The varicocele as related to fertility

Martin Kathrins, M.D.

Division of Urology, Brigham and Women's Hospital, Boston, Massachusetts

Brown JS, Dubin L, Hotchkiss RS. The varicocele as related to fertility. Fertil Steril 1967;18:46-56.

"The fact that some men with varicoceles are fertile should not minimize the potentially detrimental role of this abnormality. It would be reasonable to claim that varicocele is uniformly detrimental. One might postulate that a fertile man with a varicocele would have better semen without this condition."

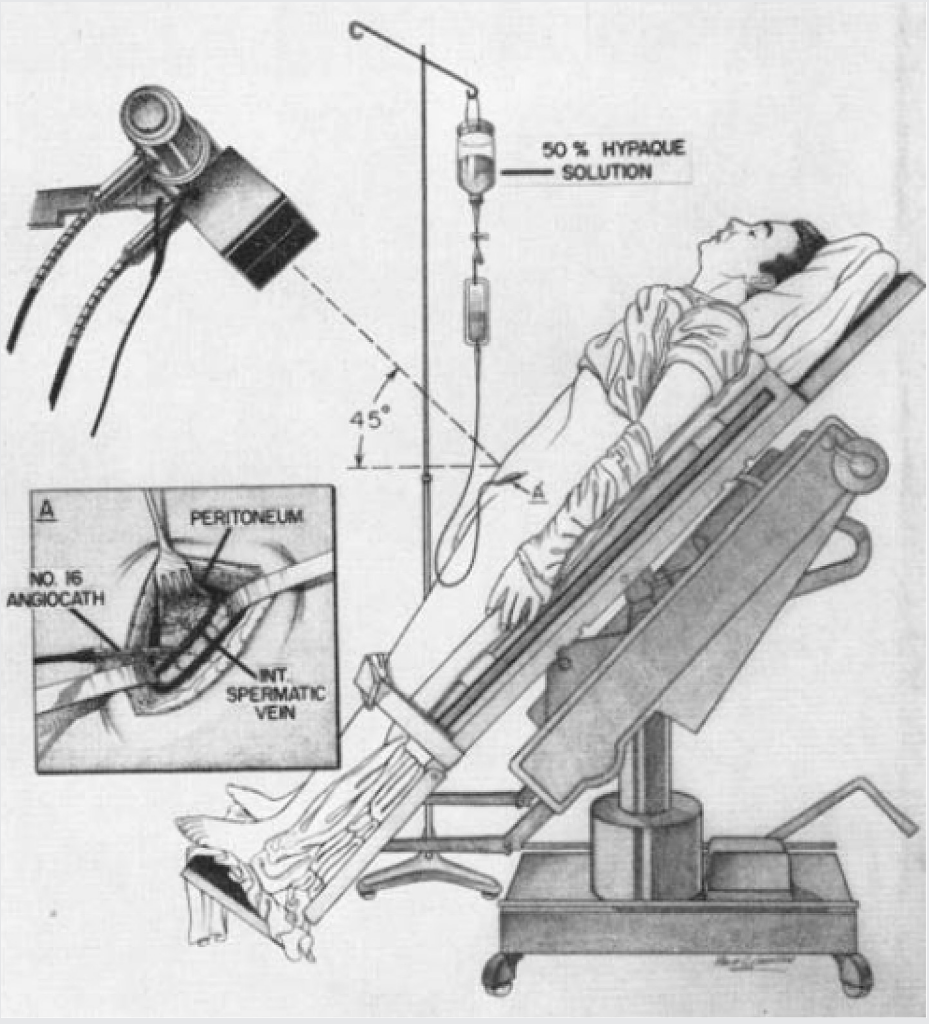
It is difficult to imagine a time when the entire body of high-quality literature concerning the fertility effects of varicoceles, a topic which has generated mountains of scientific data of late, could be crammed into a brief introductory paragraph. Yet, in 1967 Dr. Robert Hotchkiss and colleagues (1) did just that. While our first retrospective one year ago began with Dr. John MacLeod (2), we begin this year with his long-time collaborator and fellow pioneer in the field of male reproductive medicine: Dr. Hotchkiss. His earned stature is no better illustrated than during the nascent years of varicocele investigation. Here, Dr. Hotchkiss and colleagues presented their investigation into the anatomic aberrancies of the internal spermatic vein as they contribute to varicoceles.

The authors performed venography of the internal spermatic vein—both antegrade and retrograde—in men with and without varicoceles. It never ceases to amaze that the latter population was subjected to such an invasive test in the name of clinical science, without the need to indicate institutional review board approval. This disconcerting feeling is only exacerbated by the apparently blissful countenance of the subject with no outwards signs of a general anesthetic, while tolerating the testing (Fig. 1). Regardless, the authors helped to firmly establish the facts that many male reproductive specialists, myself included, find themselves telling their patients: the internal spermatic vein insertion on the left and right, respectively, are different and predispose to the left-sided varicocele predominance; incompetence of the valves within the internal spermatic vein are seen in men with varicocele (if you squint very hard at the included radiographs included in the original manuscript, you can appreciate the differences); and there is contralateral communication between the respective venous systems. There are also results which some of us might have been previously unaware: men with bilateral varicoceles harbor an aberrant insertion of the right internal spermatic vein directly into the right renal vein instead of the vena cava; the entire venous system of the ipsilateral scrotum is dilated in the presence of a varicocele; and the vasal and cremasteric veins contain normal valve structure even in the setting of a varicocele.

The authors' findings help us revisit some of our own modern controversies when it comes to varicocelectomy. Their concluding postulation on the causal relationships between varicoceles and infertility—be they thermal, toxin/metabolic, or venous stasis effects—look eerily similar to our contemporary hypotheses. Venography was ultimately eclipsed by a simple physical examination and, when uncertain, scrotal ultrasound, just as the Whittaker test for renal obstruction was made extinct by the nuclear renal scan. However, attention should still be paid to the simple fact that the men here were reclined 45 degrees while undergoing venography (Fig. 1). That same consideration for the pathophysiology of varicoceles cannot be applied to many modern scrotal ultrasound studies that only evaluate men while recumbent, thereby incompletely evaluating for a varicocele. Interestingly, the authors did not comment on the implications of retrograde venous flow in the absence of a palpable varicocele—what we know as the not-to-be-surgically-touched sub-clinical

http://dx.doi.org/10.1016/j.fertnstert.2016.10.018

FIGURE 1



Internal spermatic venography.

Kathrins. Early anatomic investigations into varicoceles. Fertil Steril 2016.

varicocele (3). Certainly the radiographs presented in the original article (1)—even allowing for the technical limitations of the time—are somewhat difficult to understand and the reader must trust in the original explanation. However, there is no one more dependable than Dr. Hotchkiss to interpret them, upon whose foundational work so many of us already rely on.

REFERENCES

1. Brown JS, Dubin L, Hotchkiss RS. The varicocele as related to fertility. Fertil Steril 1967;18:46–56.
2. Kathrins M. Initial investigations into the hormonal basis of spermatogenesis. Fertil Steril 2016;105:44.
3. Yamamoto M, Hibi H, Hirata Y, Miyake K, Ishigaki T. Effect of varicocelectomy on sperm parameters and pregnancy rate in patients with subclinical varicocele: A randomized prospective controlled study. J Urol 1996;155:1636–8.