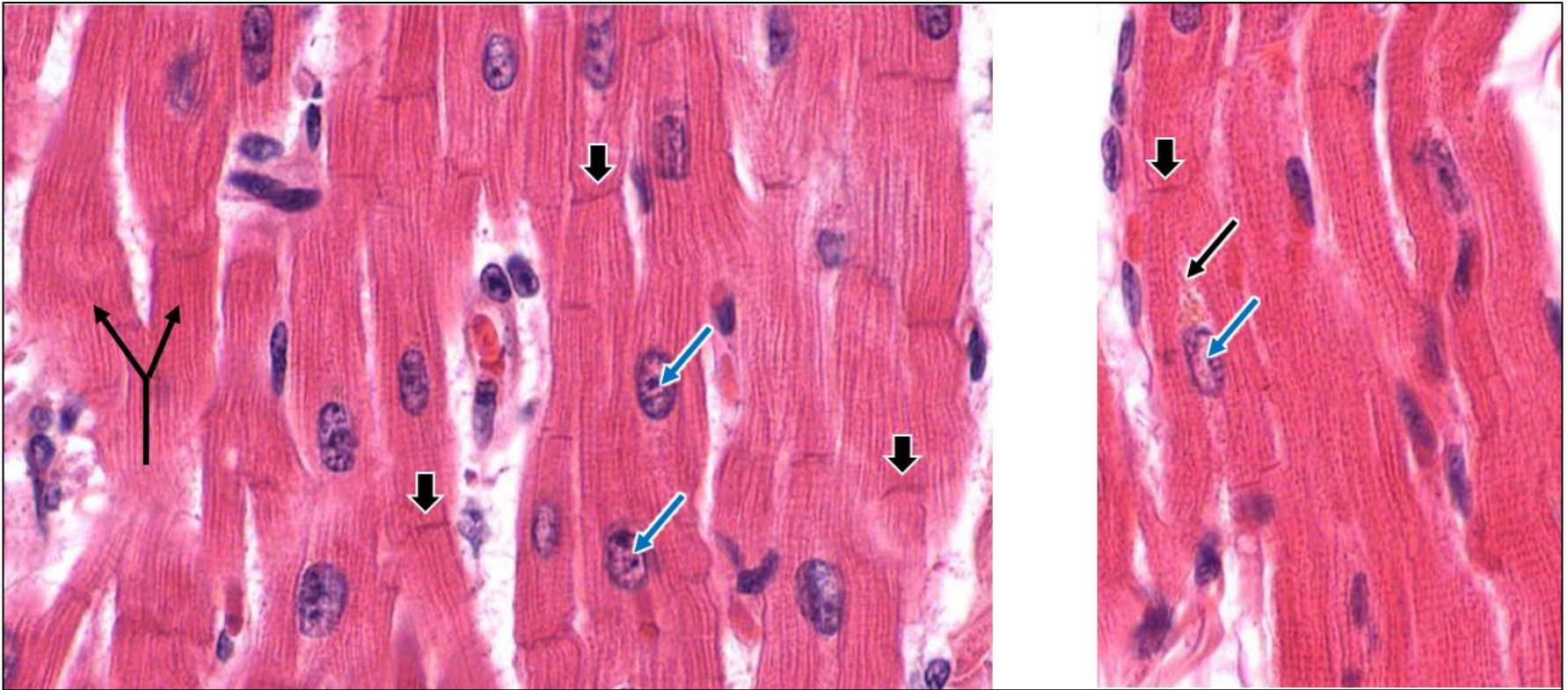


Fig.2: Cardiac muscles. Note the striation, the branching of the cells, the nucleus (blue arrows), and the intercalated discs (thick black arrows). In the image to the right, we can see yellow-brown lipofuscin granules (thin black arrow) around the nucleus. The spaces between the cells is filled with loose connective tissue (endomysium) with blood vessels and nuclei of fibroblasts.

