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AUA Guideline Articles

Vasectomy: AUA Guideline (2026) Part I

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Purpose: This Guideline provides a contemporary overview of vasectomy, including a discussion of indications, pre-operative counseling and preparation, peri-operative considerations, procedural techniques, potential risks and complications, and post-operative care to ensure that healthcare providers offer accurate, evidence-based information to patients considering this method of permanent contraception. Options for future fertility following vasectomy are discussed in Part II of this Guideline series.

Materials and Methodology: A comprehensive search of the literature was performed and covered articles published between January 1, 1990 and January 30, 2024. Relevant study designs included randomized controlled trials, controlled clinical trials, and observational studies (cohort with and without comparison group, case-control). Systematic reviews were searched for as an additional resource to identify any relevant studies with the designs noted above that may not have been captured in the literature search.

Results: The Panel developed evidence- and consensus-based statements based on a comprehensive systematic review of the literature. Recommendations on vasectomy are detailed herein.

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Conclusions: While this Guideline provides a summary of the current evidence related to vasectomy, future review will be required as knowledge in this space continues to evolve. The unabridged version of this Guideline is available at auanet.org.

Key Words: vasectomy, sterilization, reproductive, vas deferens, male contraception, guideline

BACKGROUND

Vasectomy is a safe, minimally invasive, and effective means of permanent contraception for men. With over 500,000 vasectomies performed annually in the United States, it remains one of the most common outpatient procedures performed by urologists.[1] A 2021 study using data from the National Survey of Family Growth identified a decline in vasectomy utilization from 2002 through 2017.[2] Additional data, however, suggest that vasectomy consultation and procedural volumes have increased more than 150% following the *Dobbs v. Jackson* ruling by the US Supreme Court in 2022 that overturned the 1973 *Roe v. Wade* ruling establishing abortion as a protected constitutional right.[3]

This Guideline aims to provide a contemporary overview of vasectomy, including a discussion of indications, pre-operative counseling and preparation, peri-operative considerations, procedural techniques, potential risks and complications, and post-operative care to ensure that healthcare providers offer accurate, evidence-based information to patients considering this method of permanent contraception.

GUIDELINE STATEMENTS

Patient Evaluation and Counseling

1. Clinicians should provide pre-operative consultation for the patient considering vasectomy. *(Clinical Principle)* Consultation may be accomplished virtually or in person. *(Conditional Recommendation; Evidence Level: Grade C)*

As with any surgical procedure, vasectomy requires a pre-operative consultation to review the patient's medical, reproductive, and surgical history, and to allow for a dialogue regarding the procedural risks, benefits, alternatives, and recovery. This discussion allows the clinician to set peri- and post-operative expectations and provides an opportunity for the patient to ask questions regarding this important decision.

The pre-operative consultation may be performed virtually or in person and should include the following information: (1) vasectomy is intended to be a permanent form of contraception, (2) vasectomy does not produce immediate sterility, (3) following vasectomy, another form of contraception is required until vas occlusion is confirmed by post-vasectomy semen analysis (PVSA), (4) even after vas occlusion is confirmed, vasectomy is not 100% reliable in preventing pregnancy; the risk of pregnancy after vasectomy is approximately 1 in 2000 for men who have azoospermia on PVSA or rare non-motile sperm (RNMS), (5) repeat vasectomy is necessary for failure of occlusion in up to 1% of vasectomies, provided that a technique for vas occlusion known to have a low occlusive failure rate has been used, (6) options for fertility after vasectomy include vasectomy reversal and sperm retrieval with in vitro fertilization; however, these options are not always successful and may be expensive, (7) rates of surgical complications such as symptomatic hematoma and infection are 1 to 2% or less, (8) ongoing chronic scrotal pain associated with an ongoing negative impact on quality of life occurs in less than 1% of men after vasectomy, (9) other permanent and non-permanent alternatives to vasectomy are available.[4-6]

The availability of pre-vasectomy sperm cryopreservation may be discussed but is not a required component of counselling. Patients who have not yet had children at the time of vasectomy consultation or who are younger than the average paternal age (31 years) in the United States may be at higher risk of post-surgical regret following vasectomy and more likely to benefit from a dedicated discussion about options for sperm banking.

