



SMRU Newsletter



Editor - Moshe Wald, M.D.

Fall 2008

Mission Statement

"To promote the advancement of our understanding of male reproductive physiology and management of male infertility by providing a forum for the dissemination of both basic and clinical research information and support of educational programs."

MESSAGE FROM THE PRESIDENT

JAY I. SANDLOW, M.D.

As my term as President winds to an end, I would like to take this opportunity to reflect on all that has happened in the past year in our society. We have seen an overall growth in our membership, in no small part to the hard work of our ASRM office staff, our Past-President Rebecca Sokol, and all of our current members. The society is in good shape financially and the future looks bright. We have been quite active within ASRM in producing patient education fact sheets, practice guidelines, and heightening the awareness of the importance of the male evaluation in the infertile couple.



SMRU has continued to lead the way both clinically and scientifically in the field of andrology. Our upcoming meeting is reflective of this, beginning on Sunday with the Postgraduate Course entitled, "Unraveling the Mysteries of Spermatogenesis: Contemporary Therapies, Stem Cells, and Beyond" chaired by Robert E. Brannigan, M.D. By attending this course, we hope to broaden the attendees' understanding of spermatogenesis and the variety of contemporary therapies available to address specific spermatogenic disorders. We also aim to provide attendees with a state of the art overview of important, emerging technologies such as germ cell transplantation and stem cell based therapy for male infertility. By the end of the course, the attendees should be able to describe

the pathophysiology associated with both congenital and acquired disorders of spermatogenesis, discuss investigational and emerging technologies for the treatment of male infertility including germ cell transplantation and stem cell based therapy, as well as review contemporary methods to preserve and restore fertility in male cancer patients.

We will also be co-sponsoring an interactive session, along with the Environment and Reproduction Special Interest Group (ERSIG) entitled, "Male Reproductive Toxicology" with Drs Susan Benoff and Mark Sigman; 3 mini-symposia: Gabor Huszar M.D. (Yale): "Sperm Biochemical Markers and Their Relationship to Sperm Morphology", Darius Paduch, M.D., Ph.D. (Cornell): "Klinefelter's Syndrome: Novel Scientific and Clinical Insights", and Gail Prins, Ph.D. (UIC): "The Reproductive Aspects of the Prostate: Growth, Development, Function, and Impairment", as well as our 3 concurrent scientific sessions. There is also an abundance of roundtable presentations of interest to our members, and I encourage you all to sign up for them prior to the meeting, as they do tend to fill up quickly.

As part of our educational outreach program, the SMRU continues to support the Annual SMRU Traveling Scholars Award Program. The objective of this program is to expose residents, fellows, Ph.D. students, and post-docs to new scientific information pertinent to the study of male reproductive medicine. We

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have 6 new Traveling Scholars this year, and they will all present their research at a session dedicated to the program. These scholars are the future of our society, so please show your support and attend the session.

Finally, what I think is one of the highlights of the meeting - our annual SMRU banquet. This will be held at Annabelle's, which is right across the street from the SF Marriott. We will have the run of the entire restaurant and I am sure that this will be a dinner to remember. Please sign up early so that we have an accurate head count. I encourage all members and guests to

attend. This has been a year of hard work and great results and I think it will be evident at the upcoming meeting. I look forward to seeing all of you in San Francisco this November.

Sincerely,

Jay Sandlow, M.D.
President
Society for Male Reproduction and Urology

WE ARE PLEASED TO ACKNOWLEDGE THE FOLLOWING SMRU MEMBERS FOR THEIR VALUABLE SERVICE AS REPRESENTATIVES TO THE BELOW ASRM COMMITTEES:

CODING AND REIMBURSEMENT COMMITTEE

JEANNE H.S. O'BRIEN, M.D. (2005-2008)

MEMBERSHIP COMMITTEE

NATAN BAR-CHAMA, M.D. (2005-2008)

CONTINUING MEDICAL EDUCATION COMMITTEE

MARK SIGMAN, M.D. (2008-2011)

PATIENT EDUCATION

JAY I. SANDLOW, M.D. (2005-2008)

PRACTICE COMMITTEE

MARK R. LICHT, M.D. (2006-2009)

RESIDENT EDUCATION

PAUL J. TUREK, M.D. (2006-2009)

2008 SMRU TRAVELING SCHOLAR AWARD

PROGRAM COMMITTEE

SUSAN BENOFF, Ph.D (CHAIR)

JAY I. SANDLOW, M.D.

SMRU BOARD AND OFFICERS 2007-2008

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Newsletter Editor

Moshe Wald, M.D.

ANNUAL MEETINGS OF THE AMERICAN SOCIETY FOR REPRODUCTIVE MEDICINE (ASRM)

NOVEMBER 8-12, 2008
MOSCONE CONVENTION CENTER
SAN FRANCISCO, CALIFORNIA

OCTOBER 17-21, 2009
GEORGIA WORLD CONGRESS CENTER
ATLANTA, GEORGIA

OCTOBER 23-27, 2010
THE COLORADO CONVENTION CENTER
DENVER, COLORADO

OCTOBER 15-19, 2011
THE ORANGE COUNTY
CONVENTION CENTER
ORLANDO, FLORIDA

SUPPORT the SMRU Traveling Scholars!

Rebecca Sokol, M.D.

The objective of the SMRU Traveling Scholars program is to expose the selected scholars to new scientific information pertinent to the study of male reproductive medicine. The Scholars, who are selected based on the quality of their submitted research abstracts and their letters of recommendations, are given the opportunity to present their research findings at a special session during the Annual Meeting.

Last year the SMRU Board began a campaign to endow the SMRU Traveling Scholars Program. As you know, every year the SMRU sponsors a group of bright young fellows/residents, graduate students, and post doctoral fellows at the ASRM Annual Meeting.

Your gifts allow award recipients to receive a stipend to offset the costs of attending the meeting.

