

Morphological characteristics of the wall of pampiniform plexus veins and modifications in patients with varicocele

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SUMMARY

Varicocele, a dilatation of the pampiniform plexus and/or the intrascrotal tract of the internal spermatic veins, is considered as a potential cause of male infertility. The mechanism of varicocele development is yet an object of debate. Aim of the work was to analyse the structure of the internal spermatic veins in 13 normal subjects (mean age: 26 years old) and its modification in 24 subjects with different grades of varicocele (mean age: 25.5 years old) through a morphological study. The presence of apoptotic cells was also evaluated by the terminal deoxynucleotidyl transferase-mediated dUTP nick end-labeling (TUNEL) assay. The wall of the pampiniform plexus veins is constituted by a complex smooth muscle structure, organized in longitudinal bundles of smooth muscle cells within the tunica adventitia (median thickness of 95 μ) and circularly running smooth muscle cells within the tunica media (median thickness of 120 μ). Obliquely running muscle fibers bridge the outer longitudinal bundles of smooth muscle cells and the inner circular smooth muscle layer of the venous wall. The coordinated activity of such muscular structure is responsible for the propulsive mechanism which allows the antigravitational blood flow towards the left renal vein and the inferior vena cava. The reduction of the outer longitudinal and of the intermediate oblique smooth muscle cells, the increase of connective component and decrease of the circular smooth muscle cells of the tunica media are the main morphological changes that can be found in the wall of the spermatic veins of the patients with varicocele.

INTRODUCTION

In the recent literature, renewed attention has been paid on structure and function of the vein walls also with reference to possible implications in pathologies such as the varicocele. Tilki et al. suggested that an antireflux mechanism can be