

Defining the Standard for Vasectomy Success

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Controversies Regarding Vasectomy Management

- 1. Is vasectomy a permanent form of birth control?**
- 2. When do we obtain a post-vasectomy semen analysis?**
- 3. What is the significance of motile and non-motile sperm in the post-vasectomy semen analysis?**
- 4. Does azoospermia after vasectomy guarantee that sperm will not reappear?**
- 5. Do we need to centrifuge azoospermic semen after vasectomy in order to detect occasional sperm?**

1. Is vasectomy a permanent form of birth control?

Vasectomy is Not Guaranteed

Vasectomy pregnancy failure rate of 0.1%

- Early-unprotected intercourse prior to obtaining a negative semen analysis
- Late-recanalization of the vas deferens

Tubal ligation pregnancy failure rate of 1.85%

Trussell J et al, *Contraceptive Technology* 1998

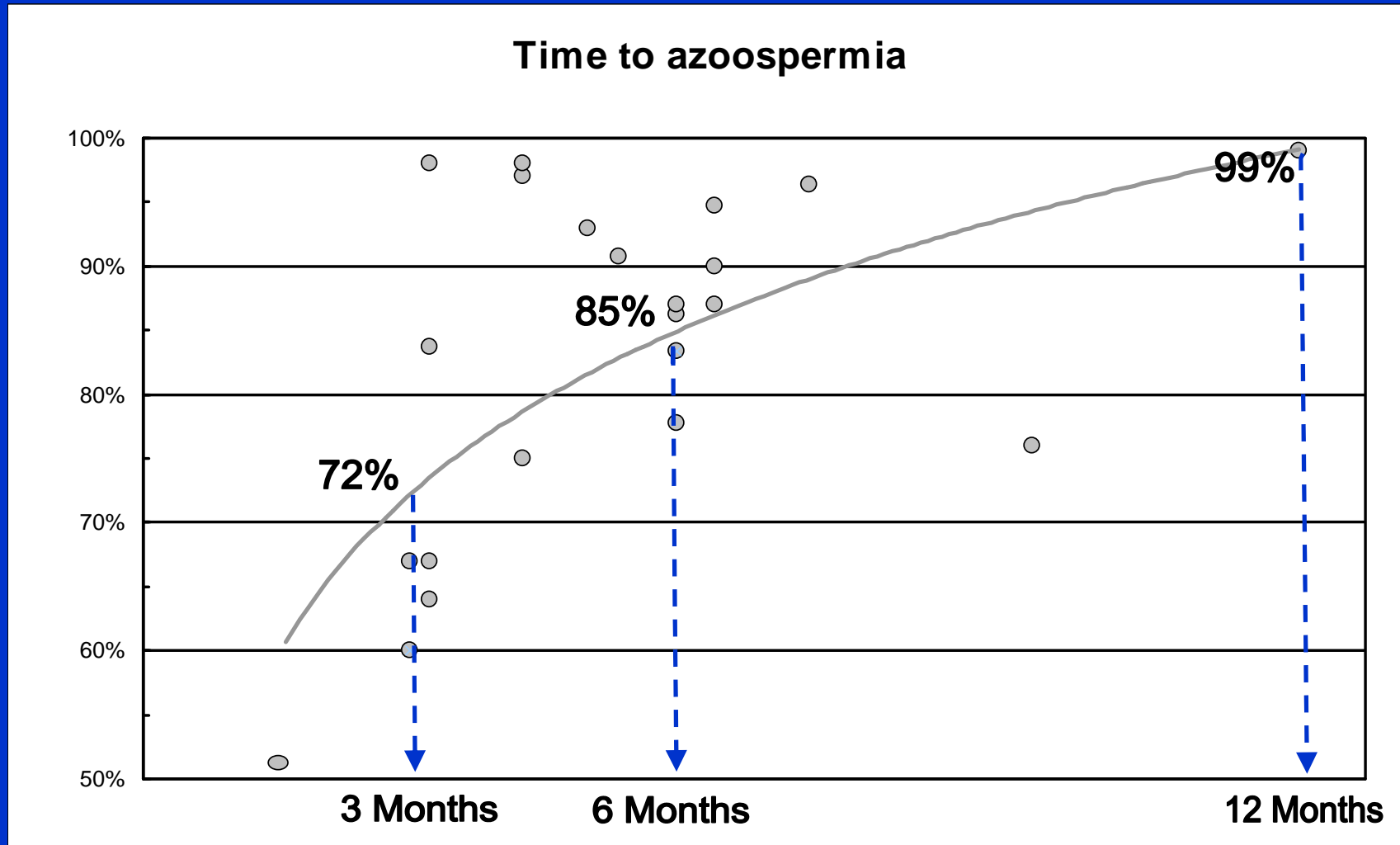
Peterson HB et al, *NEJM* 1997

Weiske, *Andrologia* 2001

Schwingl and Guess, *Fert and Steril* 2000

2. When do we obtain a post-vasectomy semen analysis?

ANALYSIS OF SPERM CLEARANCE



Finger 1997 , Cortes 1997, Arango 1993, De Kniff 1997, O'Brien 1995, Badrakumar 2000
Mason 2002, Smith 1998, Hancock 2002, Alderman 1989, Barone 2003, Nazerali 2002

“Clinical aspects of vasectomies performed in the United States in 1995”

Most physicians requested the first semen analysis too soon!

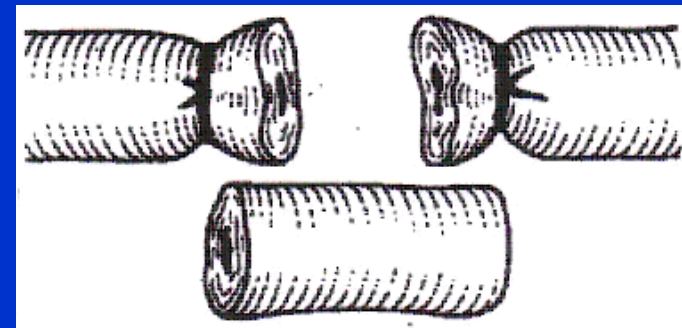
- ≤ 6 weeks - 59%
- 7-9 weeks - 29%
- > 9 weeks - 12%

Haws et al, *Urology* 1998

Only $\frac{3}{4}$ of men are azoospermic at 3 months

Different methods of vasal occlusion have similar sperm clearance rates

- Fascial interposition does not reduce time to azoospermia
- No association between length of excised vas and time to azoospermia



Clenney. *Amer Fam Phy.* 1999
Haws. *Urology.* 1998

Bennett. *Urology.* 1976.
Esho. *J Urol.* 1978.

Schmidt. *Urol Clin N Amer.* 1987.
Labrecque. *Fert Ster.* 2003.

3. What is the significance of motile and non-motile sperm in the post vasectomy semen analysis?

