

# Structure and Function of Blood Vessels

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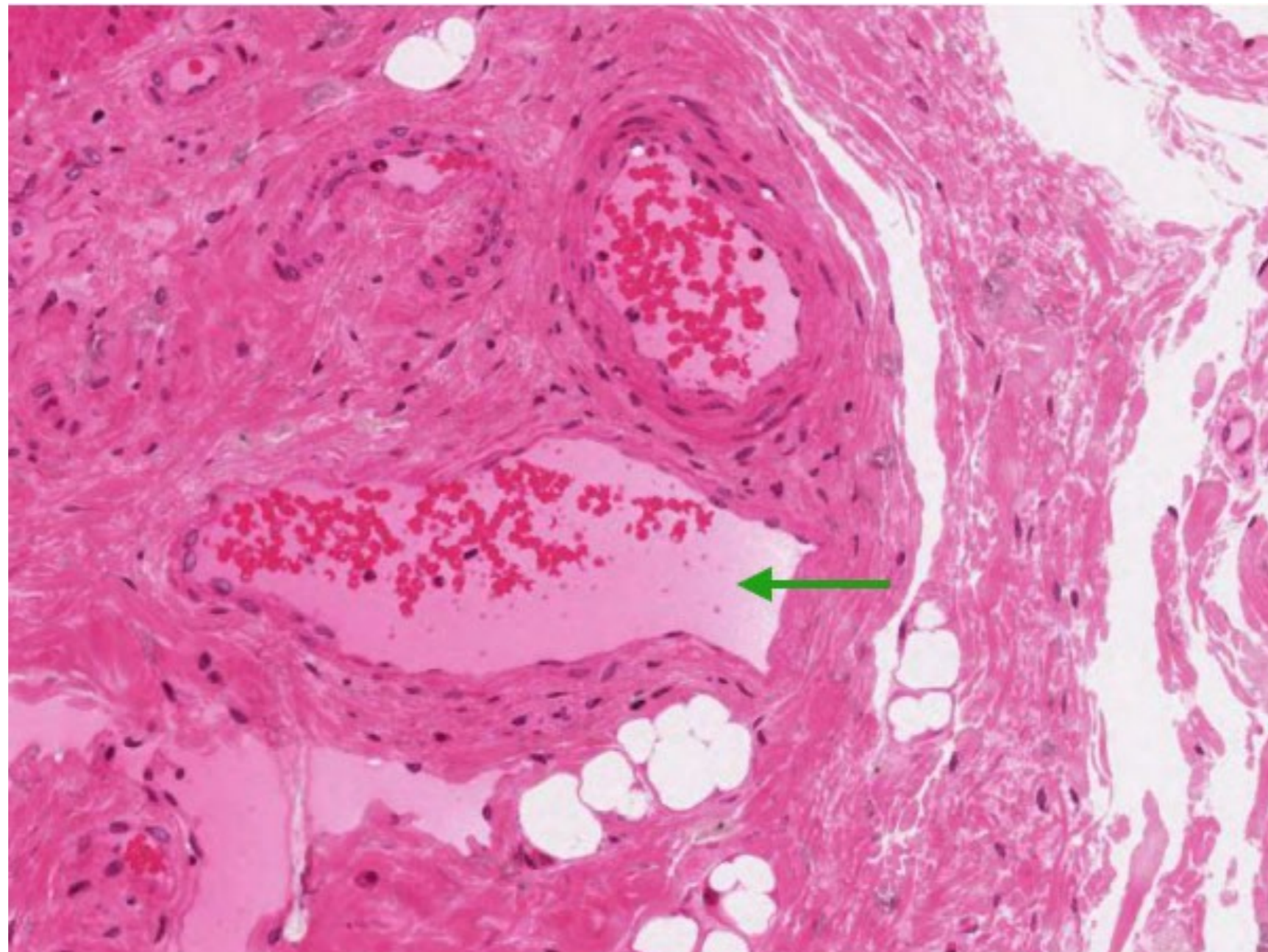
1. Identify the type of the indicated vessel.