WE SUGGESTED A MINIMUM DONATION OF \$250, BUT ALL DONATIONS WERE APPRECIATED. We would like to acknowledge those SMRU members who have donated to the fund and are listed below,

and invite the rest of you to send in a donation in support of this important program. Please go to www.smru.org, click on DONATE to SMRU and indicate that your donation is for the SMRU Scholars Program. Alternatively, send a check to ASRM/SMRU c/o Jil Clowers at 1209 Montgomery HWY, Birmingham, AL 35216-2808.

Nancy Brackett, PhD	Peter Schlegel, MD
Robert Brannigan, MD	Arnold Belker, MD
Dale McClure, MD	Stuart Howards, MD
Dolores Lamb, PhD	Gabor Huszar, MD
Charles Lynne, MD	Edward Kim, MD
Bar-Chama Natan, MD	Mark Licht, MD
Craig Niederberger, MD	Larry Lipshultz, MD
Robert Oates, MD	Mark Sigmon, MD
Jay Sandlow, MD	Marc Goldstein, MD
Richard J. SHerins, M.D.	Rebecca Sokol, MD

SMRU would also like to acknowledge the untiring work of Dr. Susan Benoff in working with the Traveling Scholars Program over the years.

2007 SMRU Traveling Scholars

Michael L. Eisenberg, M.D.

A Novel Form of the "Whitaker Test" for Ejaculatory Duct Obstruction.

M.L. Eisenberg, K. Shinohara, M.

M. Garcia, P.J. Turek. Department of Urology, University of California, San Francisco, San Francisco, CA

Hassan W. Bakos, B.Sc.

Sperm DNA Damage: Is Altered Carbohydrate Metabolism to Blame?

H. W. Bakos, J. G. Thompson, M. Lane.

Fnu Deepinder, M.D.

Relationship of Pubertal Gynecomastia with Varicocele and Various Parameters of Growth: A Seven Year Prospective Study.

F. Deepinder, P. Kumanov, R. Robeva, A. Tomova, I. Puri, A. Agarwal.

Jung Jin Lim, M.Sc.

Proliferation and Differentiation of Male Germ-Line Stem Cells from Testes of Non-Obstructive Azoospermia Using Sequential Culture Systems.

J. J. Lim, D. R. Lee, H. J. Kim, S. H. Song, T. K. Yoon, K. S. Kim.

Benjamin R. Emery, B. S

Combined Effects of the Experimental Left Varicocele and Lead or Nicotine on the Rat Testis.

B. R. Emery, Y. Sun, D. T. Carrell.

SMRU at ASRM 2008

SUNDAY

Course PG12

Faculty

Robert E. Brannigan, MD, Chair

Dolores J. Lamb, PhD

Paul J. Turek, MD

Unraveling the Mysteries of Spermatogenesis: Contemporary Therapies, Stem Cells and Beyond

MONDAY

12:15 pm - 1:15 pm

Interactive Session

Male Reproductive Toxicology

Robert E. Brannigan, MD

Linda C. Giudice, MD, PhD

Susan H. Benoff, PhD

Mark Sigman, MD

12:15 pm - 1:15 pm

Roundtable Luncheons

RTM19. ***Genetic Anomalies and Male Infertility: A State of the Art Overview***

Robert D. Oates, MD

RTM20. ***Effect of Sperm Source on IVF Outcomes***

Christopher Schrepferman, MD

RTM21. ***Microsurgical Pearls for Vasectomy Reversal and Varicocelelectomy***

Marc Goldstein, MD

RTM22. ***FSH Effect on Sperm Ultrastructure and Its Outcome on Pregnancy***

Michel Abou Abdallah, MD

1:45 pm - 2:30 pm

Plenary Session 2

Bruce Stewart Memorial Lecture

Androgens in Men and Women: A State of the Art Overview

Rebecca Z. Sokol, MD

3:15 pm - 5:15 pm Abstract Sessions

Mini-symposium

4:45 pm - 5:15 pm

Klinefelter Syndrome: Novel Scientific and Clinical Insights

Darius A. Paduch, MD

MONDAY (continued)

5:15 pm - 5:45 pm Members' Meetings

7:15 pm SMRU Reception
8:15 pm SMRU Dinner
Annabelle's Bar & Bistro
68 Fourth Street
(between Market & Mission)
San Francisco, CA 94103
415-777-1200

TUESDAY

Roundtables

RTT18. ***Environmental Factors that Impair Male Reproduction***

Susan H. Benoff, PhD

RTT19. ***Preservation of Male Fertility in Cancer Patients***

Daniel H. Williams, MD

RTT20. ***Medications that Impair Male Reproduction***

Ajay K. Nangia, MD

RTT21. ***Diagnostic and Therapeutic Approach to Ejaculatory Duct Obstruction***

Mohit Khera, MD

3:15 pm - 5:15 pm

Abstract Sessions

Mini-symposium

4:45 pm - 5:15 pm

The Reproductive Aspects of the Prostate: Growth, Development, Function, and Impairment

Gail S. Prins, PhD

WEDNESDAY

RTW17. ***Optimization of the Reproductive Health of Men with Spinal Cord Injuries***

Nancy L. Brackett, P.D

RTW18. ***Reproductive Options in the Neurologically Impaired Patient***

Dana A. Ohl, MD

RTW19. ***ART or Vasectomy Reversal: Helping Patients Navigate the Decision-Making Process***

Aaron Spitz, MD

RTW20. ***Varicoceles and ART***

Edmund S. Sabanegh, Jr., MD

2:45 pm - 4:45 pm
Abstract Sessions

2008 SMRU Traveling Scholars

Sue S. Hammoud, PhD

Genome-Wide Epigenetic Characterization Of Human Sperm Reveals Distinctive Chromatin States That Poise Genes To Guide Embryo Development

Amul M. Shah

Final Results Of The Survey For Preservation Of Adolescent Reproduction (Spare) Study: Semen Preservation Knowledge, Attitudes, Practices And Barriers