Significance of Motile Sperm

- **Motile sperm caused by:**
 - **Technical error**
 - **Recanalization between the two ends of the vas deferens**
- **Motile sperm 3-6 months after vasectomy is more likely to be associated with pregnancy**

(Edwards, *Fert. Steril* 1993)

Significance of Non-motile Sperm

- Non-motile sperm caused by :
 - release of nonviable residual sperm in the distal reproductive tract¹
 - recanalization between the two ends of the vas deferens²
- Risk of pregnancy from non-motile sperm is similar to the risk of pregnancy after two azoospermic semen analyses (0.05%)³

¹ De Knijff et al , *Fert Steril* 1997

² Goldstein et al, *J Urology* 1996

³ Haldar, *Lancet* 2000 & Bengner et al, *BJU* 1995

4. Does azoospermia after vasectomy guarantee that sperm will never reappear in the future?

Reappearance of Occasional Sperm After Azoospermia

- O'Brien et al *BJU* 1995 0.6% (1 year)
- Labrecque et al *CAF* 1998 2.2% (< 1year)
- DeKnijff et al *Fert Steril* 1997 8.0% (2 years)
- Goldstein et al *J Urology* 1996 9.7% (10 years)
- Freund and Couture *J Androl* 1982 100% (2-31 years) *

* “Presence of a small number of spermatozoa in vasectomized men is a normal and usual sequela of vasectomy”

5. Do we need to centrifuge a post-vasectomy azoospermic semen specimen in order to detect rare sperm?

Centrifugation of azoospermic semen

- Recommended by laboratory guidelines
WHO and ASCP
- It is *not* the current clinical standard of care for vasectomy

Conclusion

- **Sterility post-vasectomy is not guaranteed**
- **Post-vasectomy semen analysis recommended at 3 to 6 months**
- **Post-vasectomy semen analysis should demonstrate azoospermia or non-motile sperm before contraception is discontinued**
- **Sperm may reappear despite initial azoospermia**
- **Centrifugation of azoospermic semen in order to detect rare sperm is not the clinical standard of care**

Informed consent should indicate the requirement of a post-vasectomy semen analysis and the potential failure rate associated with vasectomy