A. Small muscular artery

B. Arteriole

C. Venule

D. Lymphatic vessel



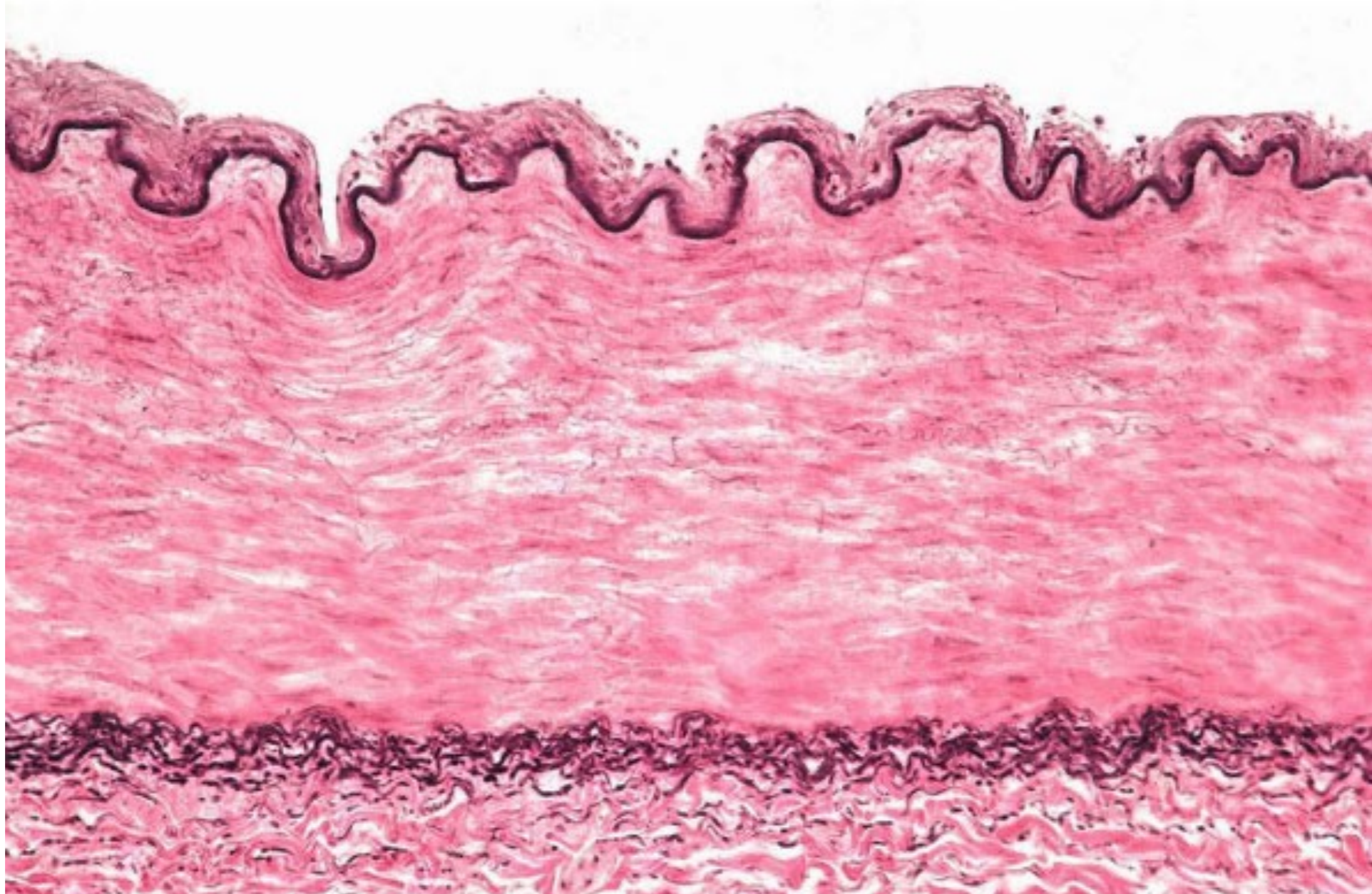
2. Identify from which type of vessel this section came.