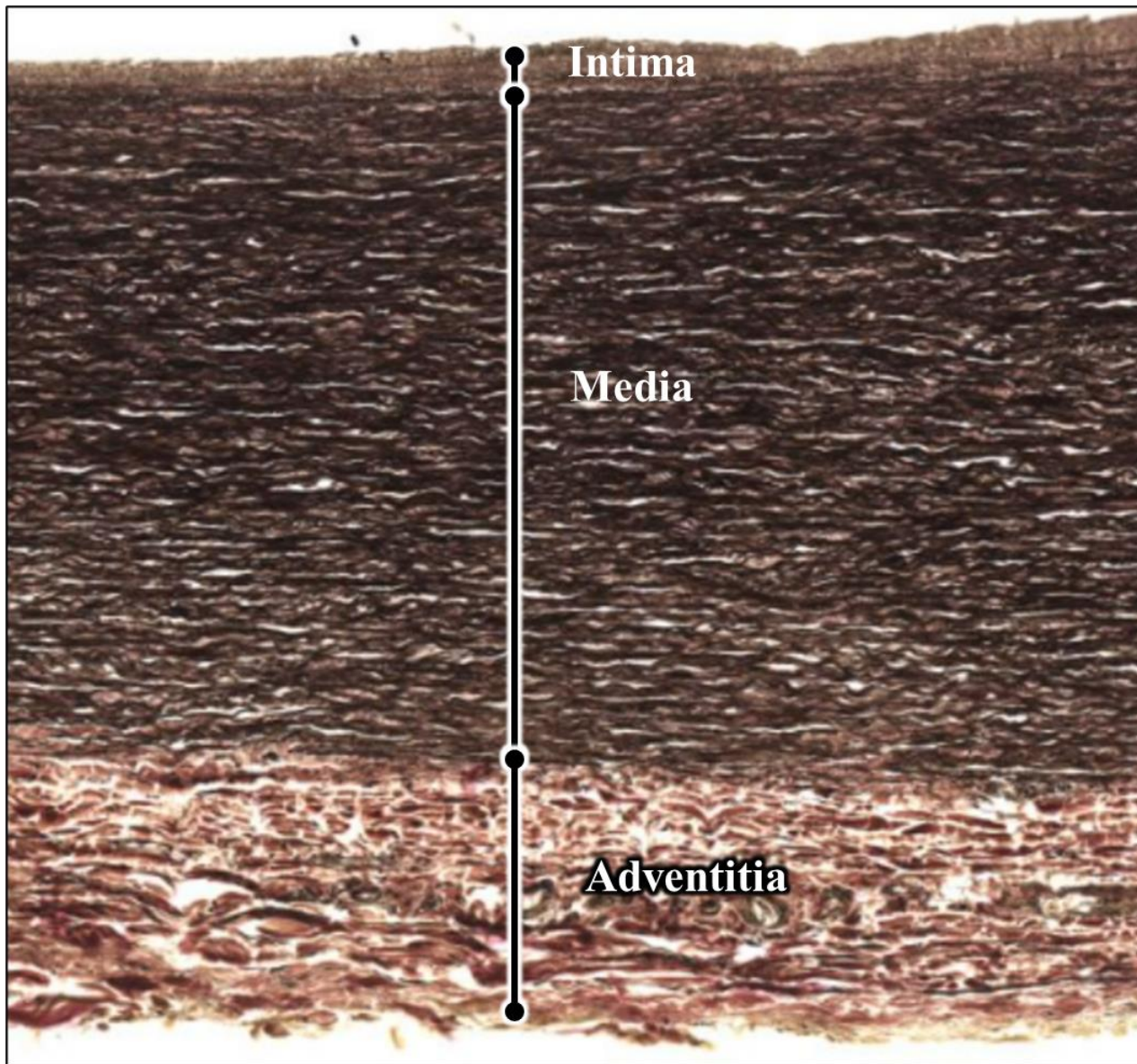
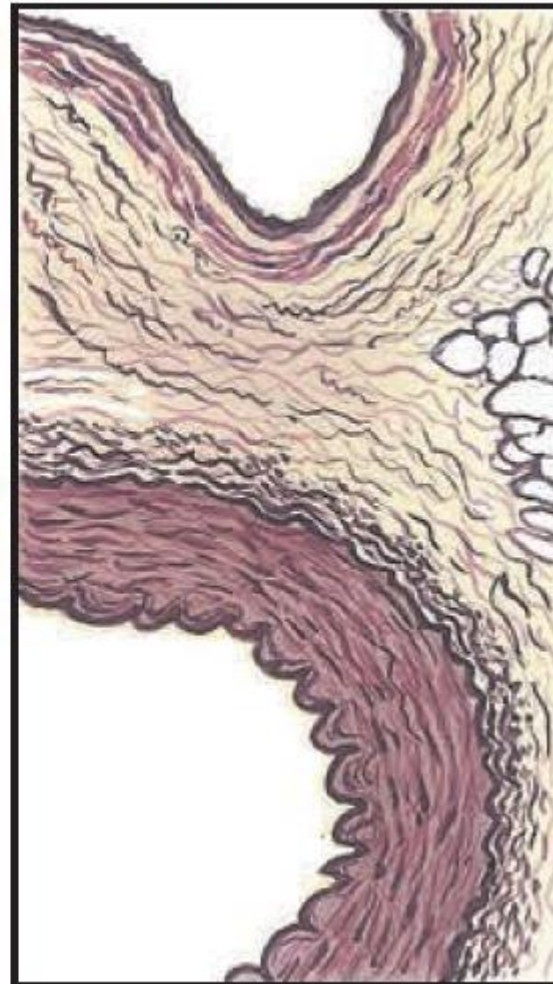