Kathleen Lin, MD

Sertoli Cell-Only Pattern (SCO) Does Not Always Cause Elevated FSH: Impact On Sperm Retrieval Results In Non-Obstructive Azoospermia (NOA)

Rene B. Allen, MD

Hyperglycosylated Human Chorionic Gonadotropin (hCG): A Novel Finding In Seminal Plasma

Genevieve Patry, MD

MAP: Micro-Testicular Sperm Extraction Avoidance Program

4:15 pm - 4:45 pm

Minisymposium

Sperm Biochemical Markers and Their Relationship to Sperm Morphology

Gabor B. Huszar, MD

SSMR Lecture Summaries
American Urological Association Annual Meeting, Orlando, FL

"Vasectomy: What is All the Fuss About?"
Program Chair: Ajay K. Nangia, MD
Tuesday, May 20, 2008

Demographics and Epidemiology of Vasectomy Procedures
David C. Sokal, MD, Behavioral and Biomedical Research Department, Family Health International,
Research Triangle Park, NC.

The objective of my talk is to briefly summarize the use of vasectomy by different population groups, and review some of the relevant epidemiology. Worldwide, there is a great variation between countries in use of vasectomy for family planning. Recent data are limited, but New Zealand is clearly number one in the world, with over 50% of men getting a vasectomy by age 50. In China, vasectomy was very popular in the past, but with changing circumstances, anecdotal reports suggest that many couples now appear to be switching to reversible methods. Other countries with significant vasectomy rates include Australia, Brazil, Canada, Denmark, Iran, Korea, Nepal, Netherlands, Sri Lanka, Thailand and the U.K. Rates in India have been low since the 1970s, but may be increasing. Within Europe, vasectomy is quite variable, with several countries having relatively high rates, while in France and Spain, rates are under 1%. In Africa, vasectomy is virtually ignored. In Latin America, Brazil and Mexico probably have the highest level of vasectomy use, with a prevalence of about 3% and 1%, respectively.

In the U.S., while the "prevalence" of vasectomy is quoted as about 10-11%, it increases with age, and about 18% of men get a vasectomy by age 45. Among U.S. men, vasectomies are generally paid for by health insurance rather than public funding. It is estimated that fewer than 5% of vasectomies in the U.S. were paid for by Medicaid or other public funding, compared to 35% of female sterilization, suggesting low access for men without health insurance. Since vasectomies are safer and less expensive, this discrepancy deserves attention.

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- Barone MA, Hutchinson PL, Johnson CH, Hsia J, Wheeler J. Vasectomy in the United States, 2002. *J Urol* 2006;176:232.
- Barone MA, Johnson CH, Luick MA, Teutonico DL, Magnani RJ. Characteristics of men receiving vasectomies in the United States, 1998-1999. *Perspect Sex Reprod Health* 2004;36:27.
- EngenderHealth. *Contraceptive Sterilization: Global Issues and Trends*. New York: EngenderHealth, 2002.
- Sneyd MJ, Cox B, Paul C, Skegg DC. High prevalence of vasectomy in New Zealand. *Contraception* 2001;64:155.



Vasectomy Technique - Does it Really Matter and is There Any Evidence?

David C. Sokal, MD, Behavioral and Biomedical Research Department, Family Health International, Research Triangle Park, NC.

The objective of my talk is to briefly summarize the evidence regarding different vasectomy techniques. Somewhat surprisingly, there are relatively few prospective clinical trials comparing vasectomy techniques. To help fill this gap, Family Health International (FHI) has conducted a number of studies, including several multicenter prospective clinical trials of different vasectomy techniques, including study sites in high-resource settings such as the US, the UK and Canada, and in low-resource settings such as Nepal, Sri Lanka and Mexico. Much of FHI's research has been conducted in collaboration with EngenderHealth, originally known as the Association for Voluntary Surgical Contraception. Our research has been supported by funding from the US Agency for International Development.

Does technique matter? Yes! There are, of course, two major parts to the vasectomy procedure: accessing the vas, and occluding the vas. The no-scalpel method of accessing the vas is more difficult than the standard approach; however, in experienced hands it is faster, and results in fewer adverse events and a more rapid return to sexual activity. With respect to methods of occluding the vas, surgeons use a wide variety of techniques. Based on semen analysis data from prospective clinical studies, failure rates for different techniques range from less than 1% to more than 5%. There is evidence that fascial interposition improves the effectiveness of the simple ligation and excision procedure. Simple ligation and excision, with either sutures or clips, should not be used. There is evidence that cautery techniques, especially those including

fascial interposition, are more effective than ligation and excision with fascial interposition. Most other technical variations, such as the fold-back technique, and the use of multiple sutures or multiple clips, have not been evaluated in comparative clinical trials. With respect to safety outcomes, including chronic pain, there is not enough data to conclude that any particular method of vas occlusion has a particular advantage.

References

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Labrecque M, Dufresne C, Barone MA, St-Hilaire K. Vasectomy surgical techniques: a systematic review *BMC Med* 2004;2:21.

Schmidt SS. Vasectomy by section, luminal fulguration and fascial interposition: results from 6248 cases. *Br J Urol* 1995;76:373.

Sokal D, McMullen S, Gates D, Dominik R. A comparative study of the no scalpel and standard incision approaches to vasectomy in 5 countries. The Male Sterilization Investigator Team. *J Urol* 1999;162:1621.

Sokal D, Irsula B, Chen-Mok M, Labrecque M, Barone MA. A comparison of vas occlusion techniques: cautery more effective than ligation and excision with fascial interposition. *BMC Urol* 2004;4:12.

Post-Vasectomy Checkup: What is the Best Practice?