A. Muscular artery

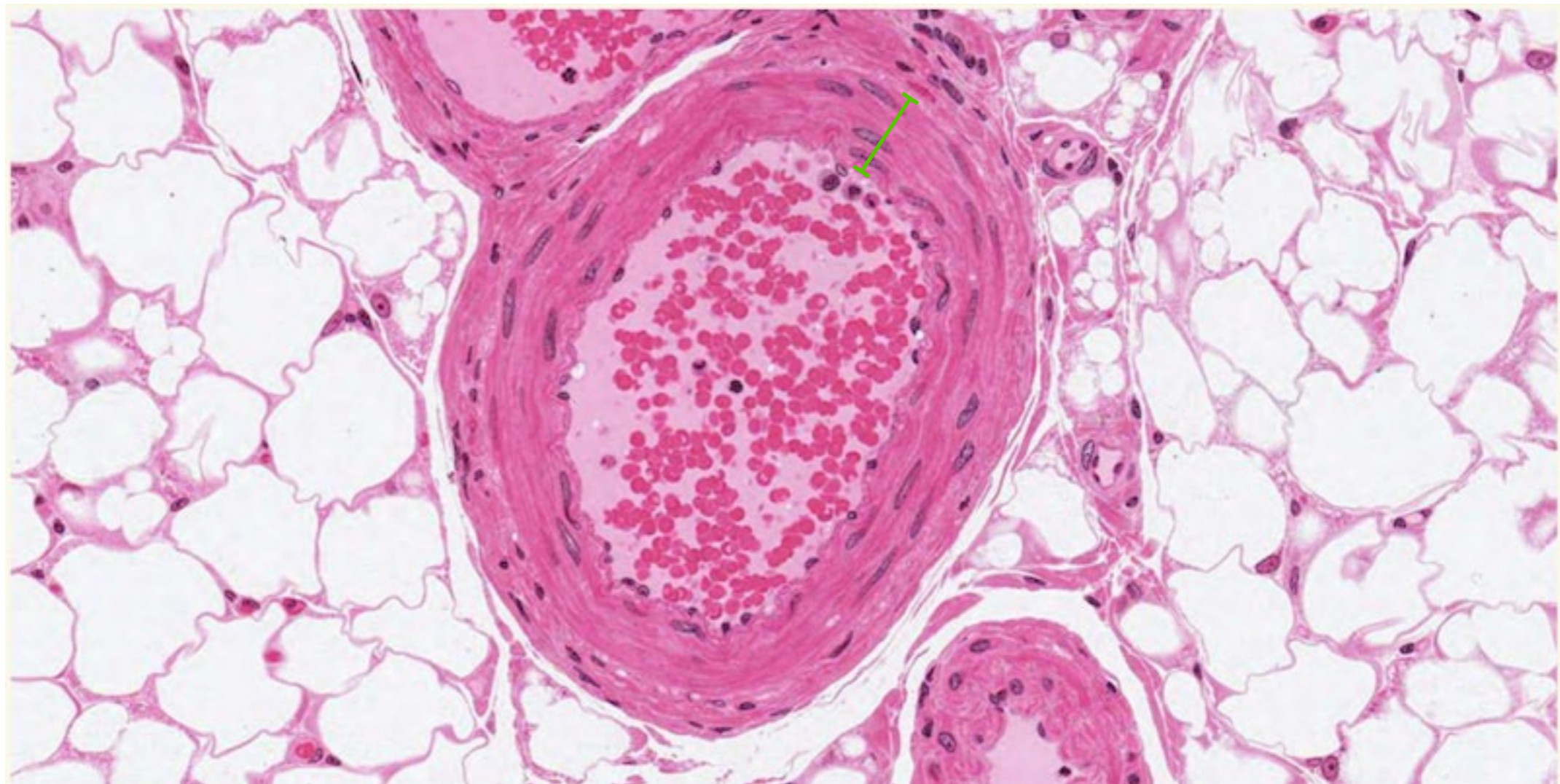
B. Elastic artery

C. Vein

D. Arteriole



3. What is the primary function of the cells in the indicated region?
- A. Restrict passage of solutes
  - B. Control diameter of lumen
  - C. Structural support
  - D. Allow vessel to stretch and recoil



4. Identify the vessel.

- A. Continuous capillary
- B. Fenestrated capillary
- C. Discontinuous capillary
- D. Lymphatic vessel



