Vasectomy remains an important option for contraception. Research findings have clarified many questions regarding patient selection, optimal technique, postsurgical follow-up, and risk of long-term complications. Men who receive vasectomies tend to be non-Hispanic whites, well educated, married or cohabitating, relatively affluent, and have private health insurance. The strongest predictor for wanting a vasectomy reversal is age younger than 30 years at the time of the procedure. Evidence supports the use of the no-scalpel technique to access the vasa, because it is associated with the fewest complications. The technique with the lowest failure rate is cauterization of the vasa with or without fascial interposition. The ligation techniques should be used cautiously, if at all, and only in combination with fascial interposition or cautery. A single postvasectomy semen sample at 12 weeks that shows rare, nonmotile sperm or azoospermia is acceptable to confirm sterility. No data show that vasectomy increases the risk of prostate or testicular cancer. (Am Fam Physician 2006;74:2069-74, 2076. Copyright © 2006 American Academy of Family Physicians.)
Vasectomy

The study also explored the most important reasons given for choosing a vasectomy over other forms of contraception. The most common reason for choosing vasectomy was that this method represented the surest way to prevent having more children (49.9 percent), followed by having a wife or partner who disliked other forms of contraception (12.3 percent) and the patient himself disliking other forms of contraception (10.0 percent). When asked why they chose vasectomy over female sterilization, most men responded that vasectomy was simpler and safer.

Technique

Technique options can be divided into three components of vasectomy: accessing the vasa, disrupting the vasa, and closing the surgical site (scrotum).

ACCESSING THE VASA

Accessing the vasa can be achieved with a single or double incision to the scrotum using a scalpel, or with the no-scalpel technique using special instruments. No-scalpel vasectomy has been shown to reduce the risk of complications (i.e., bleeding and infection) compared with the incision technique (Table 2). Two randomized controlled trials showed a 1.7- to 6.8-fold reduction in bleeding and hematomas and a 1.6- to 7.5-fold reduction in infections with the no-scalpel technique compared with the incision technique.

<table>
<thead>
<tr>
<th>Method</th>
<th>Prevalence (%)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral contraceptive</td>
<td>30.6</td>
</tr>
<tr>
<td>Female sterilization</td>
<td>27.0</td>
</tr>
<tr>
<td>Male condom</td>
<td>18.0</td>
</tr>
<tr>
<td>Vasectomy</td>
<td>9.2</td>
</tr>
<tr>
<td>Three-month injectable</td>
<td>5.3</td>
</tr>
<tr>
<td>Withdrawal</td>
<td>4.0</td>
</tr>
<tr>
<td>Other†</td>
<td>4.0</td>
</tr>
<tr>
<td>Intrauterine device</td>
<td>2.0</td>
</tr>
</tbody>
</table>

*A—Reported use by couples who used contraception in 2002.
†—Periodic abstinence, diaphragm, and other methods.


<table>
<thead>
<tr>
<th>TABLE 1</th>
<th>Prevalence of Contraceptive Methods</th>
</tr>
</thead>
<tbody>
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</table>

*A—Reported use by couples who used contraception in 2002.
†—Periodic abstinence, diaphragm, and other methods.
Disruption of the vasa can be performed numerous ways (Figure 1). Simple suture ligation with excision likely is the most common method worldwide, although this method has been shown to be less effective than previously reported. In addition, there is increasing concern that ligating the vasa, regardless of technique, often causes tip necrosis and sloughing; this can lead to recanalization of a vasal segment. A large randomized trial that included patients in seven countries noted vasectomy failure (i.e., live sperm present 24 weeks after the procedure) in 12.7 percent of men who received suture ligation and excision alone from an experienced physician. These clinics report a less than 1 percent failure rate with this technique. Two studies have compared thermal and electric cautery. One study showed a nonsignificant increase in failure rates with electric cautery, and the other study showed histologic evidence of more reliable occlusion with thermal cautery. Although these studies provide some evidence that thermal cautery is more effective than electric, no firm conclusions about optimal route or type of cautery can be made.

