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JOURNAL ARTICLE

Testicular intravascular volume and microvessel mitotic activity: effect of experimental varicocele

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Testicular blood flow increases bilaterally in animals with experimental left varicocele (ELV). The present experiments were undertaken to determine if increases in testicular intravascular volume and capillary growth were potential contributors to this increase in flow. Testicular intravascular volume (microliters/g) was estimated by determining testicular vascular 125I-albumin space. Microvessel mitotic activity was estimated by examining 3H-thymidine incorporation into endothelial nuclei, as assayed by silver grain localization over microvessel endothelial nuclei after exposure of testes to 3H-thymidine in vivo. Testicular intravascular volume was 25-30 microliters/g testis in control testes and in ELV animals was increased an average of 9% and 28% in right and left testes, respectively. This increase was statistically significant ($P < 0.05$) on the left side only. Approximately 1.5-2.0% of testicular microvessel endothelial nuclei exhibited silver grain localization, and ELV was not associated with a change in these values in either right or left testis. Ancillary, there was a modest but significant association between microvessel mitotic activity and mitotic activity in adjacent seminiferous tubules. It was concluded that bilateral increases in testicular blood flow after ELV are not uniquely the result of bilateral expansion of intravascular volume and growth of the testicular capillaries. It is speculated, however, that mitogenic factors from the seminiferous tubules potentially affect mitotic activity of the adjacent microvasculature.

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