

Anatomical study and clinical implication of perivascular fascia of the radial artery

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The characteristics of the fascial tissue that surround a vascular bundle are rarely described in any anatomical textbook and often neglected in the histological description of a vascular structure. The ability of a vascular structure to adapt to any body movement, to maintain its calibre against external pressure preserving its functional role is guarantee by this perivascular fascia. Wrist ganglions are the most common masses localized on the dorsal and volar aspect of the wrist. The herniation of the synovial sac or a split in the synovial epithelium of the volar wrist joint produce a ganglion that is able to distort and compress the radial artery. Authors present the case of 24 years old man with a mucinous cyst originated from the volar wrist joint that was grown inside the vascular fascia of the radial artery and extended up to the middle portion of the forearm. Clinical sintomatology of pain and tenderness was justify by the temporary partial decrease of the arterial lumen and occlusion of the satellite veins. To better understand the clinical relevance of these fascial tissue a microscopical study of serial sections of the radial artery in 20 cadaveric upper limbs was performed (EE, Azan-Mallory, Weigert). The mean area of the perivascular fascia was 13596,3 mm, the mean minimum and maximum thickness of this area was 73 and 389 micron. The mean thickness of the fibrous tissue of the perivascular fascia was 26,21 micron. During the raising of a forearm pedicled radial artery flap or during the surgical excision of volar wrist ganglions the surgeon has to mobilize the radial artery thanks to the integrity of its perivascular fascia. The fascia surrounding the radial artery and satellite veins represented a inestensive sleeve that compelled the mucinous cyst to grow flattened proximally until its complete erniation and superficial radial nerve dislocation in the middle of the forearm. Other clinical implications of the alteration of the radial perivascular fascia are described.