One of the most common unfounded concerns amongst men is the fear of impaired sexual performance following vasectomy. For that reason, pre- and post-operative consultation should include reassurance that vasectomy is not associated with risk of sexual dysfunction or change in ejaculation.[7]

While partner involvement in the pre-operative consultation can be suggested, partner assent to vasectomy is not required as contraceptive decisions are an individual choice.

A thorough scrotal exam should be performed prior to vasectomy, as it may identify: (1) a testis mass or other scrotal abnormality warranting further evaluation prior to vasectomy, (2) anatomic characteristics such as absence of the vas, difficult isolation of the vas, or specific elements of body habitus that could make vasectomy technically difficult, or (3) patient anxiety or discomfort that would preclude performing the procedure using local anesthesia alone. The scrotal exam can be performed at the time of the pre-operative consultation or on the day of surgery.

Pre-operative laboratory testing is not required unless the patient's history raises concern for a bleeding diathesis.

2. Clinicians should counsel patients that vasectomy is a safe and effective means of permanent contraception. (*Conditional Recommendation; Evidence Level: Grade C)*

Vasectomy in men and tubal ligation in women, are the most commonly performed procedures used to achieve permanent contraception. Historically, the 2 procedures were considered to have generally equivalent clinical efficacy. However, a contemporary review of a large nationally representative sample of patients (2002-2015), including open and laparoscopic tubal ligation, demonstrated a 4 to 5 times higher risk of failure compared with earlier patient series, with pregnancy rates of 2.9% at 1 year, and 8.4% at 10 years after bilateral tubal ligation.[8] The risk of failure after tubal ligation was highest amongst patients younger than 25 years of age (3.9% at 1 year). In comparison, pregnancy rates after vasectomy have been estimated at 0.1 to 1.1% at 2 to 5 years post-procedure, with a review of over 400,000 vasectomies reporting a pregnancy rate of 0.58%.[9-11] Vasectomy is also less invasive, associated with fewer anesthetic and surgical risks, and faster recovery, as compared to tubal ligation.

3. Clinicians may inform patients that no causal link has been established between vasectomy and the development of prostate cancer. *(Conditional Recommendation; Evidence Level: Grade B)*

4. Clinicians may inform patients that no causal link has been established between vasectomy and development of high-grade prostate cancer or increased prostate cancer mortality. *(Conditional Recommendation; Evidence Level: Grade B)*

Meta-analysis performed for this Guideline (available in full Guideline publication) suggests an association between vasectomy and prostate cancer incidence (ie, prostate cancer diagnosis). However, this association does not necessarily reflect a causal link between vasectomy and prostate cancer development because observational studies cannot account for unknown confounders.[12] There is no plausible biological rationale for vasectomy to cause prostate cancer. A possible explanation for these observations is that detection of prostate cancer cases is largely driven by PSA testing, which is more likely to have occurred for men who have previously seen a urologist, including men who have had a vasectomy performed by a urologist. The median rate of prostate cancer detection among the control groups in these observational studies was approximately 4% after a typical follow-up of 15 years. In comparison, the summary OR of 1.13 corresponds to a rate of 4.5% for prostate cancer detection among men who underwent vasectomy.

It is well recognized that many prostate cancers detected are not clinically important, so further analysis was done to examine the relationship between vasectomy and clinically significant (high-grade) prostate cancer as well as prostate cancer mortality. Twelve recent studies compared advanced prostate cancer diagnoses in patients with and without vasectomy. Authors defined advanced tumors as those with stage T3+ or N1 or M1 in 5 studies, as Whitmore-Jewett stage C or D in 2 studies, and as stage T3b+ or N1 or M1, stage T4 or N1 or M1, Surveillance, Epidemiology, and End Results Program stage 3 or 4, pT3+ or lethal tumor, and tumors with regional or metastatic spread in 1 study each.[13-24] The pooled estimate indicates a slight increase in the incidence of clinically concerning prostate tumors in men with vasectomy (OR: 1.08; 95% CI: 1.03-1.14). For interpretation, the 0.8% median incidence of advanced prostate cancer reported in the studies for non-vasectomized men over the typical 15-year follow-up would increase to 0.9% in vasectomized patients (ie, 1 additional case for every 1000 patients).