Complete Azoospermia Required, Cathy K. Naughton, MD
Time and Patient Compliance Most Important, Stephen Jones, MD
Number of Ejaculations Most Important, Aaron Spitz, MD

Complete Azoospermia Required

Cathy K. Naughton, MD, Center for Sexual Health, Metropolitan Urological Specialists, St. Louis, MO

The time to spermatozoa clearance from the ejaculate, or azoospermia, after vasectomy can vary widely in men.¹ Further, there is no standard protocol in regards to defining azoospermia following vasectomy. The diagnosis of azoospermia in the evaluation of male infertility is made when no spermatozoa can be detected on high-powered microscopic examination of centrifuged seminal fluid on at least two occasions. The WHO Laboratory Manual for the Examination of Human Semen and Semen Cervical Mucus Interaction recommends that the seminal fluid be centrifuged for 15 minutes at a centrifugation speed of, preferably, 3000g or greater.² The recommendation advocated by the Male Infertility Best Practice Policy Committee of the American Urological Association and the Practice Committee of the American Society for Reproductive Medicine is that "the diagnosis of azoospermia requires the absence of sperm from at least two separate centrifuged semen samples."³ Extrapolating on this protocol in the setting of vasectomy is one approach.

Others argue the clinical significance of rare non-motile spermatozoa (RNMS) following vasectomy as most of these men eventually become azoospermic.^{4,5} As centrifugation of a sample will more likely lead to documentation of RNMS, some may advocate that centrifugation is in fact not desirable.

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2. World Health Organization. WHO Laboratory Manual for the Examination of Human Semen and Semen Cervical Mucus Interaction, New York: Cambridge Press, 1999.
3. Male Infertility Best Practice Policy Committee of the American Urological Association, Practice Committee of the American Society for Reproductive Medicine. Report on evaluation of the azoospermic male. *Fertil Steril* 2006;86(suppl 4):S210.
4. Chawla A, Bowles B, Zini A. Vasectomy follow-up: clinical significance of rare nonmotile sperm in postoperative semen analysis. *Urology* 2004;64:1212.
5. Dhar NB, Bhatt A, Jones JS. Determining the success of vasectomy. *BJU Int* 2006;97:773.

Time and Patient Compliance Most Important

J. Stephen Jones, MD, Department of Regional Urology, Glickman Urological and Kidney Institute,
Cleveland Clinic, Cleveland, OH

We have found that the number of ejaculations is difficult to quantify, increasing the likelihood that men will delay or forego postvasectomy confirmation of sterility. To study the impact of postvasectomy protocols, semen analysis was requested at two and three months post-vasectomy in 436 consecutive patients. Despite aggressive counseling, only 75% provided a semen specimen at all. Of these patients, 75% were azoospermic, and 25% had semen containing sperm (Figure 1). All 80 men with RNMS at two months achieved azoospermia within 11 months, so further testing yielded no additional benefit (Figure 2).

Notably, only 21% of patients complied with instructions to provide two consecutive azoospermic semen specimens. In an attempt to increase this, we tested the impact of scheduling an appointment for vasectomy follow-up, instead of the traditional practice of simply telling patients to "drop off" a specimen. In the appointment group, 84% complied with post-vasectomy instructions to bring the first sample two months after vasectomy, and in the no-appointment group, only 65% complied ($p=0.001$). In the appointment group, 38% of patients complied with post-vasectomy instructions to provide two consecutive azoospermic semen specimens and in the no-appointment group 20% complied. Thus, the appointment significantly improved the likelihood that men would return a specimen, but insistence on a second specimen, or two truly azoospermic specimens was still unachieved in the majority of patients.

Therefore, we believe that protocols requiring multiple specimens are not achieved regardless of admirable goals. Testing at two months results in continued RMNS in 25% of patients. Thus, the protocol most likely to truly confirm sterility in the largest number of patients is to request a single specimen three months after vasectomy, and to advise patients that they are likely to be sterile if azoospermia, or RNMS are identified. More involved protocols may be optimal, but protocols that are fulfilled in only 1/5 of patients are not viable models regardless of intentions.

Figure 1: Rates of semen sample return, total – 436 pt

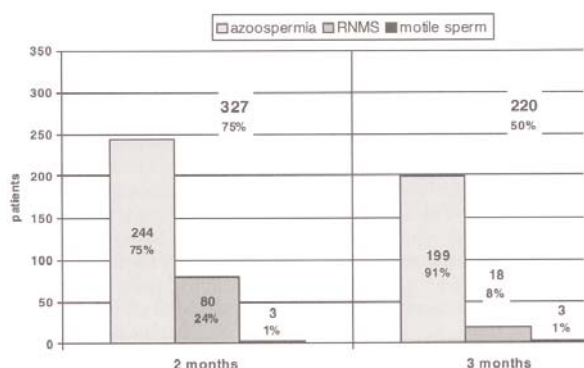


Figure 1

Figure 2: Follow-up of 83 patients with evidence of sperm at 8

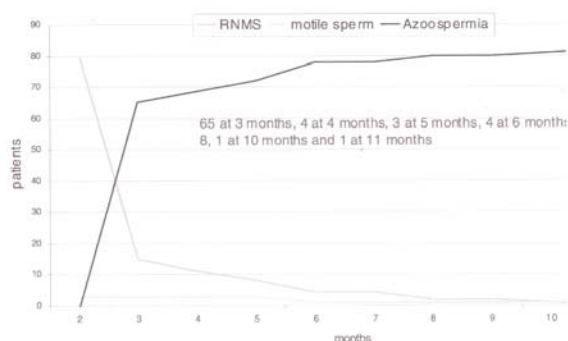


Figure 2

Number of Ejaculations Most Important
Aaron Spitz, MD, Orange County Urology Associates, Laguna Hills, CA