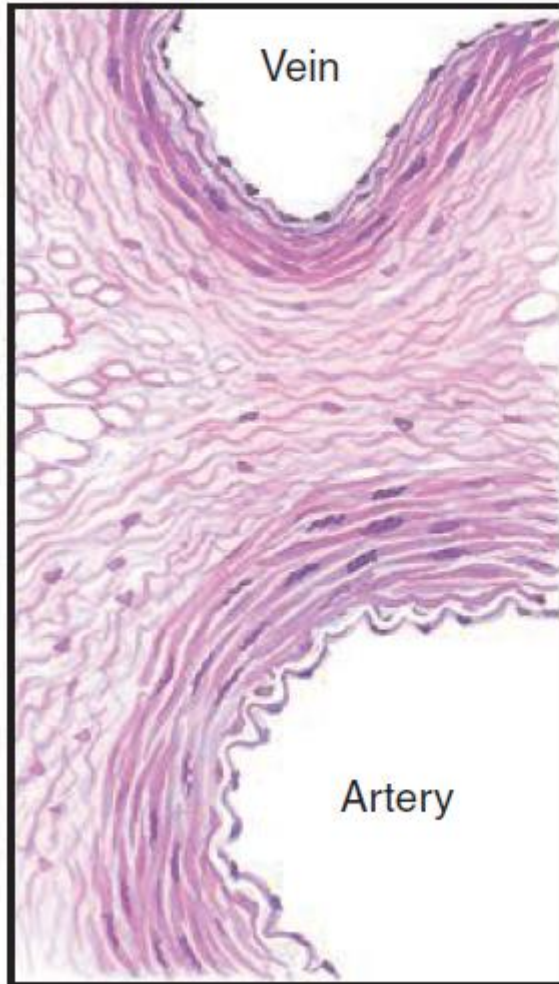