Eight studies reported on the incidence of high-grade cancers defined as those with Gleason score 8 to 10[13,14,16-19,21,24]; and meta-analysis found no association between this outcome and vasectomy (OR: 1.01; 95% CI: 0.92-1.11).

Meta-analysis also found no association between vasectomy and prostate cancer mortality (OR: 0.99; 95% CI: 0.92-1.07), as reported in 5 studies.[13,14,16,17,25]

Taken together, these studies suggest that most new diagnoses of prostate cancer in men with a history of vasectomy are indolent or localized cancers.

5. Clinicians may inform patients that no causal link has been established between vasectomy and the risk of cardiovascular disease. *(Conditional Recommendation: Evidence level: Grade C)*

Four studies were identified that examined the risk of experiencing a cardiovascular event in association with a history of vasectomy, reporting either adjusted hazard ratio or relative risk or adjusted person-year disease rates. Importantly, none of these studies found an increase in detection of cardiovascular disease after vasectomy. The study[26] reporting on adjusted person-year disease rates in a UK cohort found no association between vasectomy and myocardial infarction (MI), or coronary artery disease, and a negative association between vasectomy and stroke. The study[27] reporting on adjusted HRs in a US cohort found no association between vasectomy and MI, stroke, or coronary artery disease. Of the 2 studies reporting on adjusted RRs in US cohorts, one[28] found no association between vasectomy and MI, stroke, or the composite risk of developing angina pectoris or requiring coronary revascularization; the other,[29] which included only physicians, also found no association between vasectomy and MI, stroke, angina pectoris, or thrombophlebitis.

6. Clinicians may inform patients that no causal link has been established between vasectomy and nephrolithiasis. ***(Conditional Recommendation; Evidence Level: Grade B)***

A single case-cohort study[30] reported a positive association between vasectomy and first-episode nephrolithiasis incidence in a US cohort ($P < .04$). However, when results of this study were stratified by time since vasectomy, there was an inconsistent relationship between time since vasectomy and incidence of nephrolithiasis. Although there was an increased risk of nephrolithiasis for men < 5 years from vasectomy ($P < .05$), as well as for men 10 to 15 years after vasectomy, there was no association noted for men 5 to 10 years after vasectomy, or for men > 15 years after vasectomy ($P > .05$.) The short-term positive association is, therefore, unlikely to represent a causal relationship because the increased risk of stone events does not hold up for all time intervals, especially the longest interval.

Peri-procedural Antibiotics

7. Clinicians may forego peri-procedural antibiotics for patients undergoing vasectomy unless the patient is at high risk of infection. ***(Expert Opinion)***

Selective use of pre-operative antibiotics may be considered for those patients at higher risk of surgical site infection (SSI), such as patients with prosthetics, diabetic patients with suboptimal blood glucose management, patients taking immunomodulating medications, including patients on chronic corticosteroids. As such, clinicians may engage in shared decision-making with patients regarding potential risks (ie, adverse reactions, antibiotic overuse) and benefits (ie, potential reduced risk of SSI) of antibiotic prophylaxis. When indicated, a single pre-operative dose of an antimicrobial such as a first-generation cephalosporin (eg, cephalexin, cefazolin) or ampicillin/sulbactam may be administered.[31]

Skin Preparation

8. Clinicians should prepare the skin with a sterilizing solution prior to vasectomy. ***(Clinical Principle)*** **Clinicians may remove hair pre-operatively.** ***(Expert Opinion)***

Hair removal may help improve visualization in the operative field, and data have indicated that this intervention may slightly decrease risk of SSI after vasectomy.[31] Skin preparation should be performed using an alcohol-based sterilizing solution (eg, chlorhexidine) immediately prior to the procedure, unless contraindicated.[32] Povidone-iodine is a suitable alternative for skin preparation before vasectomy.