A review of the literature regarding post-vasectomy monitoring reveals varied opinions and protocols regarding the number of ejaculations recommended prior to semen testing. On one end of the spectrum, there is no minimum number of ejaculations required as long as only non-motile sperm are observed as early as four weeks.¹ On the other end, the British Andrology Society guidelines from 2002 require 24 ejaculations.² In Mexico, a prospective trial demonstrated that 60 ejaculations were required to achieve azoospermia in 93% of patients, whereas the median number of ejaculations was 25 to 30. The median time to azoospermia was five weeks faster for men who ejaculated three or more times per week (7 weeks versus 12 weeks).³ Low concentrations of immotile sperm may be achieved more rapidly, 10 to 15 ejaculations for the median, if that is the criteria for satisfactory sterility. When viability rather than motility is the criteria, the number of ejaculations to nonviable sperm more closely matches the number of ejaculations to azoospermia.³ Factors such as the age of the patient are postulated to impact on the number of ejaculations required. The anatomy of the ampula of the vas deferens may act as a tenacious reservoir for sperm distal to the vasal ligation.⁴ A real-world consideration must be the relatively poor patient compliance with post-vasectomy follow-up. Studies indicate that only slightly more than half of patients follow-up with a semen analysis, and this number declines significantly with increasing time requirements.⁵

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2. Hancock P. British Andrology Society guidelines for the assessment of post-vasectomy semen samples. *J Clin Pathol* 2002;55:812.
3. Cortes M. Results of a pilot study of the time to azoospermia after vasectomy in Mexico City. *Contraception* 1997;56:215.
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Post-op Issues: What are the Facts?

Recanalization, Moshe Wald, MD
Post-Vasectomy Pain Syndrome, Victor Brugh, MD
Any Associated Diseases with Vasectomy?, Robert E. Brannigan, MD

Post-vasectomy Recanalization

Moshe Wald, MD, Department of Urology, University of Iowa

The failure rate of bilateral vasectomy is estimated to be about 1 in 1,000. Many failures are attributed to intercourse too soon after vasectomy and late failures are generally felt to be much less common.¹ However, existing data show that spermatozoa can be found in many vasectomized men, and suggest that recanalization may have a significant association with vasectomy failures. Sperm was found in the ejaculates from all 24 men with documented azoospermia who underwent a vasectomy 2 to 31 years previously and in 62 of 63 total samples collected.² Other investigators found that 10% of vasectomized men (18 of 186) who presented for vasectomy

reversals had motile sperm found on centrifuged semen samples.³ A recent study of 1,215 men who participated in a randomized controlled trial for vasectomy techniques showed an overall early recanalization rate of 13% (range 0-25%) based on the technique used.⁴ Complete recanalization of the vas deferens is an established, albeit uncommon, event. Hayashi et al reported the case of a 46-year-old man who developed a normal sperm count and motility three years after his vasectomy.⁵ Detailed histology showed complete unilateral epithelial recanalization as well as the presence of multiple blind-ending epithelial-lined tubules.

The formation of microscopic epithelial tubules appears to be a much more common and poorly understood event. Studies of vas deferens removed at the time of vasectomy reversals has demonstrated the presence of epithelial lined micro-canal emanating from the both the abdominal and testicular ends of the vas deferens. These have been found to have sperm either extravasating from them or within the tubules on pathological examination.^{6,7}

A recent study looked at the molecular and biological processes that occur at the site of vasectomy. Using a rat model, the presence of microcanals sprouting from the two edges of the severed vas deferens was demonstrated. A statistically significant ($p < 0.05$) and sustained increase in the tissue levels of certain growth factors (specifically, TGF β - and PDGF- α and β) was demonstrated in both edges of the severed vasa deferentia, as compared to the levels at the contralateral sham-operated side, with a trend towards a higher increase at the testicular end of the vas, which reached statistical significance with PDGF- β .⁸ These findings suggest an involvement of growth factors in the process of post-vasectomy micro-recanalization. The identification of which growth factors seem to be most involved has not yet been addressed. Both TGF- β and PDGF- β are known to be involved in wound healing with effects including the proliferation of fibroblasts and smooth muscle cells, chemotaxis, and the inhibition of macrophage and lymphocyte proliferation. It is not clear yet whether these growth factors are acting separately or in concert, but the induction of PDGF- β by TGF- β has been previously reported.⁸

Furthermore, TGF- β has been suggested to play a role in sperm maturation and maintenance in rats.⁸ Further studies are required to confirm a direct cause and effect relationship between the local increase in TGF- β and PDGF levels and the formation of post-vasectomy micro-canal. However, these findings suggest a possible mechanism for post-vasectomy ejaculate sperm identification.

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3. Lemack GE, Goldstein M. Presence of sperm in the pre-vasectomy reversal semen analysis: incidence and implications. *J Urol* 1996;155:167.
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Post-Vasectomy Pain Syndrome
Victor Brugh, MD, Urology of Virginia, Nassawadox, VA

Men undergoing vasectomy will describe some degree of chronic testicular discomfort in a third of cases. For many patients this pain is not significantly bothersome, though up to 5% of men will, unfortunately, develop post-vasectomy pain syndrome. Postvasectomy pain syndrome has been defined as intermittent or constant, unilateral or bilateral testicular pain for greater than 3 months after having a vasectomy. This pain interferes with daily activities and causes a patient to seek medical attention.

This postvasectomy complication is frustrating for the surgeon and patient alike as there are no predictors as to which patients will develop postvasectomy pain syndrome, no clear-cut etiology of the pain, nor is there a best treatment. Theories on the cause include chronic inflammation, interstitial or perineuronal fibrosis, and congestion with dilation of the epididymal ducts. Evaluation includes a thorough history, physical exam and a scrotal ultrasound. Options for best treatment include medical treatments such as nonsteroidal anti-inflammatories, antibiotics, limited physical activity, scrotal support, nerve blocks, and tricyclic antidepressants. Surgical options include conversion to open-ended vasectomy, vasectomy reversal, spermatic cord denervation, epididymectomy, and orchiectomy.

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Any Associated Diseases with Vasectomy?

