

CHANGES IN THE EXTRACELLULAR MATRIX PROTEINS OF THE VARICOSE VEIN WALL: A PILOT STUDY OF PATIENTS OF DIFFERENT AGE GROUPS

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Although varicose veins have been studied for decades, there are still many unanswered questions regarding pathogenesis and causes of the disease. Varicosis is not purely a cosmetic problem but compromises a more serious clinical problem indicating to a complex of clinical manifestations. One of the factors influencing the vein wall remodelling is the changes in the extracellular matrix components. The extracellular matrixes include different proteins including collagens, laminin, and elastin [1] and modulations in their structure may lead to altered structure of vein layers.

The aim of this study was to detect expression of the collagen I, II, IV, laminin, and elastin in the wall of varicose veins. Material obtained from 30 patients was analyzed using light microscopy, immunohistochemistry and transmission electron microscopy. Patients undergoing the excision of varicose veins were divided into 3 groups: younger than 35 years (Group I, 10 patients), 36-50 years (Group II, 10 patients), older than 50 years (Group III, 10 patients). 10 patients without varicosities formed the control group.

Results: Studies of varicose veins showed a large variety in the thickness of the layers. Resorcin-fuchsin staining indicated that a larger amount of elastic fibers was found in the varicose veins of group I patients. No significant differences in collagen I expression was seen between different age groups. Concerning collagen IV most significant differences were seen in the intimal layer – the expression decreased in group III as compared to groups I and II. Collagen II was found in the adventitial layer and its expression was increased in the older age groups. Increased level of laminin expression was noted also in the older patients group.

In conclusion, the study demonstrates that the primary factor for formation of varicosis may be related to the structural changes of extracellular matrix proteins.

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References

[1]. Xu J, Shi GP. Vascular wall extracellular matrix proteins and vascular diseases. *Biochim Biophys Acta*, **1842**, 2106-2119 (2014).