Fig.3: Wall of the aorta, stained for elastic fibers. Note the numerous elastic lamellae in the tunica media.

H & E stain

Orcein stain



- Thinner wall
- Collapsed lumen
- Less muscle fibers
- Less elastic fibers

- Thicker wall
- Round lumen
- Folded intima (due to IEL)
- More muscle fibers
- More elastic fibers
- Prominent internal and external elastic laminae

Fig.4: Diagram showing comparison between muscular artery and accompanying medium vein. H&E shows muscular tissue and collagen fibers. Orcein stain shows elastic fibers.

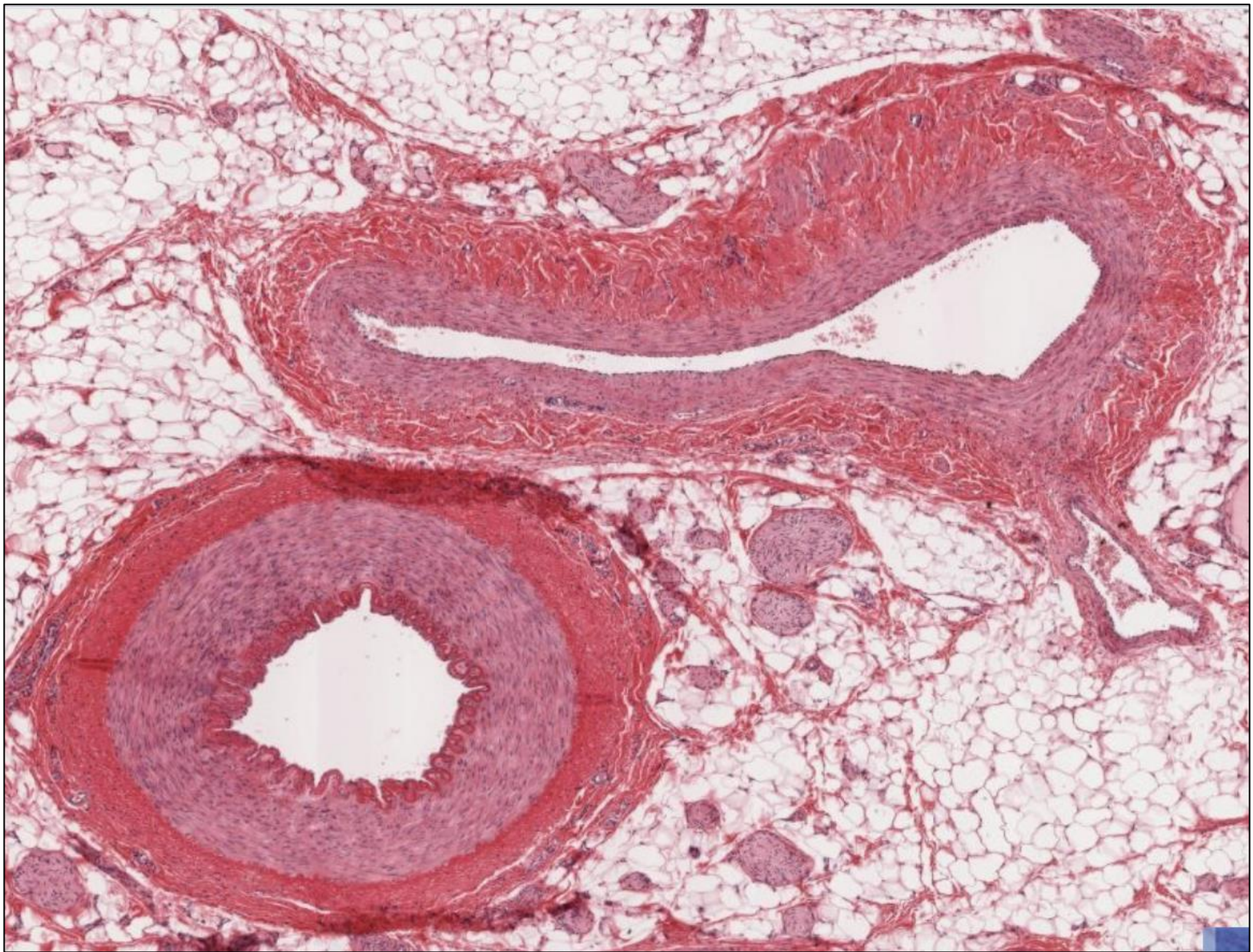


Fig.5: Muscular artery and accompanying medium vein.

