Vasectomy: The Other, Better Method of Permanent Contraception

David Turok, MD, MPH
&
Andy Garrison, MD
Objectives: To Understand Evidence Based Principals to...

- Review basics of vasectomy service implementation
- Understand "no scalpel" vasectomy technique
- Discuss management of uncomplicated vasectomies
Background: Why is this Important?

- Similar probability of pregnancy
- Tubal ligation ↑ complications
- OR versus outpatient clinic
- Tubal ligation more $$$
  - BTL $1300; Vas $500
  - Estimated annual savings - $266 million procedures, $13 million post-op management

Relatively higher use of female sterilization among Blacks and Latinos means:

- Minority women exposed to more health risks
- Higher cost of care
Why is female sterilization more common?

- Provider influence
- Market/insurance factors

- **Patient preference**
  - Knowledge
  - Contraceptive responsibility
  - Historical context

*No studies focused on racial differences in sterilization which include male and female perspectives.*
Disparities in Vasectomy Use

Race-based differences\(^1\)

Income-based differences\(^2\)


Pre-Procedural Issues
Pre-Procedure Visit

• Explain procedure, risks, and failure rate
• Perform focused history and physical exam
• Have patient sign consent form
• Review of pre- and post-operative instructions
• Billing: code as Contraceptive Counseling
• Offer Rxs:
  • Ativan 1 mg po #2
  • Hydrocodone 5 mg #10
Anatomy

Erection and ejaculation continue as before, but the semen contains no sperm.

The seminal vesicles and prostate secrete the same amount of fluids as before.

The vas deferens are cut, preventing sperm from moving to the penis.

The testes still produce sperm and hormones.
Vasal Anatomy
Informed Consent - Risks

- Bleeding (hematoma)
- Infection (wound, epididymitis, prostatitis)
- Pain
- Swelling
- Sperm granuloma
- Adhesions
- Hydrocele
- Pregnancy
- Regret
Precautions

• Active local or systemic infection
• Prior scrotal injury
• Coagulation disorders
• Diabetes
• Inability to palpate and elevate both vas
• Desire for possible future reversal
• Hydrocele, varicocele, hernia, cryptorchidism or mass
• Inappropriate reasons for wanting vasectomy (stress, sexual dysfunction, marital problems)
This is a Permanent and Non-Reversible Procedure

- Number of children
- Current relationship situation
- Current method of contraception
- Desire for more children if life situation changed (divorce, remarriage, death of a child or partner)
History

- Social history
  - Marital status, number of children, life situation, motives
- PMH
  - Bleeding disorders, chronic disease
  - Genital surgery, trauma, pain, STDs
- Medications
  - NSAIDs, aspirin, coumadin
- Allergies
  - Anesthetic agents, analgesics
Physical Exam

• GU
  • Testicular size, masses, location
  • Vas deferens bilaterally
  • Hernia, varicocele, hydrocele, STDs
History of No-Scalpel Vasectomy

• Developed by Dr. Li Shunqiang in Sichuan Province in 1974
• 1985 EngenderHealth’s team travels to China
• International training of high-volume vasectomists
• 1987 Thailand King’s Birthday Vasectomy Festival
## NSV at the King’s Birthday Vasectomy Festival

<table>
<thead>
<tr>
<th></th>
<th>NSV (n=680)</th>
<th>Incisional Vas (n=523)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infection (%)</td>
<td>0.2</td>
<td>1.3</td>
</tr>
<tr>
<td>Hematoma (%)</td>
<td>0.3</td>
<td>1.7</td>
</tr>
<tr>
<td>Complications (%)</td>
<td>0.4</td>
<td>3.1</td>
</tr>
<tr>
<td>Procedures performed/day</td>
<td>57</td>
<td>33</td>
</tr>
</tbody>
</table>

Lancet. 1990 Apr 14;335(8694):894-5.
## NSV vs. Incisional

<table>
<thead>
<tr>
<th></th>
<th>OR for NSV outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bleeding</strong></td>
<td>OR 0.49 (0.27-0.89)</td>
</tr>
<tr>
<td><strong>Hematoma</strong></td>
<td>OR 0.23 (0.15-0.36)</td>
</tr>
<tr>
<td><strong>Pain</strong></td>
<td>OR 0.75 (0.61-0.93)</td>
</tr>
<tr>
<td><strong>Infection</strong></td>
<td>OR 0.21 (0.06-0.78)</td>
</tr>
</tbody>
</table>

Cook et al. Scalpel versus no-scalpel incision for vasectomy. Cochrane Review, 2014
Pre-operative instructions

