MICROSCOPIC STUDY OF THE PANCREAS VASCULAR SYSTEM IN MOUSE

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OBJECTIVES

Study the different structures involved in blood flow regulation of the mouse pancreas at microscopic level.

INTRODUCTION

Understanding the physiology of the pancreas is important to face diseases such as diabetes, which prevalence has increased considerably.

MATERIALS AND METHODS

C57BL/6 mice were euthanized. Thoracic aorta was cannulated and filled with resin (MERCOX ®, Jap. Vilene Co.). The injected specimens were placed in 60ºC soapy water for 24 hours, corroded in 3% KOH for 3 days and washed with water. The casts were sputtered with gold and observed at Scanning electron microscope (5-15kv).

RESULTS

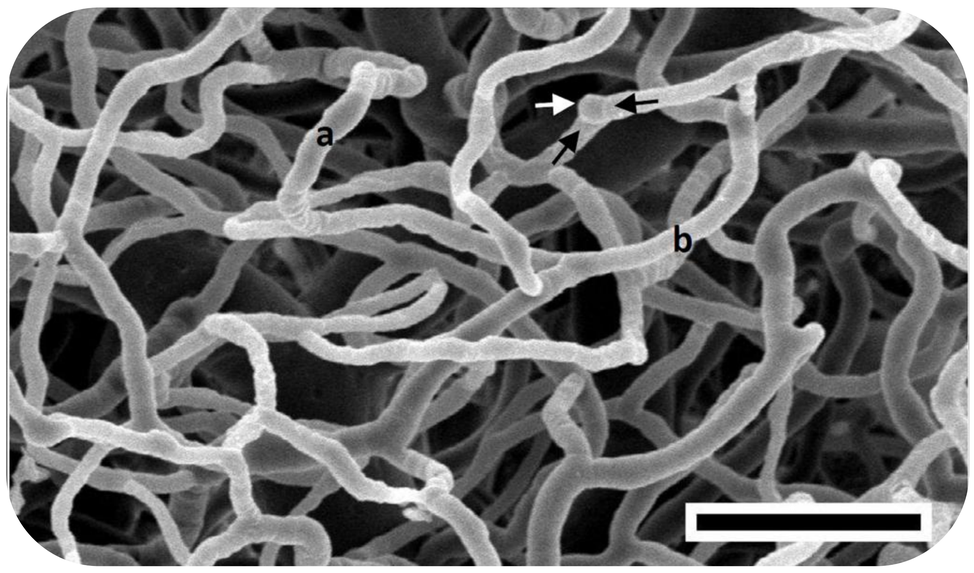

Fig. 1. The casts showed bulges (white arrow) and luminal constrictions near them (black arrows), these formations were called pericytes-like structures. Bar, 50 µm.

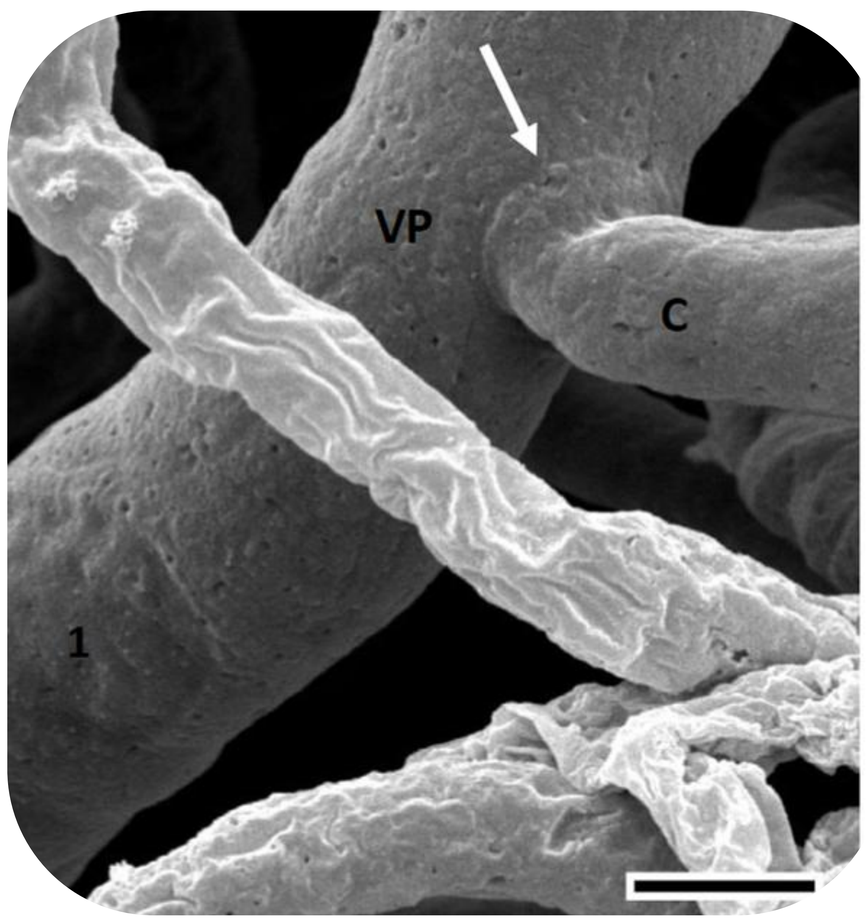

Fig. 2. Luminal constriction (white arrow) at the joining site of larger capillary (C) into a postcapillary venule (VP). Imprint of the nuclear endothelial cell (1). Bar, 5 µm.