Leaving the testicular end open after the vas disruption phase of vasectomy has the theoretical advantage of decreasing postvasectomy vasal pressure; however, it also causes a sperm granuloma at the open end. Early studies reported a significant decrease in chronic pain with this technique, implying that most chronic pain resulted from congestive epididymitis rather than a granuloma. A large retrospective study of 3,761 men who received vasectomies showed no difference in postoperative scrotal pain between open- and closed-ended techniques. Ultimately, physicians should use study data along with their own experience and training to determine which vasal disruption technique is the best option for their patients.

### TABLE 2

<table>
<thead>
<tr>
<th>Study</th>
<th>Bleeding/hematoma (%)</th>
<th>Infection (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No-scalpel</td>
<td>Incision</td>
</tr>
<tr>
<td>Christensen, et al, 2002 (RCT)</td>
<td>9.5</td>
<td>15.9</td>
</tr>
<tr>
<td>Nirapathpongporn, et al, 1990 (NRCT)</td>
<td>0.3</td>
<td>1.7</td>
</tr>
<tr>
<td>Sokal, et al, 1999 (RCT)</td>
<td>1.8</td>
<td>12.2</td>
</tr>
</tbody>
</table>

RCT = randomized controlled trial; NRCT = nonrandomized controlled trial. Information from references 9 through 11.
There are several methods for vasal disruption during vasectomy. The diagram illustrates the different procedures:

1. **Cautery and excision**
   - Failure rate: 4.8 percent or less
   - Segment excised
   - Cauterized ends

2. **Cautery and fascial interposition**
   - Failure rate: 1.2 percent or less
   - Cauterized end
   - Fascia sutured over testicular end
   - Cauterized end

3. **Ligation and fascial interposition**
   - Failure rate: 16.7 percent or less
   - Ligated testicular end
   - Fascia sutured to testicular end
   - Ligated abdominal end

4. **Intraluminal cautery**
   - Failure rate: less than 1 percent
   - Both directions cauterized

5. **Ligation and excision**
   - Failure rate: 1.5 to 29.0 percent
   - Segments excised
   - Cauterized ends
   - Cautery (open testicular end) and fascial interposition
   - Failure rate: 0.02 to 2.4 percent
   - Open testicular end
   - Segment excised
   - Clip
   - Cauterized end

Information from references 12 through 18.

Figure 1. Vasal disruption methods for vasectomy.
SCROTAL CLOSURE
Scrotal closure can be accomplished with clips, clamps, sutures, or cyanoacrylate tissue adhesive. The incision also may be left open to heal by secondary intention. Data comparing these methods are limited; therefore, further data are needed before recommendations regarding closure technique can be made.

Follow-up Care
Follow-up after a vasectomy should include one or more semen samples to ensure that recanalization has not occurred. Unfortunately, many men do not comply with this recommendation. A case series reported that less than one half (42 percent) of men who received a vasectomy provided a postvasectomy semen sample. Of those who provided an initial sample, only 25 percent provided a subsequent sample.

Two studies showed that the median time to loss of sperm motility was three weeks after vasectomy and the median time to azoospermia was 10 weeks. A finding of rare, nonmotile sperm after 12 weeks reliably predicts long-term sterility; therefore, subsequent monthly samples after 12 weeks is recommended only for those with motile sperm. Patients who want earlier confirmation of sterility should be counseled that a second sample is more likely to be needed if the first sample is given before 12 weeks.

Long-term Complications
Some men may be concerned that vasectomy is linked to prostate cancer. However, a population-based, case-control study including men with newly diagnosed prostate cancer showed no association between prostate cancer and vasectomy (relative risk = 0.94), and a meta-analysis provided no evidence of an association. Studies also have shown that there is no measurable association between vasectomy and testicular cancer.

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