

Chapter 8

No-Scalpel Vasectomy

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Introduction

Vasectomy is the procedure most commonly performed by urologists in the United States and is quick, inexpensive, and highly effective.^{1,2} While multiple methods for performing a vasectomy exist, the no-scalpel vasectomy (NSV) has emerged as the gold standard for vasectomy approach.³ A recent review of NSV versus standard incisional vasectomy demonstrated less bleeding, hematoma, infection, intraoperative pain, and a shorter operative time.⁴

Indications

Men who desire permanent surgical sterilization are candidates for the no-scalpel vasectomy.

¹Eisenberg M, Lipshultz L. Re: estimating the number of vasectomies performed annually in the united states: data from the national survey of family growth. *J Urol.* 2011;185(4):1541–2.

²Rogers MD, Kolettis PN. Vasectomy. *Urol Clin North Am.* 2013;40:559–68.

³Li PS, Goldstein M, Zhu J, Huber D. The no-scalpel vasectomy. *J Urol.* 1991;145:341–4.

⁴Cook LA, Pun A, Gallo MF, Lopez LM, Van Vliet HA. Scalpel versus no-scalpel incision for vasectomy. *Cochrane Database Syst Rev.* 2014;3:CD004112.

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Procedural Considerations

The majority of vasectomies are performed in an office or clinic procedure room setting under local anesthesia and is well tolerated. It is important to identify men who have a scarred or tight scrotum with high-riding testes in whom the vasa are difficult to palpate. In these cases, or in men who are very anxious, vasectomy performed in the operating room under sedation (MAC) is recommended.

Both vasa should be easily palpable within the spermatic cords. Congenital unilateral absence of the vas occurs in 1/1000 men and should be diagnosed preoperatively. If there is any uncertainty about the presence of a vas, it is recommended that the vasectomy be performed in the operating room under MAC. If vasectomy is being performed at the same time as a microsurgical varicocele repair, the vasal veins and artery should be preserved since the only venous outflow after varicocelectomy are the vasal veins. Therefore, when performing simultaneous vasectomy or vasal reconstruction and microsurgical varicocelectomy, the operating microscope is utilized to assure preservation of the deferential veins and arteries.^{5,6}

Complications

The most disturbing complication of vasectomy is primary failure of the procedure or vasal recanalization, resulting in an unplanned pregnancy. Fortunately, with appropriate follow-up semen analyses, primary failure can easily be identified and managed with a repeat procedure. Recanalization, which can result in the return of sperm to the ejaculate in a previously azoospermic patient, is rare and usually occurs within 12 weeks of the vasectomy. Patients, however, should still be counseled that this is a possibility. Although current American Urological Association guidelines quote a vasectomy failure rate of approximately 1%⁷ as acceptable, using the technique we describe, which employs intraluminal cautery, excision of a 0.5 cm segment of the vas, clipping the testicular end, and fascial interposition, and we have had no failures in 1000 cases.⁸

⁵Lee RK, Li PS, Goldstein M. Simultaneous vasectomy and varicocelectomy: indications and technique. *Urology*. 2007;70(2):362–5.

⁶Mulhall JP, Stokes S, Andrawis R, Buch JP. Simultaneous microsurgical vasal reconstruction and varicocele ligation: safety profile and outcomes. *Urology*. 1997;50:438–42.

⁷Sharlip I, Belker A, Honig S, Labrecque M, Marmar J, Ross L, et al. Vasectomy: AUA guideline. *J Urol*. 2012;188:2482–91.

⁸Chiles K, Balderrama M, Feliciano M, Li P, Goldstein M. No-scalpel vasectomy: 20 year outcomes utilizing combined cautery, clip and fascial interposition. Baltimore: American Society of Reproductive Medicine Annual Meeting; 2015.

Bleeding and hematoma are the most common complications, and utilization of the NSV approach can decrease the risk to just under 2.5%⁹ or much less (see Footnote 8). Postvasectomy pain syndrome is another bothersome sequela that can appear months to years after a vasectomy. It is thought that epididymal congestion contributes to the etiology, and up to 6% of men will seek medical advice for bothersome discomfort after vasectomy.¹⁰ However, in our series, by plucking the vas cleanly out of the vasal sheath, thereby preserving the vasal nerves and vessels, we have had no instances of chronic postvasectomy pain (see Footnote 8). Vasectomy reversal has been established as an effective treatment option for men with postvasectomy pain syndrome who fail conservative management.¹¹

List of Necessary Equipment

- Skin prep and drape kit, usually Betadine based
- Jet injector filled with 1% lidocaine
- Vas dissector
- Vas ring clamps × 2
- Battery-driven vasectomy cautery
- Bacitracin ointment
- Fluff gauze
- Scrotal support
- Ice pack

Description of Procedure

The scrotal skin should be prepped with Betadine and draped in a way that allows the scrotum to be easily manipulated without interference from the penis. At our institution, we use a non-occlusive rubber band around the glans to clip the penis to the sterile blue drape up and away from the median raphe.