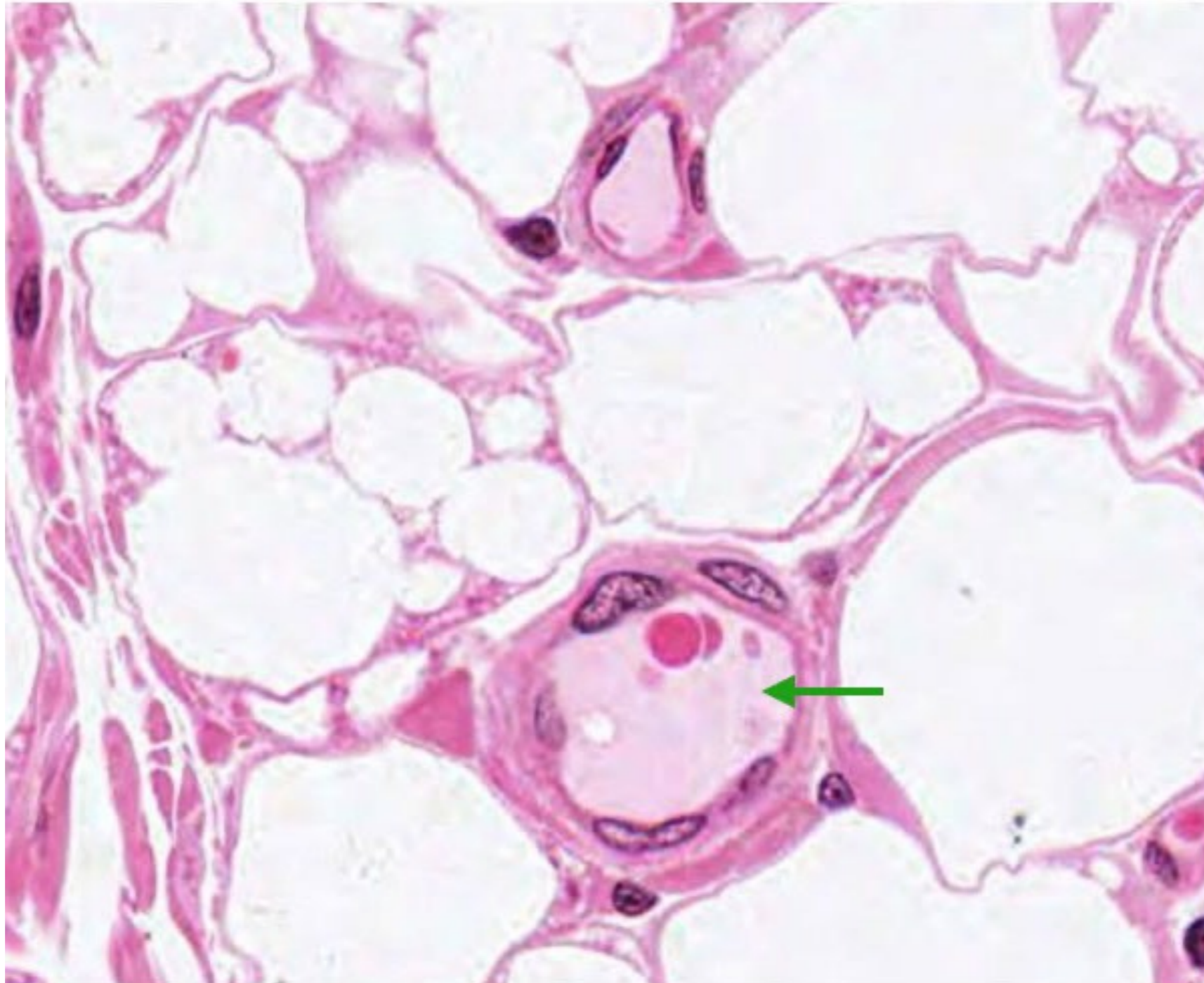
5. Identify the primary function of the indicated vessel.