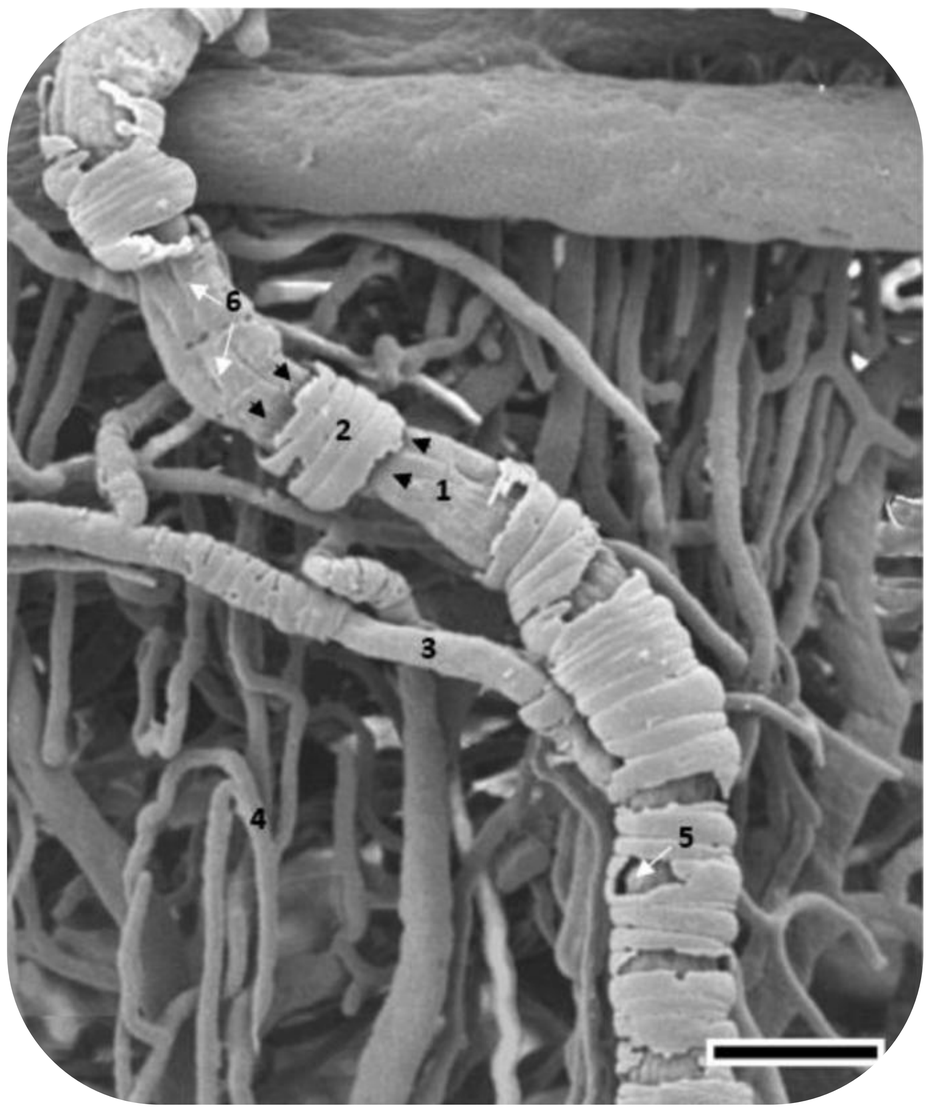

Fig. 3. Arteriole (1) with plastic rings in its surface (2) in terminal arterioles (3) but absent in precapillaries (4). Space between the cast surface and the plastic rings (5), luminal narrowing near them (black arrows), and imprints of the nuclear endothelial cells. Bar, 50 µm.

DISCUSSION

The morphology and distribution of plastic rings and pericyte-like structures is very similar to that of the smooth muscle cells and pericytes classically described. These structures may be formed by the passage of the resin to the subendothelial space trough cell junctions, pushing smooth muscle cells and pericytes and acquiring their morphology (Rodríguez-Baeza et al., 1998).

CONCLUSIONS

There is a connection between the lumen and smooth muscle cells and pericytes. These could reveal a chemical control of these structures and their possible role in the blood flow regulation.

REFERENCES

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