Robert E. Brannigan, MD, Department of Urology, Northwestern University, Chicago, IL

Vasectomy has become increasingly common over the past several decades, with the prevalence of husbands having undergone the procedure rising from 3.6% in 1965 to 15% in 1995.¹ Although vasectomy is generally regarded as a very safe and effective procedure, a number of studies reporting associations between vasectomy and subsequently diagnosed disease states have been published. Prostate cancer, atherosclerosis, glomerulonephritis, and more recently primary progressive aphasia, a very rare form of frontotemporal dementia, are all examples of medical conditions that have been reported as being associated with a history of prior vasectomy.^{2,3} Methodological factors such as selection bias and unmeasured confounding may indeed have led to the findings observed in some of these early reports. The follow-up studies disputing the association between a history of vasectomy and subsequent increased prevalence of prostate cancer have garnered significant attention and point to the importance of study design when asserting associations between medical conditions.⁴

To date, no follow-up studies further assessing the relationship between vasectomy and primary progressive aphasia have been published. The study that previously reported the association between these two conditions will be considered in the context of several key issues, including the possible unmeasured confounding bias strength of association, and biological plausibility. With respect to associative reports like those cited above, we should recall the work of colleagues such as Howards and Peterson, who thoughtfully considered such stud-

ies, but earnestly called for more definitive investigation to provide badly needed clarity to these tenuous clinical observations.⁵

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Member Profile - Dr. Wayne Kuang

Dr. Wayne Kuang founded Southwest Fertility Center for Men in Albuquerque, New Mexico, and serves as a part-time faculty member at the University of New Mexico as Director of the Male Fertility program.



After traveling to the U.S. from Norway to complete high school, Dr. Kuang went on to graduate from the Massachusetts Institute of Technology in 1993. He then earned his medical degree at Stanford University and completed his urology residency at the

Cleveland Clinic, where he stayed on as Dr. Anthony Thomas' last Male Infertility fellow.

As a fellow at the Cleveland Clinic, he focused his research on investigating robotic-assisted vasectomy reversals and developing an in vitro model for sperm apoptosis using chemotherapeutic agents. His current research has broadened to include the use of optical coherence tomography for testicular imaging.

His main pursuit outside of the office is founding the non-profit organization "Unplugged." This program aims to enroll troubled inner-city teenagers into an environmental experiential program located on 500 acres of untouched

backcountry near Slick Rock, Colorado. By encouraging the youths to "unplug" from their iPods and the internet, guidance counselors and social workers will help these teenagers "plug" back into themselves to help them identify who they are and who they want to become, and find a path to get them there. Dr. Kuang plans to sponsor one teenager with every vasectomy reversal that he performs at the Southwest Fertility Center for Men.

While it took a while to get used to the green chili and the vast open skies, Dr. Kuang has come to enjoy the watermelon sunsets while backpacking with his wife and two sons in this Land of Enchantment.

SMRU Member Update

● Dr. Robert Brannigan is chairing the 2008 ASRM postgraduate course entitled "Unraveling the Mysteries of Spermatogenesis: Contemporary Therapies, Stem Cells and Beyond," to be held in San Francisco, CA, on November 9, 2008.

● Dr. Marc Goldstein was recently named The Matthew P. Hardy Distinguished Professor of Reproductive Medicine and Urology at the Weill Medical College of Cornell University. This endowed chair was made possible by a donor who wishes to remain anonymous. Dr. Goldstein chose to name it in honor of Matthew P. Hardy, PhD, who was a distinguished scientist and andrologist with the Population Council and the Urology Department at Cornell. He made many important contributions to the understanding of the Leydig cell and was a wonderful mentor to a generation of young scientists, urology residents and fellows whom he welcomed to his lab. He will be missed, and thanks to the generosity of the donor, never forgotten.

● Dr. Goldstein also received an honorary Doctor of Science degree from his alma mater, State University of New York, Downstate Medical Center, in recognition of his contributions to male infertility treatment and microsurgery, in May at Carnegie Hall.

This column provides SMRU members with a forum to keep colleagues abreast of each other's professional (and personal) accomplishments. If you would like an item posted in this newsletter, please email Dr. Moshe Wald, at moshe-wald@uiowa.edu.

DID YOU KNOW?

The SMRU web site is a valuable resource!!

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2. Find links to important and useful ASRM web sites, such as ASRM/SMRU Practice Guidelines and excellent clinical resources. If you haven't visited the site recently, take a look!
3. See the listing of future meetings (dates, times, and locations) relevant to clinicians and scientists with an interest in male reproductive medicine and science.
4. There are numerous ASRM publications on male infertility diagnosis and treatment specifically designed for patients.
5. Find the postgraduate course syllabi from past SMRU postgraduate courses.
6. Read about the Male Reproductive Medicine and Surgery Fellowship program.
7. See the link to a valuable collection of ASRM publications and materials on lifestyle choices which affect fertility. Find downloadable materials for patients on tobacco, alcohol, drug use, safe sex practices, stress, weight, and age. Also, see excellent comprehensive and informative resources for patients!
8. All prior SMRU newsletters are housed on the web site.
9. Links to numerous professional organizations and societies important to clinicians and scientists in our field can also be found on our website.
10. Look for the quick and easy to use online application site. Encourage a friend, trainee, or colleague to join today!!!

SSMR Traveling Fellows

An Evidence-based Approach to History Gathering from the Infertile Male

Robert E. Brannigan, MD

Summarized by Brian Helfand, MD, PhD

Calls for evidence-based approaches to patient care are increasingly common in medicine, and the field of urology is no exception. While approximately 50% of infertility is related to male factors, the literature is rife with conflicting recommendations on the appropriate work-up of men in couples experiencing infertility. Dr. Robert Brannigan presented a plenary lecture that overviewed the available evidence-based literature for consideration by clinicians pursuing the workup of men from infertile couples.

The work-up of the infertile man can be difficult for primary care physicians, gynecologists and urologists alike. Dr. Brannigan emphasized the current tendency by some physicians to limit the evaluation of the male partner in an infertile couple to a simple, single semen analysis. By focusing only on this single analysis alone, clinicians may overlook many important factors that can result not only in decreased reproductive health, but in some instances impaired overall health as well.