The vas is identified and, using the three-finger fixation technique, pinned tightly against the scrotal skin surface (Fig. 8.1). Immobilization of the vas is required before introducing local anesthetic to the overlying skin and vasa. At our institution we use a jet injector (MadaJet, MADA Inc. Carlstadt, NJ) with 1% lidocaine, which studies have shown patients prefer to needles¹² (Fig. 8.2).

⁹Rayala BZ, Viera AJ. Common questions about vasectomy. *Am Fam Physician*. 2013;88:757–61.

¹⁰Morris C, Mishra K, Kirkman RJ. A study to assess the prevalence of chronic testicular pain in post-vasectomy men compared to non-vasectomised men. *J Fam Plann Reprod Health Care*. 2002;28:142–4.

¹¹Horovitz D, Tjong V, Domes T, Lo K, Grober ED, Jarvi K. Vasectomy reversal provides long-term pain relief for men with the post-vasectomy pain syndrome. *J Urol*. 2012;187:613–17.

¹²Weiss R, Li P. No-needle jet anesthetic technique for no-scalpel vasectomy. *J Urol*. 2005;173:1677–80.

Fig. 8.1 Three-finger vas fixation technique. Courtesy of Marc Goldstein/Weill Cornell Medicine



Fig. 8.2 Cord block using jet injector. Courtesy of Marc Goldstein/Weill Cornell Medicine



Once adequate local anesthesia has been achieved, with the original technique described by Shunqiang Li (see Footnote 3), a ring clamp is used to secure the vas, including the thin skin overlying the thin Asian vas. With the thicker Caucasian or African American skin, we now prefer to make a single midline puncture hole directly over the vas using one blade of the vas dissector, which is a sharp, curved hemostat with the serrations filed off (Fig. 8.3). A small hole is developed by placing the closed dissector into the hole made with the single blade and spreading, thereby pushing vessels aside and creating a hole large enough to introduce the ring clamp vertically (Fig. 8.4). The ring clamp is introduced through this hole and the vas grasped within it and then delivered. The vasal sheath is punctured with one blade of the dissecting clamp and the vas cleanly delivered, excluding the vasal vessels and nerves. The vasal vessels are gently swept away from a 2 cm segment of vas by vertically opening the blades of the dissecting clamp (Fig. 8.5). The vas is hemi-transected with electrocautery in two places, approximately 1 cm apart. Intraluminal cautery is performed on both ends, and the wire tip is rotated for

Fig. 8.3 No-scalpel puncture of skin. Courtesy of Marc Goldstein/Weill Cornell Medicine

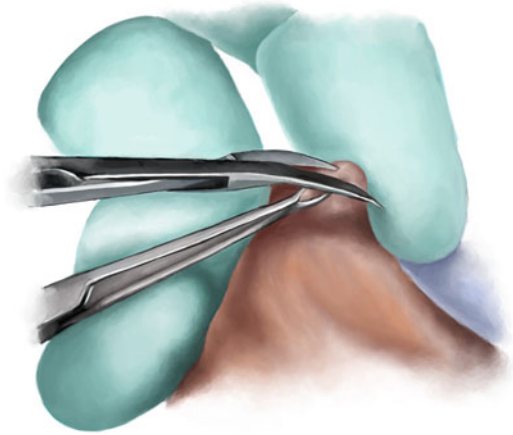
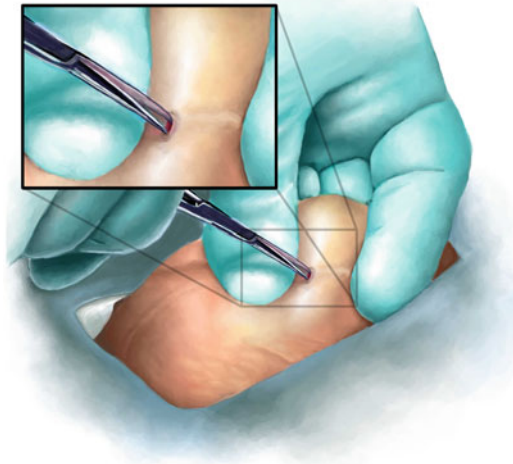


