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JOURNAL ARTICLE

Testicular hemodynamic changes after the surgical creation of a varicocele in the rat. Intravital microscopic observations

H. M. Nagler, E. F. Lizza, S. D. House, P. Tomashefsky and H. H. Lipowsky

Department of Urology, Columbia University, New York, New York 10032.

The present study investigated the effect of a surgically induced varicocele on the dynamics of testicular blood flow. The surface vasculature of the normal and the varicocele-affected testis was examined utilizing intravital epi-illumination microscopy. Application of this technique to the study of the varicocele is new. Blood flow characteristics in surface veins were studied as the surface temperature of the testis was varied. Periodic, reproducible stoppages in blood flow, determined by direct observation of the red blood cells, were seen in seven of eight sham animals at the lower temperatures. These stoppages were abolished and blood flow increased at higher temperatures; stoppages reappeared at lower temperatures. The periodic stoppages were present in only one of eight rats with a proven varicocele (P less than 0.025) at any temperature studied. This loss of blood flow regulation may be the result of a loss of testicular arteriolar tone and may explain the increase in testicular blood flow and temperature elevation observed in association with a varicocele. These findings may provide new insights into the pathophysiology of the varicocele and highlight the need to study the microvascular sequelae of this vascular abnormality.

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