A. Gas exchange within a tissue

B. Increase vascular resistance in a tissue

C. Control distribution of blood throughout the body

D. Mediate an immune response



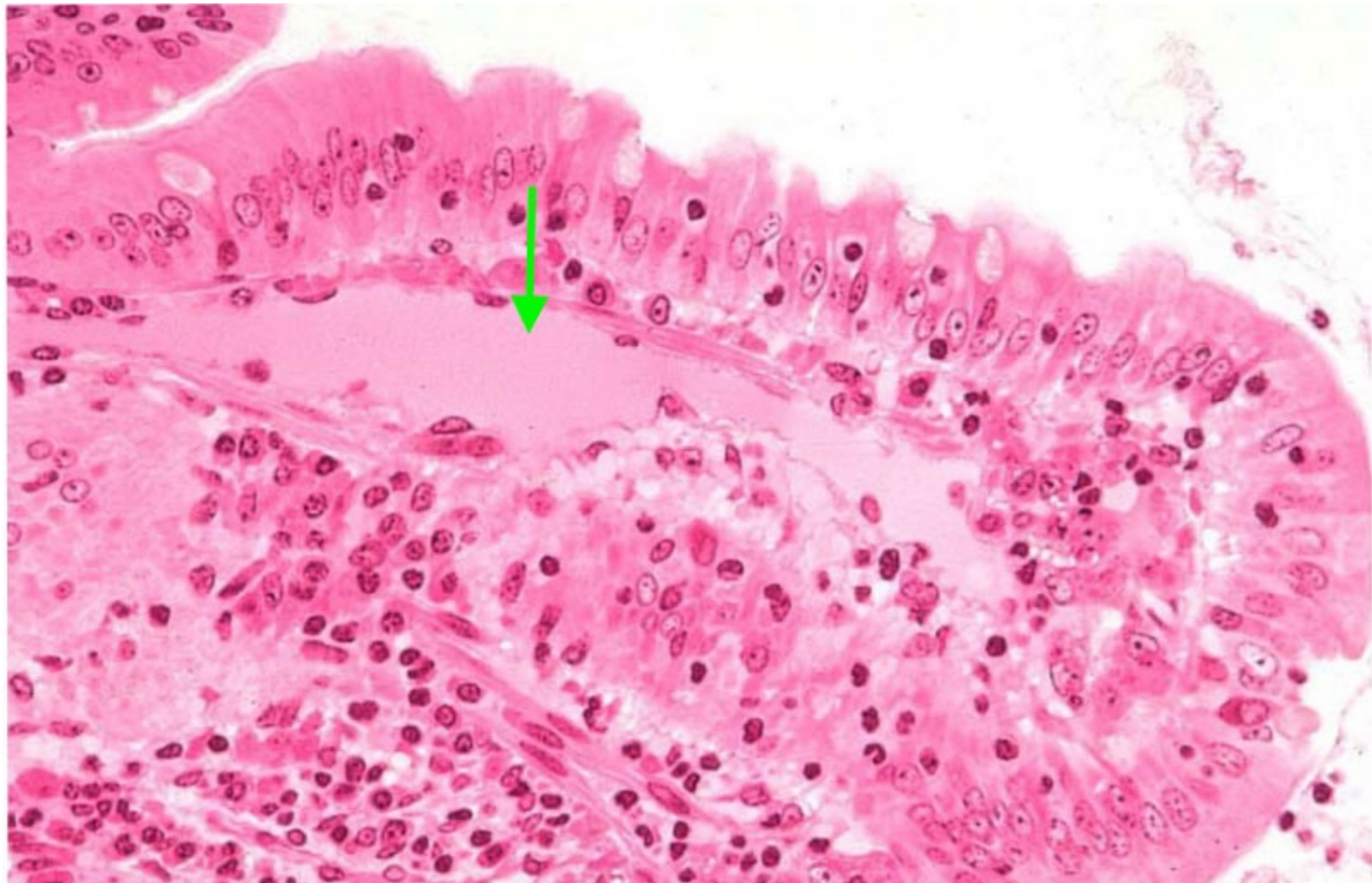
6. Identify the indicated vessel

A. Vein

B. Capillary

C. Arteriole

D. Lymphatic Vessel