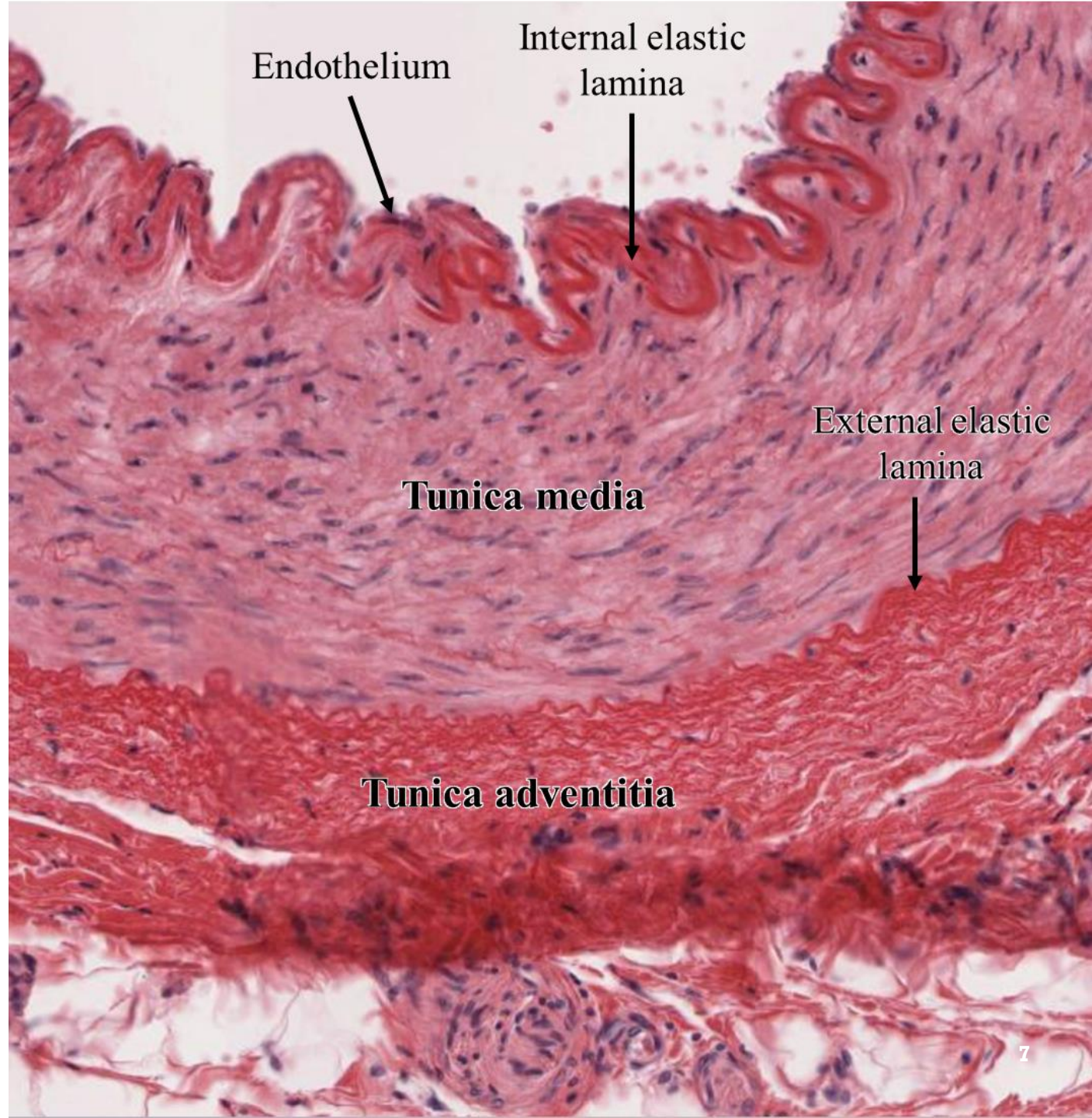


Fig.6: Magnified view of the wall of the muscular artery from previous slide.