Dr. Brannigan explained that the comprehensive evaluation of the infertile couple should include a thorough history and physical examination of the male. The history should include an investigation of the patient's prior ability to achieve pregnancies, sexual health/behavior, medication history, developmental history and exposure to gonadotoxins. The developmental history should be directed at identifying other surgeries which may have impacted his ability to conceive. For example, men with a history of undescended testicles often have diminished sperm production even after surgical correction. Additionally, a prior hernia repair as a child may have led to iatrogenic obstruction of the vas deferens. Dr. Brannigan noted that erectile and ejaculatory dysfunction are more prevalent in the infertile male than in controls. These medical problems should also be addressed, as they can impair reproductive potential and may not be indicated via semen analysis results. Also, the patient should be warned about the use of lubricants, as many can inhibit sperm motility and viability. Only lubricants with pH values similar to vaginal fluid pH at the time of ovulation should be employed. The history of the infertile male should also determine current and past medication use and should attempt to identify other environmental gonadotoxins. For example, many medications such as the SSRI class of antidepressant medications can impair both libido and erectile function. It has also been shown that Beta blockers and thiazide diuretics can impair erectile function. Similarly, a patient should not be on testosterone therapy as this may partially or completely inhibit spermatogenesis. Finally, a social history including occupational exposures and drugs such as marijuana, cocaine and other elicits should be taken, as this information may identify potentially reversible causes of male infertility.

Dr. Brannigan emphasized that while semen analyses are an important aspect of the work-up of the infertile male, this testing alone often does not tell the entire story. Indeed, this approach runs the risk of overlooking many important health conditions and sexual practices that can adversely affect male reproductive potential. There is ample evidence from the aggregate of available clinical and basic science literature suggesting that prior surgeries, sexual practices, medications, and environmental exposures can all impair male fertility and should be considered when assessing a man's reproductive health. Identification and treatment of male factor issues may also alleviate the diagnostic and therapeutic burden often reflexively placed on the female partner in an effort to optimize the couples' reproductive potential.

The effects of cellular injury, inflammation and oxidative stress in the role of male fertility played a significant part in this poster session. Dr. Kondo's group from Japan contributed a number of articles detailing the effects of ischemia-reperfusion injury to testicular function, reducing testicular damage in cryptorchidism with administration of tetrahydrobiopterin, and measuring oxidative stress in seminal plasma of patients with varicocele with levels of nitric oxide and other factors. Their studies showed that levels of vascular endothelial growth factor increased in a time-dependent manner from the onset of torsion in male rats and that nitric oxide production could be attenuated with dietary administration of tetrahydrobiopterin. In addition, by studying levels of nitric oxide, IL-6, IL-8 and TNF-alpha in seminal plasma, they found significant reductions in levels of these substances following varicocelectomy. Similarly, Dr. Mammen's group found that ischemia-reperfusion damage induced by testicular torsion revealed that eNOS regulated selectin expression *in vivo*, which regulates neutrophil recruitment leading to germ cell apoptosis. They concluded that further studies of the germ cell apoptosis pathway could lead to therapies to target and moderate testicular stresses as in the setting of torsion. Dr. Smith's group investigated the relationship between prostate biopsy and ejaculate volume and sperm count. They observed decreases in ejaculate volume, sperm concentration, and total motile sperm counts and postulated that direct injury to the ejaculatory ducts or peri-ejaculatory duct fibrosis could be responsible for these changes.

Dr. Steger's group from Germany compared ratios of two types of protamine in infertile patients in two different studies and found that infertile men exhibit aberrant protamine ratios in their sperm. Their group showed that in testicular biopsies and ejaculate samples of infertile men there were significant differences in protamine ratios and Bcl2 mRNA content compared to controls. They postulated that protamine is a reliable biomarker for the presence of spermatozoa in comparison to histological evaluation of testicular biopsies.

Two studies looked at the relationship between increasing age and decreasing fecundity in the male. Dr. Cocuzza's group determined that levels of reactive oxygen species in seminal plasma were significantly higher in older men than younger men. In addition, levels of these same factors were negatively correlated with sperm concentration and motility. They concluded that these species contribute to lower rates of pregnancy in older men, and that treatment with antioxidants may be indicated in men older than 40 years attempting to father a child. Along similar lines, Dr. Olmedo's group from Argentina found a significant decrease in seminal volume, total sperm count, normal morphology and normal values of fructose in patients 45 years of age or older. Dr. Herwig's group also studied oxidative stress and sperm motility. They analyzed the use of carbonyl protein analysis in semen and found it to be a reliable marker for both midpiece sperm deformities and increased reactive oxidative stress.

Two studies examined the effects of toxin exposure on infertility. Dr. Akbal's group studied three groups of rats, two of which were exposed to cisplatin in varying concentrations and found a dose-dependent decrease in levels of testis-specific protein, Y-linked mRNA, a factor important in spermatogenesis. This appears to be another mechanism for male infertility following exposure to cisplatin as part of standard chemotherapeutic regimens for testis cancer. Additionally, Dr. Ercolani's group found that chronic cadmium exposure caused a time- and dose-dependent decline in testicular spermatogenesis and the number of sperm in the epididymis of male rats, suggesting that this environmental toxin could be a source for human infertility.

In conclusion, today's poster session was a fascinating look at the role of cellular injury, oxidative stress, and inflammation in male infertility. Future studies will be needed to further elucidate biochemical pathways and develop novel therapies to help men attempting to father children.

Abstract 1798: Identification of Candidate Genes for Individual Steps in Spermatogenesis. Peter J. Stahl, Anna Mielnik, Michael B. Marean, Peter N. Schlegel, Darius A. Paduch. New York, NY.

The Cornell group identified specific gene deletions in men with Y chromosome microdeletions (YCM) and mapped out their function based upon phenotype-genotype correlative analysis. They demonstrated 5 candidate genes in the AZFa region associated with germ cell migration (loss of which leads to Sertoli cell-only), 3 candidate genes in the AZFb region for progression from spermatocytes to spermatids (loss of which leads to maturation arrest), and 12 candidate genes in the AZFb for spermatozoa development (loss of which may result in late maturation arrest).