7. Beta-cells in the pancreas secrete insulin which enters the blood. Insulin stimulates skeletal muscle and adipose cells to take up glucose. The cells in which tissue or organ below are exposed to the most insulin?

A. Adipose

B. Skeletal muscle

C. Liver

D. Kidney



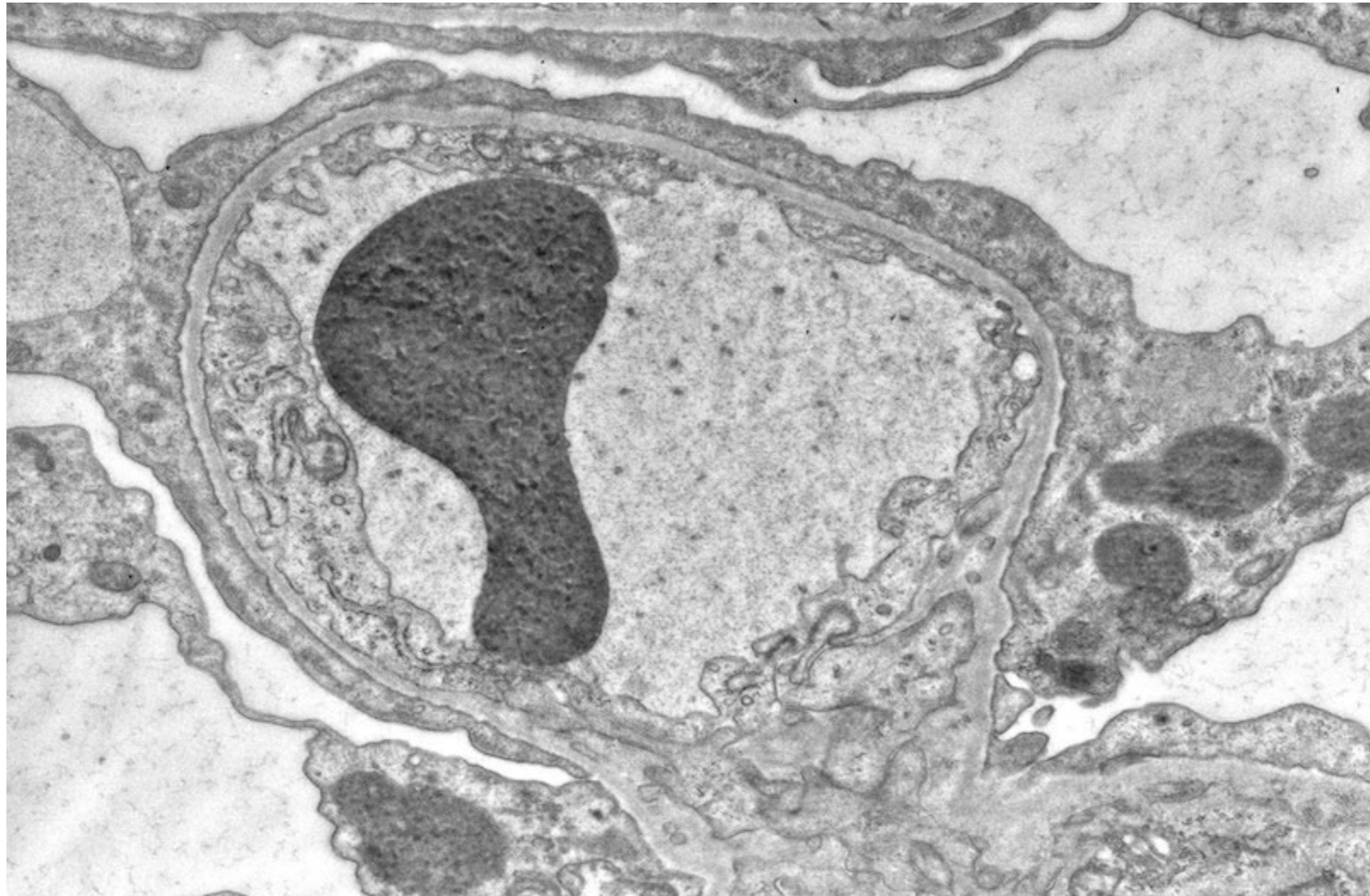
8. Where would you find this type of capillary?