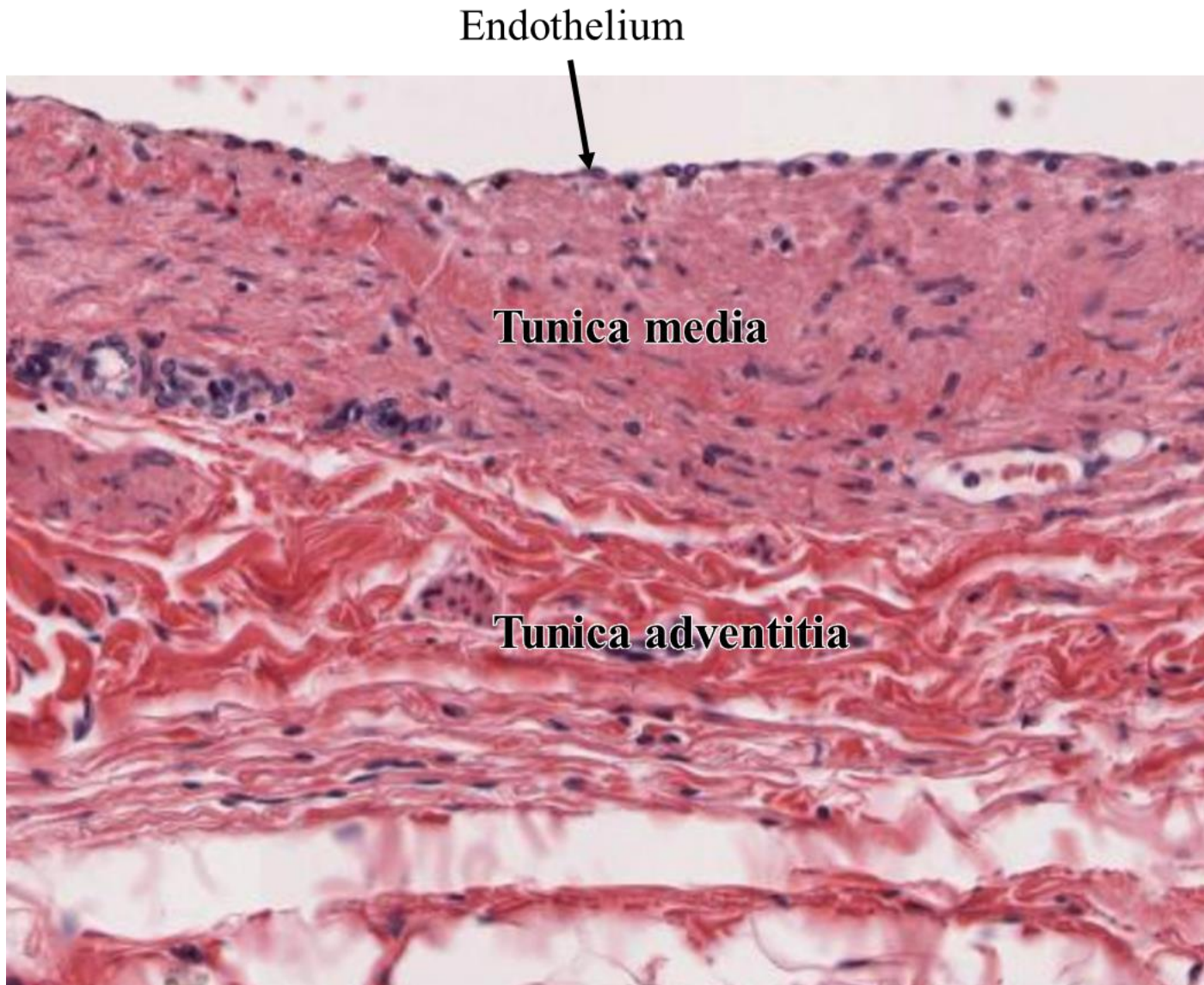


Fig.7: Magnified view of the wall of the medium vein from the previous slide. The media here is thinner than the corresponding artery. The adventitia is the thickest layer.

