

Blood Supply of the Symphysis Pubis

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It has been inferred that fibrocartilagenous tissues are avascular structures and when blood vessels are present, they are restricted to the most peripheral portion of the tissue considered [1]. Several works were done to describe blood vessels in these structures. There are vessels in the intervertebral disc [2], knee menisci [3] and in the temporomandibular disc [4] among others. The vascularization of these structures is very rich in animals that are in development. With aging, there is a regression in the number of blood vessels, which leads to a rich vascularization confined to the most peripheral portion of these structures. Since fibrocartilage has no pericondrium, these vessels are the main source of nutrients for fibrocartilage and the main pathway for metabolites drainage [5]. It is generally accepted that the symphysis pubis is an avascular structure. But in 1934, the human symphysis pubis was classified in to periods: one, vascular (development) in which the interpubic space shows a rich vascularization and a second, avascular (adult) where the symphysis shows a very poor vascularization limited to one or two vessels in its periphery [6].

The purpose of our study was to investigate the blood supply of the symphysis pubis during development and in adult age. For this we used Wistar rats as animal model with ages of 30 days (young) and 90 days (adult) of both sexes. Both groups were euthanized with pentobarbital 60mg/kg with heparin 700µl/kg and had their abdominal aorta cannulated. Both were washed with saline solution until the caudal extremities appeared clean of blood. One group was injected with India ink and analyzed under light microscopy. The other was injected with Mercocox® for corrosion casting (maceration with KOH 10%) and analyzed under scanning electron microscopy [7].

We were able to identify a very rich vascularization in the younger group in which blood vessels were present in whole interpubic space and also a rich vascularization restricted to peripheral portion of the symphysis in adult group. There were no differences between sexes. The vessels were originated from the pubic branches of the inferior epigastric and obturator arteries, and formed an authentic articular arterial circle. We propose the name: "Arterial Circle of the Symphysis Pubis". These observations may change not only the prognosis but also the treatment (manual therapy, ultra-sound and exercises) of pubic problems like osteitis pubis and *pubalgiapost partum*.

References

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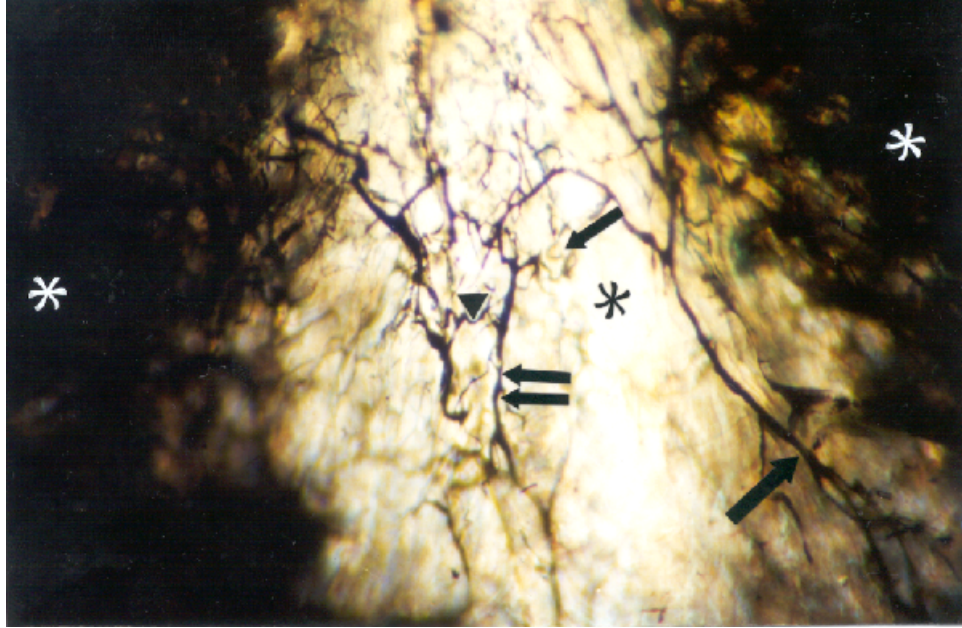


Figure 01: Anterior view of the symphysis pubis of a adult male Wistar rat injected with India Ink. We can observe a large vessel (large arrow) coming from the periphery giving smaller longitudinal branches (double arrows). We can also observe the presence of some anastomotic bridges (arrow head) between these longitudinal branches. The vascularization ends in capillary loops (small arrow) that face the central avascular portion (black *). Pubic Bones (white *). x16.

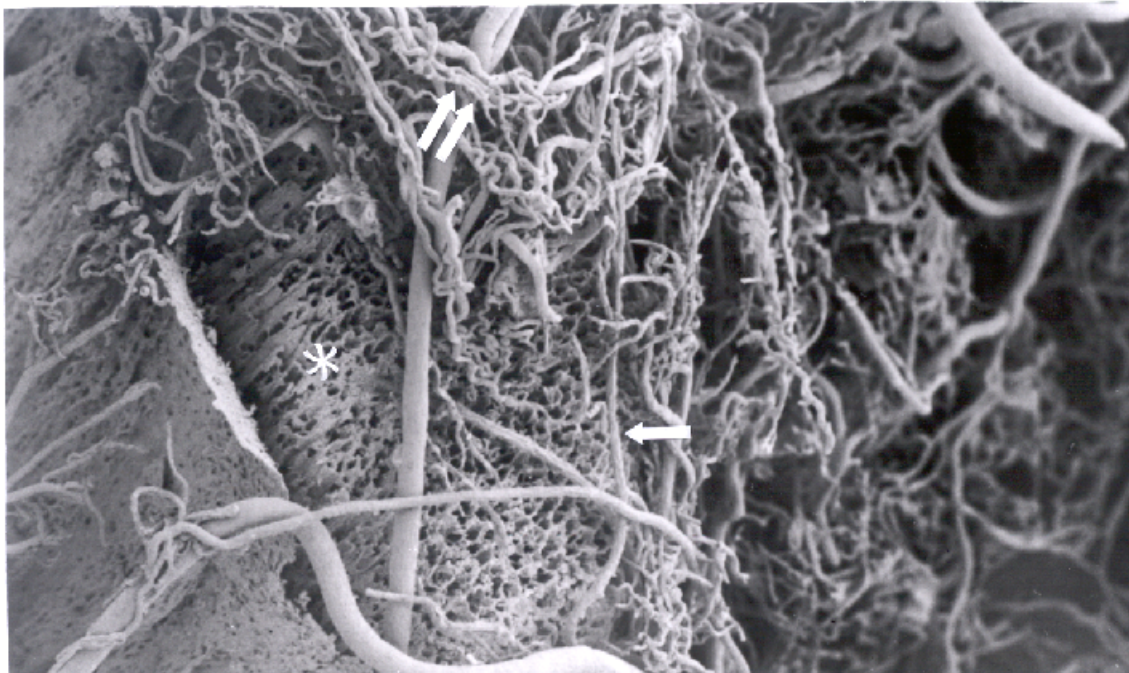


Figure 02: Anterior view of the symphysis pubis of a young male prepared for corrosion casting. The pubic branch of the obturator artery (large arrow) gives longitudinal arterioles (arrows) which finish in a spiraled capillary web (double arrows). Articular surface of the pubic bone (*). x60.