A. Kidney

B. Liver

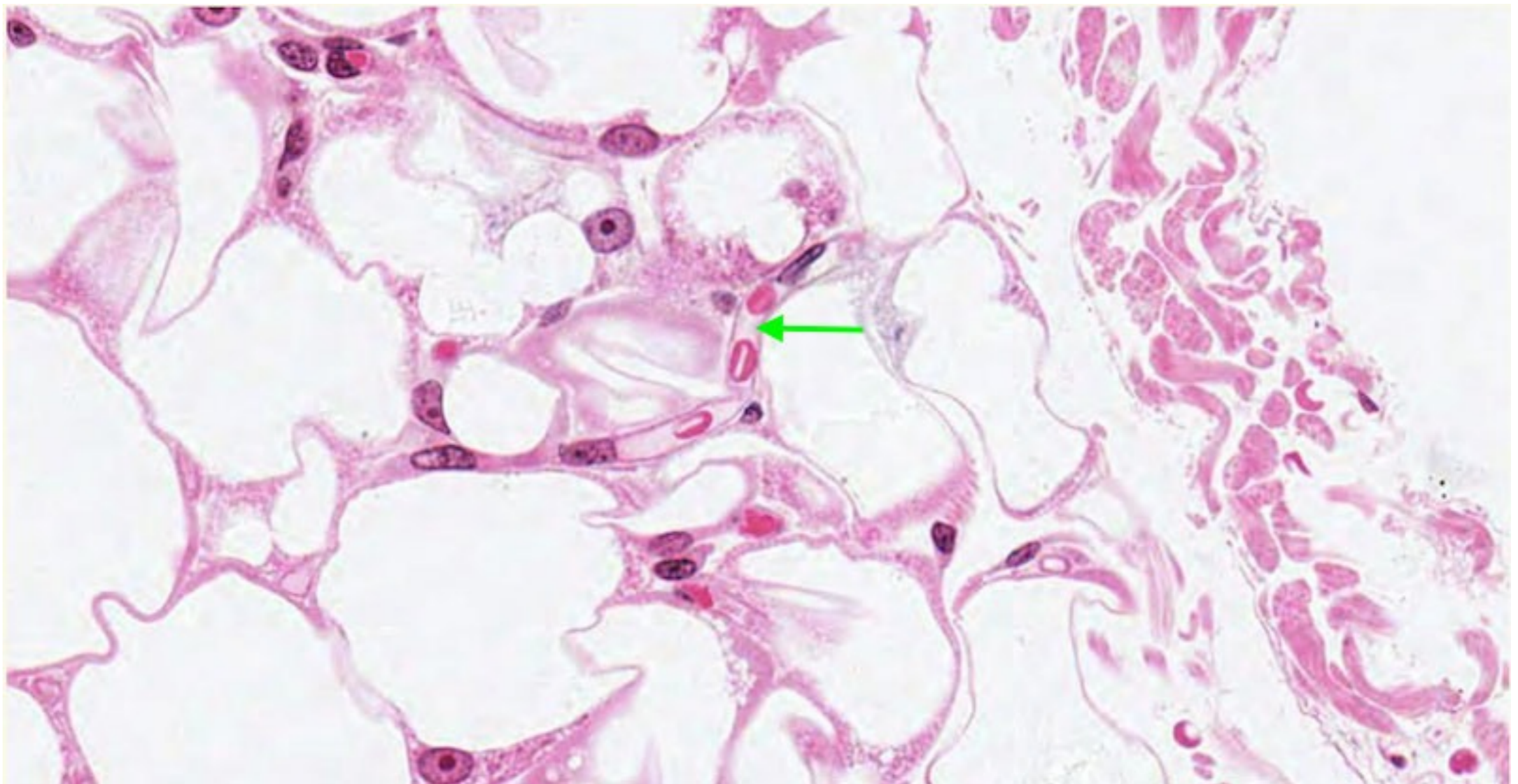
C. Skeletal Muscle

D. Brain



9. Identify the type of blood vessel indicated by the arrow.

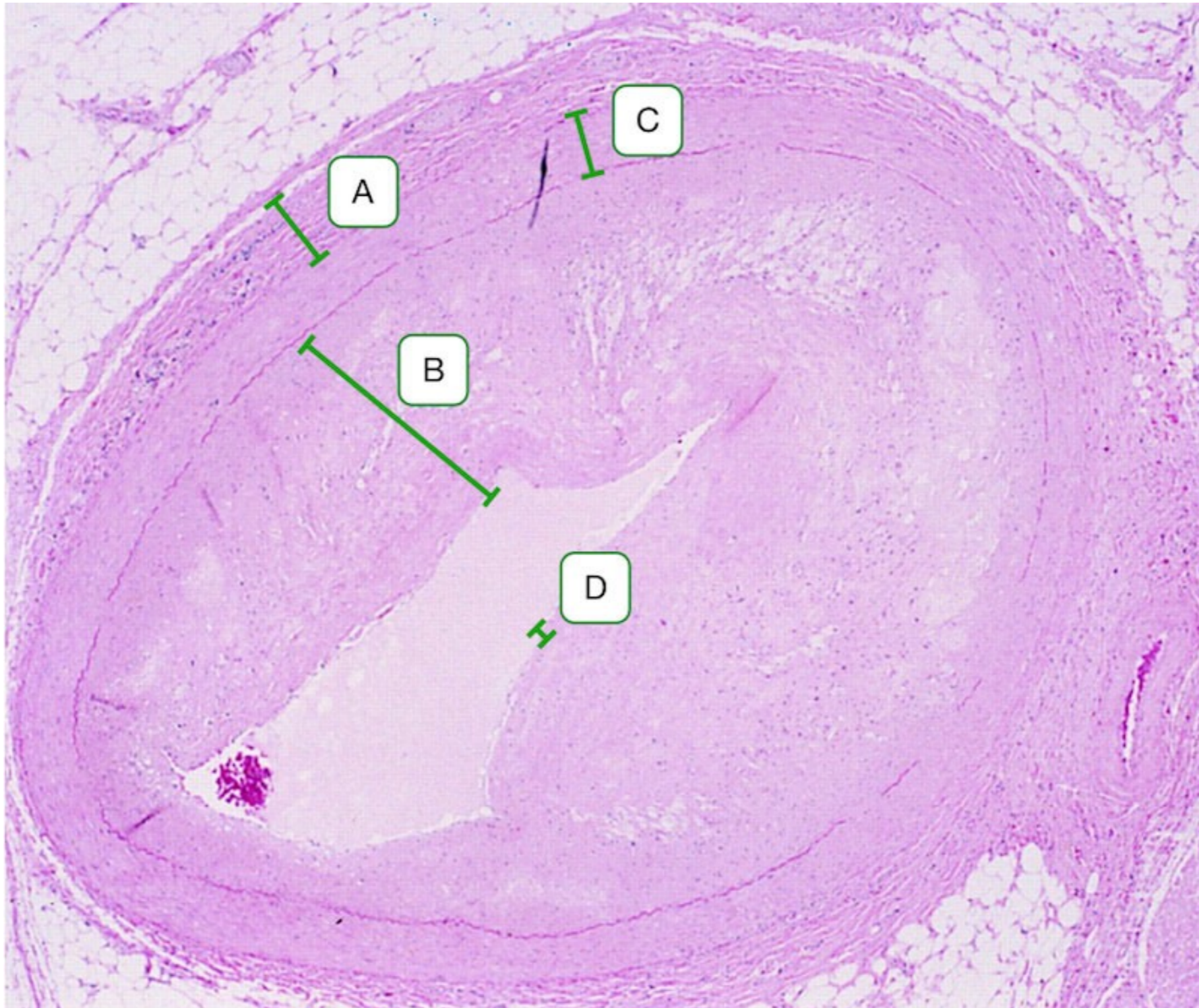
- A. Continuous capillary
- B. Fenestrated capillary
- C. Discontinuous capillary
- D. Lymphatic vessel



8. By which mechanism below could insulin increase its exposure to skeletal muscle?
- A. Relax smooth muscle around venules
  - B. Constrict smooth muscle around venules
  - C. Relax smooth muscle around arterioles
  - D. Constrict smooth muscle around arterioles