- Offer lorazepam 1 mg PO 20 minutes prior prn anxiety
  - Consent must be signed prior to taking ativan!
- Someone else to drive patient to and from clinic
- Bring athletic supporter or supportive underwear, wear sweat pants for comfort
- No aspirin for 7 days prior
- Remind patient that vasectomy does not produce immediate sterility
Pre-procedural preparation

- Encourage patient to bring music
- Warm all solutions (betadine, saline)
- Place warm pack on scrotum while patient lying supine to relax cremaster muscles
- Dry shave of scrotum if needed
- Fasten penis out of the field
NSV: 2 Crucial Instruments

Ringed Clamp & Dissecting Forceps

Inside dimensions of clamp:
3.0 mm, 3.5 mm, or 4.0 mm

Ahh, Anesthesia

- Vasal Block
- 10 cc syringe 5-8 cc of 1% lidocaine without epi
- 0.5 cc at median raphe
- 2-3 cc in external spermatic sheath 2-3 cm proximal to the vasectomy site
- Regional block with minimal edema
Vasal Block:
Skin Wheal  0.5 cc 1% lido
Deep Injection: 2-3 cc Each Vas
3 Finger Technique

The ideal entry site for no-scalpel vasectomy is found midway between the top of the testes and the base of the penis.
3 Finger Technique

http://www.cornellurology.com/infertility/no_needle.shtml
Switch Hands, Lower the Clamp, Elevate the Vas

Switch clamp to left hand

Palpate the vas beyond the clamp
Quick Pierce of Scrotum
Blunt Dissection
Down to Vas
Use the Lateral Blade to Pierce the Vas
Pierce the Vas & Rotate
Elevate the Vas and Release Clamp
Grasp Partial Thickness of Vas
Puncture the Vas Sheath Just Below the Vas
Bluntly Dissect Vas Sheath in Longitudinal Motion

• Expose at least 1 cm of the vas
• Clamp or cauterize bleeders
Occlusion Techniques

Dassow and Bennett. AFP (2006): 74: 2069-2074
Occlusion Techniques Associated with HIGHER failure rates

Dassow and Bennett. AFP (2006): 74: 2069-2074
Post Procedure Instructions

• Ice pack on scrotum for 4 hours post procedure
• Plan ~24 hours of rest with minimal activity
• OK to shower/bathe day after procedure
• Resume everyday activities 2-3 days post procedure
• Avoid sex and strenuous activity for 7 days
• Remind patient about PVSA!
Potential Complications

- Hematoma 2.6%
- Postvasectomy pain syndrome 1-6%
How Little is Enough?
The Evidence for Post Vas Testing

- Systematic review of 56 studies
- 80% will achieve azoospermia after 3 months and 20 ejaculations
- 1.4% demonstrate persistent non-motile sperm
- AUA states patients may stop using other forms of contraception when semen specimen shows azoospermia or rare non-motile sperm
Post Vas Semen Analysis (PVSA) Protocol

Conclusions

• Vasectomy is effective as, yet less costly and safer than, tubal sterilization

• There are race- and income-based differences in vasectomy use

• NSV is office-based and has a low complication rate

• Patients need a PVSA around 3 months post-vas to confirm azoospermia; 20% will require further followup
Questions and Comments

Thank you
Extra
Occlusion RCT

7 sites
NSV approach
Randomized to ligation and excision +/- FI
Semen Analysis 2 weeks after, then Q 4 weeks up to 34 weeks
Primary outcome = time to azoospermia

Sokal et al. Vasectomy by ligation and excision, with or without fascial interposition: a randomized controlled trial  BMC Med 2004.31;2:6
Occlusion RCT

Ligation & Excision vs. Ligation and Fascial Int

<table>
<thead>
<tr>
<th></th>
<th>L &amp; E</th>
<th>L&amp;E + FI</th>
<th>P</th>
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<tbody>
<tr>
<td>n</td>
<td>416</td>
<td>410</td>
<td></td>
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<tr>
<td>Failure @ 34 wks</td>
<td>53 (12.7%)</td>
<td>24 (5.9%)*</td>
<td>p &lt;0.0001</td>
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<tr>
<td>Surgical time</td>
<td>11.7 min</td>
<td>14.3 min*</td>
<td>p &lt;0.0001</td>
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<tr>
<td>Adverse events</td>
<td>62 (14.7%)</td>
<td>74 (17.7%)</td>
<td>P=0.23</td>
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<tr>
<td>Pregnancies</td>
<td>2</td>
<td>2</td>
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RCT of L&E +/- FI

Time to Azoospermia

L&E had a longer time to azoospermia (HR 1.35, p<0.0001) - mean time 14 vs. 10 weeks

Time to severe oligospermia (<100,000 sperm/ml)

L&E had a longer time to severe oligospermia (HR 1.32, p<0.0001) - mean time 6 vs. 4 weeks