Journal of Andrology, Vol. 27, No. 4, July/August 2006

Vasal Reconstruction Above the Internal Inguinal Ring: What Are the Options?

Androlog Summary

WILLIAM CLINTON KRAMER AND
RANDALL B. MEACHAM

From the Division of Urology, University of Colorado School of Medicine, Denver, Colorado.

Note: Postings to *Androlog* have been lightly edited before publication.

Although the majority of vasal reconstruction procedures are performed to reverse a previous vasectomy, correction of iatrogenic vassal injury is another indication for vasovasostomy. The most commonly encountered scenario is inadvertent injury to the vas that occurs during inguinal hernia repair. Such injury may occur in either the adult or pediatric patient. With the advent of laparoscopic hernia repair, the potential for vassal injury occurring during that procedure has become a consideration. Additionally, patients may elect to undergo laparoscopic vasectomy at the time of laparoscopic hernia repair, posing unique considerations in regard to vasectomy reversal. In this edition of "From Androlog," Dr Jay Sandlow describes a patient who previously underwent bilateral laparoscopic vasectomy and is now enquiring about fertility options.

Dr Jay Sandlow describes his patient as follows:

> I have a patient that had a bilateral laparoscopic vasectomy performed at the time of his laparoscopic hernia repair (also bilateral). He now desires a vasectomy reversal. Has anyone had any experience with this? My first impression is that this is not correctable. I have offered him sperm aspiration, although in vitro fertilization is not financially feasible. They are considering vasal aspiration with possible intrauterine insemination, realizing that the chances are quite low. Any suggestions?

Dr Jon Pryor comments on the technical difficulties involved in performing a vasectomy reversal after laparoscopic vasectomy but suggests that it is, indeed, feasible and offers technical suggestions.

> Performing a vasectomy reversal when the vas is transected beyond the internal ring can be done, but it's a challenge. The key is to use long microsurgical instruments, such as what is used for doing a tuboplasty in women. I have done this a couple of times using the modified 2-layer approach and just can't imagine doing a strict 2-layer anastomosis. In addition, if it is just too much of a challenge placing the mucosal sutures, consider inserting a 2–3-cm 3-0 chromic suture as a stent and then place 3–4 seromuscular sutures to tack the 2 ends together. The chromic stent will dissolve but should maintain patency of the anastomosis. Good luck.

Dr Eugene Fuchs describes his experience in performing vassal reconstruction for a patient in whom a vasectomy performed above the internal inguinal ring had been done at the time of open inguinal hernia repair.

> Regarding Jay Sandlow's question about reversing a vasectomy that had been done during a bilateral laparoscopic hernia repair: I have explored a couple of men whose vasectomy had been done during an open hernia repair and in whom I found that, on a least 1 side, the vasectomy had been done above the internal inguinal ring. The vasovasostomy was easily accomplished in each case. However, I could imagine it to be difficult if a long segment of vas had been removed.

Gerry Mathews adds to the discussion, suggesting the potential for mobilizing the retroperitoneal vas via a laparoscopic approach to allow anastomosis to the scrotal segment.

> I have been waiting for a case like this (high vasal obstruction). I think it would be interesting to attempt a laparascopically assisted vasovasostomy. I would have the laparascopic surgeon mobilize the retroperitoneal vas deferens (as one would do for an ochidopexy), poke it through the external ring (place a clamp via the scrotum or scrotal incision into the floor of the inguinal canal at the external ring and cut down onto it), and perform the vasovasostomy in the scrotum. There should be sufficient testicular remnant length. Alternatively, one could mobilize the vas via suprapubic retroperitoneal approach if laparascopic mobilization was not possible. Primary vasovasostomy at the level of the internal ring is quite difficult and even more so in the presence of mesh. Good luck.

Larry Ross contributes, offering additional technical suggestions and describing his own experience with the repair of iatric vassal injuries. Dr Ross had the following response to Dr Sandlow's question about laparoscopic vasectomy.

> If the vas was simply cut and clipped/ligated, you could do vasovasostomy. However, you would have to approach the vas via an intra-abdominal incision. You might also be able to reach the vasa via bilateral Gibson

DOI: 10.2164/jandrol.06031

incisions or a Pfanenstiel incision and remain extraperitoneal. The factors determining success are no different than with scrotal surgery (interval since vasectomy, length of missing vas, et cetera). The major issue is the need for a more extensive surgical approach. I have done several such repairs resulting from postherniorraphy iatrogenic vasal injury. The major reason for failure in such cases in my experience has been the inadvertent excision of a long length of vas precluding reanastomosis.

Joel Marmar provides a nice description of his technique for repairing the vas deferens that has been compromised during inguinal hernia repair.

I have had several cases that involved a vasovasostomy after an inguinal hernia repair, and I have used several techniques to fix the problem. However, the technique that I currently use should be applicable to laparoscopic hernia repair. Based on experience with radical prostatectomies, I make a low midline incision to expose the retropubic space. This approach gives me access to the internal ring, where the abdominal vas may be transected and dissected free from adjacent tissues. This portion of the vas may be brought straight down toward the external ring. This maneuver will enable the short segment of abdominal vas to reach the pubic ramus and external ring, where it may be pulled through to meet the testicular vas, which is transected high at the external ring. Since the course of the abdominal vas is now straight, it can easily reach the testicular vas for a conventional vasovasostomy or for a vasoepididomostomy, if needed. This incision gives exposure to both sides, and bilateral procedures may be performed through the same incision. Although this incision is longer than inguinal incisions, the exposure enables the operator to perform the microsurgery without tension on the anastomosis.

Suggested articles on the topic of vassal compromise associated with hernia repair and reconstruction of the vas deferens in this population include the following:

Sheynkin YR, Hendin BN, Schlegel PN, Goldstein M. Microsurgical repair of iatrogenic injury to the vas deferens. *J Urol*. 1998;159:139–141.

Shin D, Lipshultz LI, Goldstein M, Barmé GA, Fuchs EF, Nagler HM, McCallum SW, Niederberger CS, Schoor RA, Brugh VM 3rd, Honig SC. Herniorrhaphy with polypropylene mesh causing inginal vassal obstruction: a preventable cause of obstructive azoospermia. *Ann Surg*. 2005;241:553–558.

Shaeer OK, Shaeer KZ. Pelviscrotal vasovasostomy: refining and troubleshooting. *J Urol*. 2005;174:1935–1937.