Anesthetics and Peri-procedural Pain Management

9. Clinicians should perform vasectomy with local anesthesia delivered by skin infiltration with a needle and/or jet injector. Topical anesthetic may lessen the pain of local anesthetic infiltration during vasectomy. ***(Moderate Recommendation; Evidence Level: Grade C)***

10. Clinicians should recommend non-opioid oral analgesics (acetaminophen or non-steroidal anti-inflammatories) for post-operative pain control. ***(Expert Opinion)***

Vasectomy procedures should routinely be performed using local anesthesia. Adjunctive oral, intravenous, or inhalational agent sedation may be considered when the pre-operative scrotal exam identifies difficult vasal isolation, or when patients have considerable anxiety related to the procedure.

Based on the AUA's White Paper on Rationale and Strategies for Reducing Urologic Post-Operative Opioid Prescribing, routine use of opioids is not recommended post-vasectomy.[33]

Pre-procedural administration of oral acetaminophen or nonsteroidal anti-inflammatory drug may reduce peri- and post-operative pain.[33] Similarly, a multimodal approach using analgesics with different mechanisms of action, such as acetaminophen in combination with an nonsteroidal anti-inflammatory drug may optimize post-operative pain management.

Vas Isolation

11. Surgeons should isolate and expose the vas deferens for vasectomy using a minimally invasive approach such as the no-scalpel vasectomy technique. ***(Moderate Recommendation; Evidence Level: Grade A)***

In the incisional vasectomy technique to isolate and deliver the vas deferens, the surgeon utilizes either 1 or 2 scrotal skin incisions to enter the scrotum, allowing dissection to localize and isolate the vas. This approach is carried out using standard surgical instruments. The skin incision is made with a scalpel, and the wound is typically sutured closed at the conclusion of the procedure.

In contrast, a minimally-invasive vasectomy (MIV) is performed through a small opening (<10 mm) in the skin with minimal dissection to identify and isolate the vas using a dedicated vas dissector and vas ring clamp, or similar instruments. A scalpel is not typically used to create the small skin opening for a MIV, limiting the need for sutures to close the skin.

The no-scalpel vasectomy is a commonly used minimally invasive technique for vas isolation in which a vas ring clamp is used to percutaneously grasp the vas along with the overlying skin, and a

vas dissector is used to puncture the skin to expose the surface of the vas, dissect off peri-vasal tissue, pierce the wall of the vas, and deliver the isolated vasal segment through the skin opening.[34,35]

Although incisional vasectomy technique, MIV, and no-scalpel vasectomy are labelled as "vasectomy" techniques, they refer only to the process of isolation and delivery of the vas deferens. These approaches may not have any influence on the occlusive and contraceptive effectiveness of vasectomy that is likely determined by the occlusion technique used.

Vas Occlusion

12. Surgeons should perform vasectomy with an occlusive technique that combines mucosal cautery and fascial interposition. ***(Strong Recommendation; Evidence Level: Grade B)***

Vasectomy Effectiveness

Vasectomy success can be defined as either contraceptive success, which is the absence of pregnancy, or occlusive success, demonstrated by the finding on PVSA of azoospermia or RNMS, as defined in a subsequent section of this Guideline. Most vasectomy failures are thought to occur from recanalization caused by a less effective surgical technique of occlusion. A failure is less commonly due to a surgical error where the same vas is cut twice or another structure is divided, and very rarely because of a missed vas duplication. Contraceptive failures may occur despite adequate vasal occlusion, from residual sperm in the reproductive tract especially within the first 3 to 4 weeks after vasectomy.[36-38] Residual sperm may cause pregnancy if no contraceptive method is used prior to the confirmation of occlusive success.[36-38]

Vasectomy Occlusion Techniques

In the US, most surgeons initiate vasectomy by dividing the vas. Following division of the vas, the divided vasal ends may be separated by 1 of several techniques such as excising a vasal segment and/or fascial interposition (FI). The flow of fluid and sperm within the vasal lumen may also be obstructed by 1 of several methods such as ligating the vas or cauterizing the lumen of the vas deferens. In this Guideline, vas occlusion is used to reflect that the vas has been completely divided unless otherwise stated.

