

[Morphology of peripheral nerves, their sheaths, and their vascularization]

[Article in Spanish]

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Abstract

This review aims to update our understanding of peripheral nerves, including the nature and function of their sheaths and, finally, their vascularization. The peripheral nervous system is made up of nerves whose function is to gather stimuli from the periphery as well as to transport the motor, secretory or vegetative responses that are triggered to the periphery. The connective tissue surrounding peripheral nerves all along their extension is made up of endoneurial, perineurial and epineurial. The endoneurium surrounds individual axons, which are grouped in fasciculi, each of which is surrounded by the perineurium and finally, the group of fasciculi that comprise all the axons present in this nerve are surrounded by the epineurium. Axons form an intraneural plexus such that they occupy positions in the various fasciculi along the trajectory of the plexus. The number and size of fasciculi vary along the trajectory of a nerve as a result of the plexus positioning of the axons. Peripheral nerves are richly vascularized throughout their length, with multiple anastomoses forming the intraneural vascular network, which is made up mainly of arterioles, capillaries, postcapillary venules and venules. Regarding the blood-nerve barrier and the existence of capillary permeability: endoneural capillaries have junctions that are stronger than those of the endothelial cells of vessels in the epineurium and perineurium. Two distinct lymph channels networks are present in the peripheral nerve stems and are separated by the perineural barrier. The nervi-nervorum are special nerves of a sympathetic and sensory nature that arise from the nerve itself and the perivascular plexuses.

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