

Editorial Comment on Salvaging Penile Venous Stripping Surgery by Hsu et al.

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Hsu et al, 2009 reported on re-do “venous stripping” for men with venous occlusive problems. The 16 patients in the study had undergone prior venous surgery that ended with penile deformities and no improvement in their ED. The re-do procedures lasted 5.2-8.5 hours and required approximately 125 ligations/case. This procedure was similar to the vaso-occlusive technique that these authors used on men with ED without deformities (Hsu et al, 2006).

Intuitively, this meticulous approach may be necessary to correct the fibrotic deformities of the penis, but the role of vaso-occlusive surgery for the treatment of ED remains confusing and worthy of further discussion.

Hsu et al, 2009 cited older reports of single vein ligations (deep dorsal vein), and others involving multiple veins. However, the AUA Guidelines for the treatment of organic erectile dysfunction noted that the outcome data were insufficient to recommend these procedures, and suggested venous surgery was best suited for a research setting (Montague et al,1997). Lewis et al, 1995 presented a comprehensive review of the literature that confirmed variable results with venous ligation surgery, and Freedman et al,1993 noted that only 24% of men who had venous ligation surgery were capable of normal intercourse 1 year later.

Despite these negative reports, it seems fair to say that the article by Hsu et al, 2009 represents a “pure” study of veno-occlusive surgery. None of the men in the study group had diabetes, hypertension, hormonal insufficiency or trauma related ED. The arterial pulse function of these men was normal, based on the results of a PGE-1 injection. Following the venous stripping: 5 reported natural coitus, 6 required PDE-5s and 1 used ICI. Two men remained impotent and 2 had penile implants. The mean IIEF-5 scores for 13 men were significantly increased from 9.1 pre-op to 17.4 post-op ($p < 0.001$). However, this unique study group may not relate to most patients in ED clinics with co-morbidities that may contribute to the pathophysiology of the veno-occlusive process.

For example, diabetes may lead to hypoxia and increased apoptosis of endothelial cells with increased collagen deposits in the veins (Moreland,1998), hypertension may effect the release of TGF-Beta₁ and VEGF and alter smooth muscle/connective tissue balance (Costa et al, 2009) and low

testosterone may weaken the penile veins and the tunica albuginea (Shafik et al,2007). Thus, the benefits of a lengthy and tedious surgical procedure like “venous stripping” maybe undermined by the molecular effects of the co-morbidities in a more general population of men with ED.

Other simple and permanent therapies have been considered for men with veno-occlusive problems before extensive surgery. Lue, 1998 classified veno-occlusive disorders in 5 categories, and routinely used a soft rubber band in association with ICIs before recommending surgery. In a separate report, Marmar,1997 used a constriction ring alone on 49 men with veno-occlusive problems and 30 potent controls. Among the patient group, 37 of 41 (90.2%) reported improvement in the firmness while using the ring, and noted an increase in the frequency of intercourse. In other studies, a vacuum devise and ring has been used to salvage a poor erection following an ICI (McMahon,1997;Marmar et al,1999), and an “Actis “band led to improved results with intra urethral alprostadil (Shabsigh et al,2000). For more permanent results, penile implants have been used by Hsu et al, 2009 and others.

So, how should surgeons view “vein stripping procedures”? On post op cavernosography, Hsu et al, 2009 showed that 5 men had no veins and 9 had only limited residual veins. These data suggest that stripping of penile veins to the surface of the tunica albuginea can eliminate or restrict venous leakage, but the post op IIEF5 scores were still below 21, or the threshold score usually considered for penetration. In contrast, Cakan et al, 2004 performed limited deep dorsal vein ligations for veno-occlusive ED. There was no attempt to correct the crural veins. Favorable outcomes were considered to be spontaneous erections or response to ICIs, but the best results in this study were among non smokers, <40, without diabetes, ED < 2 yrs and with distal leakage. These data suggested that long term results even for limited surgery probably depends on careful patient selection. Nevertheless, side effects from the surgery were reported in this study that included infection, penile numbness and deformity.

Where does “vein stripping” go from here? If Hsu et al,2009 procedure has advantages, it must be reproduced at other centers and by other surgeons, but other innovative new treatment options may be applicable before surgery. Yassin et al, 2006 used testosterone undecaonoate to restore weakness in the tunica albuginea, and other very exciting therapies have been described experimentally such as the intracavernous injection of VEGF (Rogers et al,2003) and gene therapy for ED (Lau,2007). In conclusion, “vein stripping” at this point is a unique surgical procedure that may have clinical benefits for selected patients, and Hsu et al, 2009 have presented several hypotheses that have renewed interest in the pathophysiology and treatment of veno-occlusive ED.

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