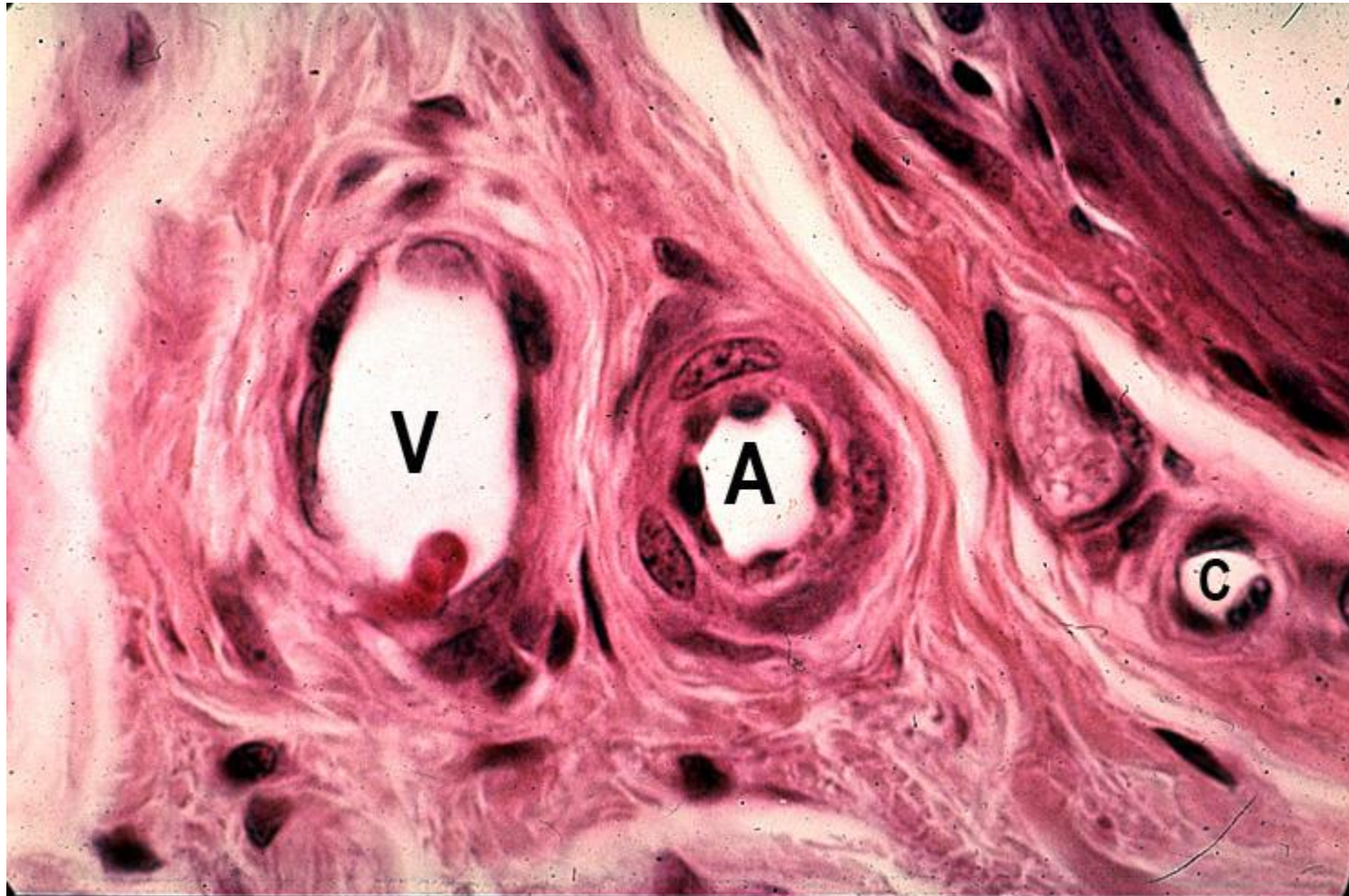


Fig.8: Microvasculature. Arteriole (A) with few muscle layers; capillary (C) formed of endothelium only; and venule (V) with a larger lumen.

Summary:

Arteries:

- Round lumen
- Thicker wall
 - Elastic arteries → numerous elastic laminae in the media
 - Muscular arteries → numerous layers of smooth muscles in the media + prominent IEL and EEL
 - Arterioles → Few smooth muscle layers in the media + no IEL and EEL

Veins:

- Larger collapsed lumen
- Thinner wall
- Valves
 - Best way to differentiate type of vein is to look for accompanying artery