Fig. 8.4 Development of skin puncture. Courtesy of Marc Goldstein/Weill Cornell Medicine



approximately 10 seconds to ensure a 360° mucosal cauterization burn (Fig. 8.6). A hemoclip is gently placed on the testicular end of the vas to prevent sperm leakage and granuloma formation until the cauterization causes fibrosis of the lumen. The hemitranssection of the abdominal end of the vas is taken to completion, and the abdominal end is allowed to retract into the vasal sheath. The sheath is grasped and sealed over the abdominal end with a hemoclip, thereby accomplishing fascial interposition (Fig. 8.7). The intervening vas segment is excised and the vasal ends are pulled into the scrotum by gently pulling on the testicle.

The contralateral side is accessed through the same puncture hole and the steps are repeated. Hemostasis of the subcutaneous tissue is ensured. No sutures or skin closure is required for the hole which contracts and is virtually invisible. Betadine is cleaned off the scrotum, Bacitracin ointment is placed on the puncture wound and fluff gauze dressings and an icepack are held in place by a scrotal supporter.

Fig. 8.5 Delivery of vas using ring clamp. Courtesy of Marc Goldstein/Weill Cornell Medicine

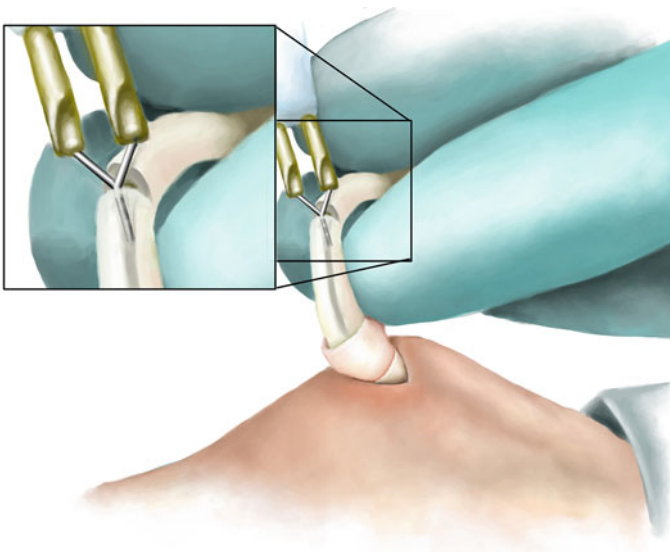


Fig. 8.6 Cauterizing lumen of vas. Courtesy of Marc Goldstein/Weill Cornell Medicine

Post-procedural Management

Nonsteroidal anti-inflammatory medications can safely be used in men after a vasectomy. The use of icepacks to the scrotum for 24 hours after the procedure will decrease medication requirement. No ejaculation or strenuous activity for 1 week.

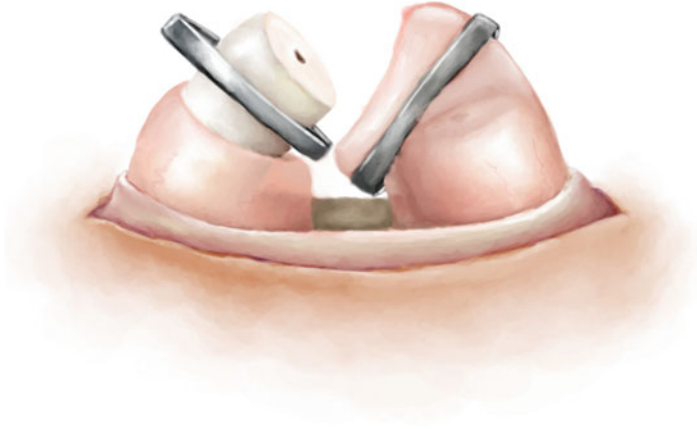


Fig. 8.7 Vas clipping and fascial interposition. Courtesy of Marc Goldstein/Weill Cornell Medicine

Patients can be informed that they are sterile and may stop using contraception when they have one fresh, uncentrifuged semen analysis which demonstrates azoospermia or occasional nonmotile sperm/mL (see Footnote 7). We recommend obtaining the first semen analysis 15 ejaculations or 6 weeks after the procedure, whichever comes first.