Figures 1-4 illustrate commonly utilized vasectomy occlusion techniques, which may be used in combination.

The Panel recognizes that there may be other techniques or combinations of vas occlusion that are reliable in producing occlusive effectiveness even though detailed reports of the results of such occlusive methods have not been published. Examples of such techniques are excision of a vas segment of 4 cm or more, additional ligatures with clips or sutures on each segment of the divided vas, folding back of 1 or the 2 vas segments, and extensive electrocautery of the vasal lumen with or without dividing the vas.

13. Surgeons should not perform vas occlusion using only ligation and excision of a short vas segment ***(Strong Recommendation; Evidence Level: Grade A)***

The combined observations of nearly all comparative studies report that vasal ligation and excision (<1 cm) poses a higher risk of occlusive failure, likely because vasal ligation alone may result in necrosis of the vas deferens that could predispose to local leakage of sperm and potential recanalization. Ligation with excision of a longer length of vas (ie, 4 cm or more) may be associated with a lower and acceptable risk of recanalization, but there is limited published evidence for this approach. One randomized controlled trial,[39] and 3 retrospective cohort studies[40-42] evaluated the "classical" occlusion technique, that is, ligation of the vas deferens with ligatures or clips + excision of a small segment (~1 cm) of vas. The risk of failure observed in 1 study was 1.4% after ligation and

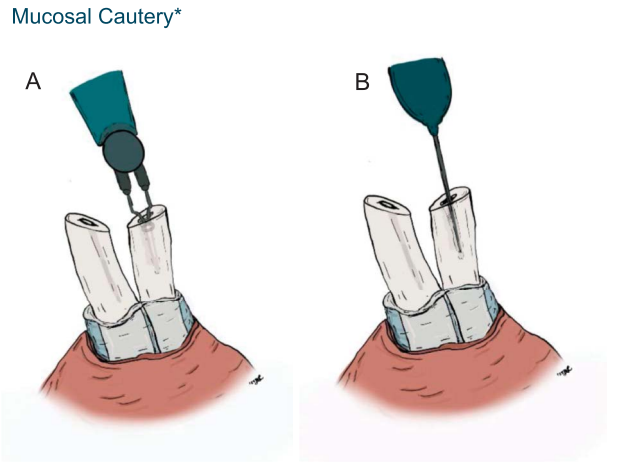

Figure 1. (A) and (B) Mucosal cautery. MC is the technique of applying thermal (A) or electrical cautery (B) to the mucosa of the cut ends of the vas to destroy the vasal mucosa while avoiding or minimizing damage to muscle layers. The goal of MC is to create a plug of scar tissue that occludes the vas lumen. The length of the cauterized segment varies from a few mm to 1.5 cm. MC may be combined with excision of a vas segment, folding back or fascial interposition. Cauterizing the mucosa while simultaneously limiting cautery damage to the muscular layer of the vas prevents sloughing of the cauterized portion of the vas that could occur if its full wall thickness was destroyed by cautery. Both thermal cautery, commonly provided by a battery-powered hand-held device, and electrical (monopolar) cautery can be used for MC. There is a small risk of full thickness necrosis of the vas with electrical cautery that is best avoided as the goal of MC is to keep the wall of the vas intact and effect obstruction of the vasal lumen. *Illustrations provided by Divya Lagisetti. MC, mucosal cautery.

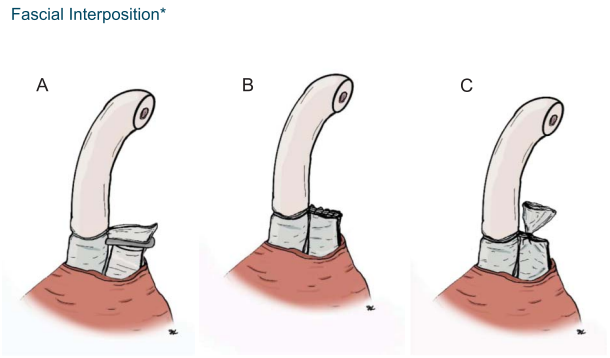

Figure 2. (A)-(C). Fascial Interposition. FI is the technique of bringing one end of the vas above the perivasal sheath with the other end of the vas below this fascial layer. The sheath may be closed over the testicular or abdominal end using a metal clip (A), a suture placed with a tapered needle (B), or a free tie (C). FI is often combined with other techniques such as ligation of the vas and excision or mucosal cautery of the vasal lumen. When open-ended vasectomy is performed, (leaving the testicular end of the divided vas non-occluded), FI is critical to prevent recanalization. *Illustrations provided by Divya Lagisetti. FI, fascial interposition.