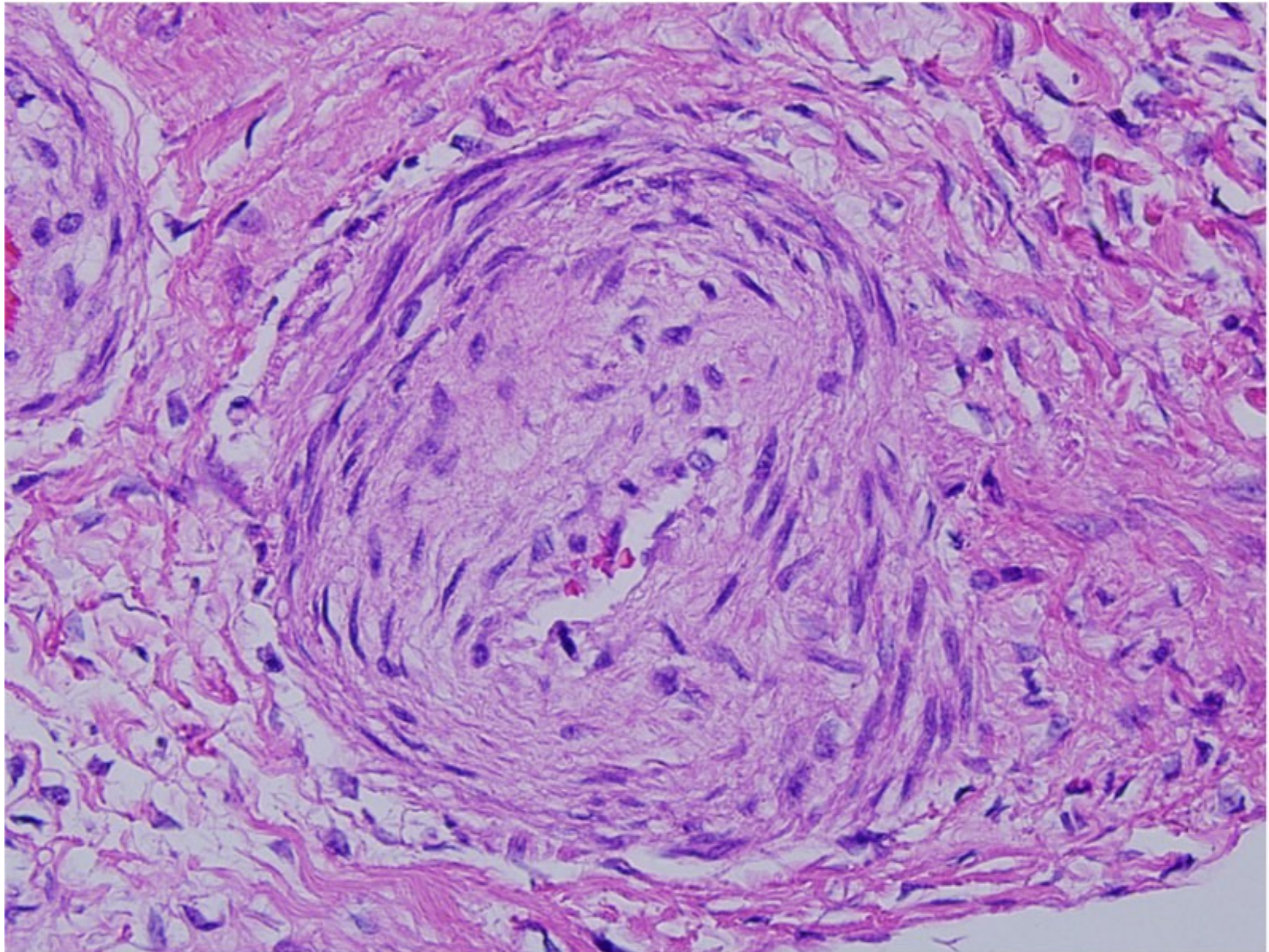
# Application Questions

1. You are given the image below of a coronary artery from a patient who complained of chest pains and asked to identify to the intimal layer of the image. Which section do you choose? What changes, if any, do you observe?



2. A 32 year old patient presents with shortness of breath and fatigue that has worsened over the past several months. A lung biopsy reveals the following image of an artery. Describe any changes you observe in the artery.

Sequence analysis of the patient's genome reveals a mutation in the receptor for bone morphogenetic protein. How might the mutation lead to the changes you observe in the artery?



A patient presents with fatigue and muscle pain in their legs. The skin in their legs is covered by small, hyperpigmented patches. A biopsy reveals the image below. Concerned by the appearance of the blood vessel in the lower right, you examine it at higher magnification. Describe the structural changes you observe.