excision alone but it varied between 6% and 13% in all other studies, with the highest risk observed in the low-risk-of-bias randomized controlled trial. There is high certainty that ligation of the vas deferens with ligatures or clips + excision of a small segment (~1 cm) results in a higher risk of occlusive failure, reflected by persistence of sperm in the ejaculate, than that reported after mucosal cautery (MC) and FI.

There is, likewise, high certainty that adding FI to ligation and excision decreases the risk of failure compared to ligation and excision without FI.[39]

14. Surgeons may omit routine histological evaluation of excised tissues. ***(Expert Opinion)***

Previous iterations of the AUA Vasectomy Guideline have noted that physicians do not require histologic confirmation of the vas deferens as a measurement of vasectomy success as the PVSA is the determinant of success of the procedure. The Panel agrees that histologic examination of resected vas deferens segments is not a primary determinant of vasectomy success.

Vasectomy Complications

15. Surgeons who perform vasectomy should be able to recognize and treat complications after vasectomy, including bleeding, infection, epididymitis, and chronic scrotal pain. ***(Clinical Principle)***

The Panel found no comparative studies between evaluating drainage of a hematoma after vasectomy vs a conservative approach in terms of recovery time, pain, harms, and quality of life. Likewise, the Panel did not find any relevant comparative studies of options for treating infection, congestive epididymitis, or chronic scrotal pain after vasectomy. Therefore, the Panel recommends that evaluation and treatment of these complications be left to the judgment of the treating surgeon. The management of chronic scrotal pain is further discussed in the AUA Guideline on management of Male Chronic Pelvic Pain, Part III.[43]

Risks Associated With Different Occlusion Techniques

Although occlusive effectiveness is a primary consideration for recommendation of an occlusive technique, other complications (bleeding, infections, perioperative pain), long-term complications (painful sperm granuloma, chronic pain) and patient satisfaction are relevant considerations. Three studies of low quality with high risk of bias were considered.[40,44,45]

Risks of infection were higher with ligation and excision, relative to techniques of MC and FI; 1.0%, and 1.3% for extended electrocautery with division of the vas, and 2.6% for ligation, excision, and FI in an observational study including 133,044 vasectomies.[44] Another study[40] reported lower frequency (0.5%) of hematoma and/or infection for ligation with clips compared to 1.6% for MC and FI with clips. No difference in pain was observed with different techniques. The third study[45] reported a very low risk of infection (0.03% vs 0.06%), and hematoma (0% vs 0.06%) for closed and opened-ended MC and FI with clip occlusive techniques, respectively. The risk of congestive epididymitis was estimated at 6% for closed-ended and 2% for open-ended procedures. These results did not modify the Panel's recommendations for preferred occlusion techniques.

Post-Vasectomy Semen Analysis

16. Patients should provide at least 1 semen sample following vasectomy to confirm occlusive success. ***(Moderate Recommendation; Evidence Level: Grade C)***

One cohort study[46] examined the effect of requiring 1 vs 2 PVSA samples on the outcomes of patient compliance with testing, and detection of occlusive failure. The study compared 2 interventions. In the first, a semen sample was requested 4 months after vasectomy, and the absence of sperm in 1 specimen was considered sufficient to declare the patient azoospermic. In the other, semen samples were requested at 3 and 4 months after vasectomy, and the absence of sperm in 2 consecutive samples was needed to declare the patient azoospermic. For all non-azoospermic patients, additional samples were obtained monthly until the criterion for azoospermia was met. Compliance rates were higher in the 1-sample group than in the 2-sample group, both for initial and additional testing. Rates of occlusive failure were similar across groups.

Figure 3. Folding back. Folding back ("doubling") is the technique of folding and suturing/ligating one or both divided vasal end(s) back onto itself to prevent the two cut ends from facing each other. *Illustrations provided by Divya Lagisetti.

17. An uncentrifuged semen sample following vasectomy may be evaluated in a lab/office setting or by mail-in testing. *(Conditional Recommendation; Evidence Level: Grade C)*

The Panel acknowledges the increasing availability of home-based and mail-in options for PVSA testing. Home-based tests seek to allow self-assessment of sperm vasectomy success at home. Mail-in kits allow patients the convenience of collecting PVSA samples at home that are then transported by mail or another service to a laboratory for a detailed analysis. Since sperm motility cannot be reliably evaluated when evaluation is done more than 2 hours after specimen collection, the Panel notes that mail-in and home-based specimens should demonstrate complete azoospermia in order to maximize the chance of vasectomy contraceptive success.[47]

18. Patients may discontinue contraception following confirmation of complete azoospermia or ≤ 100,000 non-motile sperm per mL (RNMS) from a single uncentrifuged semen sample evaluated within 2 hours of collection; *(Conditional Recommendation; Evidence Level: Grade B)* A sample evaluated > 2 hours after collection should show azoospermia to stop contraception. *(Expert Opinion)*

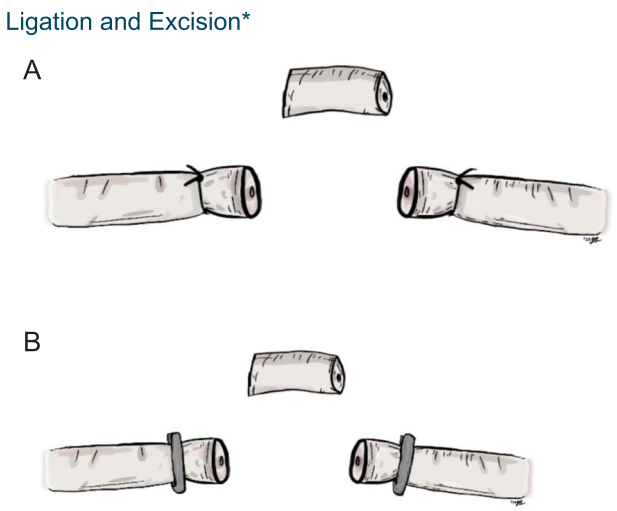

Figure 4. (A) and (B). Ligation and excision. Ligation refers to occlusion of the vas with suture material (A) or titanium clips (B) with division of the vas between the occluded points. The number of clips or sutures placed on each end of the divided vas is usually one or two but may be more. Ligation of the vas is commonly accompanied by excision of a 0.5-1 cm segment of vas deferens, although some surgeons routinely remove a longer segment of vas deferens during the procedure. *Illustrations provided by Divya Lagisetti.

Both azoospermia and RNMS in a fresh uncentrifuged semen sample are acceptable criteria for vasectomy occlusive success. The definition of RNMS used in medical literature has varied from more than 0 to less than 1 million/mL, but the most used definition of RNMS is ≤ 100,000 per mL.[48,49]

If semen evaluation is not done within 2 hours of collection, progressive decrease in sperm motility may occur, so the presence or absence of motility cannot be reliably determined.[50] For semen specimens evaluated over 2 hours after collection (eg, with mail-in samples), azoospermia is required to stop contraception.

19. A post-vasectomy semen sample may be submitted as early as 8 weeks following vasectomy. *(Conditional Recommendation; Evidence Level: Grade C)*

The timing of the first PVSA may be left to the surgeon's judgment. The longer the time period before the first PVSA, the better the chance that the PVSA will show azoospermia but the longer the time that the patient must continue to use another method of contraception. There is no evidence, however, that this is the case when using the RNMS (≤100,000 non-motile sperm/mL) threshold.[51] It is ultimately desirable to select a time period that minimizes both the number of PVSAs needed to establish vasectomy success and allows patients to cease other forms of contraception as soon as possible following vasectomy. The frequency of ejaculation may also affect time to azoospermia after vasectomy, especially for men over age 40.[52]

Repeat Vasectomy

20. In patients with any persistent motile sperm in the ejaculate 6 months or more following vasectomy, counseling for repeat vasectomy should be offered. In patients with > 100,000 non-motile sperm per mL persisting after 6 months, shared decision-making should be utilized to determine whether to repeat vasectomy, continue contraception and/or obtain repeat semen evaluations. *(Expert Opinion)*

The presence of motile sperm more than 6 months after vasectomy indicates that recanalization has occurred, or that there was a technical failure in vas occlusion. Motile sperm any time after vasectomy represent a risk of pregnancy and indicates the need for continued use of another contraceptive method, further PVSA testing and, if persistent, repeat vasectomy.

The Panel's opinion is that the decision to consider vasectomy a failure if > 100,000 non-motile sperm/mL persist should be based on clinical judgment that includes the trend of sperm counts, the patient's preferences, and the patient's tolerance for the risk of pregnancy. In patients with > 100,000 non-motile sperm per mL persisting after 6 months, shared decision-making should be utilized to determine whether to repeat vasectomy or consider alternative forms of contraception.

FUTURE DIRECTIONS

Although this Guideline demonstrates substantial progress since the initial publication of the 2012 AUA Vasectomy Guideline, there are many areas where gaps of knowledge persist.

This Guideline addresses the safety and efficacy of vasectomy as a permanent contraception method. For patients in a heterosexual relationship, the decision-making process is highly variable. Despite data showing that vasectomy has a lower failure rate than tubal ligation and is very safe, many couples still decide to proceed with tubal ligation. Patient education studies could help promote more interest in vasectomy. Education of couples with respect to the value of vasectomy for permanent contraception may aid couples' decision-making process. Further, partnering with our obstetrics and gynecology colleagues may be beneficial in this process of patient education.

DISCLAIMER

This document was written by the Vasectomy Panel of the American Urological Association Education and Research, Inc., which was created in 2023. The PGC of the AUA selected the Panel Chair. Panel members were selected by the Panel and PGC Chair following an open application process.

Membership of the Panel included specialists in urology with specific expertise on this disorder. The mission of the Panel was to develop recommendations that are analysis based or consensus based, depending on Panel processes and available data, for optimal clinical practices in vasectomy.

Funding of the panel was provided by the AUA. Panel members received no remuneration for their work. Each member of the Panel provides an ongoing conflict of interest disclosure to the AUA, and the Panel Chair, with the support of AUA Guidelines staff and the PGC, reviews all disclosures and addresses any potential conflicts per AUA's Principles, Policies and Procedures for Managing Conflicts of Interest.

While this guideline does not necessarily establish the standard of care, AUA seeks to recommend and to encourage compliance by practitioners with current best practices related to the condition being treated. As medical knowledge expands and technology advances, the guidelines will change. Today these evidence-based guidelines statements represent not absolute mandates but provisional proposals for treatment under the specific conditions described in each document. For all these reasons, the guidelines do not pre-empt physician judgment in individual cases.

Treating physicians must take into account variations in resources, and patient tolerances, needs, and preferences. Conformance with any clinical guideline does not guarantee a successful outcome. The guideline text may include information or recommendations about certain drug uses ("off label") that are not approved by the Food and Drug Administration (FDA), or about medications or substances not subject to the FDA approval process. AUA urges strict compliance with all government regulations and protocols for prescription and use of these substances. The physician is encouraged to carefully follow all available prescribing information about indications, contraindications, precautions and warnings. These guidelines and best practice statements are not intended to provide legal advice about use and misuse of these substances.

Although guidelines are intended to encourage best practices and potentially encompass available technologies with sufficient data as of close of the literature review, they are necessarily time-limited. Guidelines cannot include evaluation of all data on emerging technologies or management, including those that are FDA-approved, which may immediately come to represent accepted clinical practices. For this reason, the AUA does not regard technologies or management which are too new to be addressed by this guideline as necessarily experimental or investigational.

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