Abstract 1799: Chroma-Sort Select™: A Novel Sorting Technology that Allows for Highly Efficient Selection of Sperm without Chromatin Damage. Howard H. Kim, Peter H. Schlegel, Darisu A. Paduch. New York, NY.

The Cornell group also identified a way to sort sperm based on amount of chromatin damage in order to utilize sperm with intact DNA. Currently, commonly used techniques require fixation of sperm, leaving them unsuitable for clinical use. This new technology allows for the identification and utilization of live sperm without DNA damage. The group states that the next step is to apply this to severely oligospermic samples.

Abstract 1803: The Use of Immunofluorescence in Microdissected Testicular Sperm Extraction. Jason R. Greenhalgh, Thomas S. Griffith, Moshe Wald. Iowa City, IA.

The group from the University of Iowa utilized immunofluorescence (IF) to identify spermatogenesis in mice using IF antibodies to human sperm acrosomes. After injecting into the testicular vascular pedicle, they examined the testes using IF. They compared fertile and genetically sterile mice and found that 22/26 fertile mice had positive results, whereas none of the 16 sterile mice were positive. The group is hoping to further refine this in order to apply it to humans.

Abstract 1806: Does the Male Ageing Influence Clinical Outcomes on ICSI Cycles? Renata C. Ferreira, Tatiana C.S. Bonetti, Daniela Braga, Priscilla Queiroz, Fabio F. Pasqualotto, Assumpto Iaconelli, Edson Borges. Sao Paulo, Brazil.

The group from Sao Paulo, Brazil, studied the effect of male partner age on the outcome of in vitro fertilization with intracytoplasmic sperm injection (IVF/ICSI) cycles. In men with oligospermia (<20 million/mL), male age was a negative influence on implantation rate, whereas male age had no effect when the sperm concentration was >20 million/mL. Female partner age continues to play a major role in IVF/ICSI outcome, however.

Abstract 1807: Effect of Allopurinol on Germ Cell Apoptosis Following Testicular Ischemia-Reperfusion Injury in a Rat. Gil Meyer, Igor Sukhotnik, Jorge G. Mogilner, Boaz Moskovitz, Ofer Nativ. Haifa, Israel.

The group from Haifa, Israel, studied the effect of allopurinol on ischemic-reperfusion injury in a rat model for testicular torsion. They demonstrated that allopurinol decreases the ischemic injury in both the ischemic and contralateral testis, as measured by apoptosis and Johnsen score. The group suggests that giving allopurinol and anti-oxidants prior to detorsion may prevent reperfusion injury in testicular torsion.

Infertility: Evaluation and Therapy (II)

Podium Session 43

Summarized by Peter Stahl, MD

This session featured diverse reports of the exciting clinical and basic scientific research that is ongoing in America and throughout the world in male fertility. One prominent theme in the discussion was the association of male factor subfertility with overall health and somatic malignancy. This association emphasizes that male infertility specialists are uniquely positioned to have a great impact on men's health that extends well beyond the diagnosis and treatment of subfertility.

Dr. Thomas Walsh, from the University of California at San Francisco, presented epidemiological research into the association of male infertility with somatic cancer. Dr. Walsh and colleagues' abstract, entitled "Infertile Men Have Increased Risk for Non-Germ Cell Cancers: Data from 51,138 Infertile Couples," was recognized by the AUA as the best male infertility abstract presented at the 2008 annual meeting. When compared with age-matched controls from the general population, men with male factor infertility were 1.2 times more likely to be diagnosed with colon cancer, 1.7 times more likely to be diagnosed with melanoma, and 2.9 times more likely to be diagnosed with prostate cancer. Furthermore, the relative risk of developing high-grade prostate cancer was 2.1 times higher in men with male factor infertility than in age-matched controls. The critical importance of this work is that it provides the first substantial evidence that male factor infertility may be associated with non-germ cell somatic cancers. While it remains to be elucidated whether these results reflect a screening bias or a true biological phenomenon, this work strongly demonstrates the need for subsequent epidemiological and scientific exploration.

Dr. Andrea Salonia of Milan presented preliminary data from his institution suggesting that men with male factor infertility are less healthy than fertile men ("Are Infertile Men Less Healthy than Fertile Men? Preliminary Results of a Survey at a Major Tertiary Academic Centre"). Dr. Salonia used the Charlson Comorbidity Index to compare the overall health status of 344 consecutive men treated for male factor infertility to the health status of 208 fertile volunteers. Infertile men had higher BMIs and rates of comorbidities than fertile men. Even after controlling for age, BMI, and educational status, infertile men had still had significantly higher Charlson scores indicative of poorer overall health. Dr. Salonia's research echoes the work from the UCSF group and lends great support to the notion that male factor infertility may be associated with other men's health problems.

In addition to the data that were presented linking male subfertility to somatic health problems, many other important studies were presented during this podium session. Drs. Ramasamy, Lin, and Schlegel from New York presented their data that high serum FSH values do not preclude successful microsurgical sperm retrieval in azoospermic men. Dr. Alukal and the Baylor research group report-

ed elegant data suggesting that men with oligoasthenoteratozoospermia have highly abnormal levels of sperm DNA damage, which may explain poor ART outcomes in affected men. Drs. Nelson and Williams from Wisconsin presented data from their survey of fertility websites which suggested that male factor infertility is under-represented on the internet. Dr. Sonksen from Denmark reported his updated experience in the treatment of spinal cord injured men with vibratory ejaculation and home insemination, and in so doing strongly demonstrated the efficacy of this approach. Dr. Mills and coworkers reported on the timecourse of recovery of spermatogenesis after cessation of exogenous testosterone treatment, which was approximately 3 months in men taking injectable testosterone and 8 months in men who were supplemented transdermally.

Infertility: Evaluation and Therapy (II)

Poster Session 59

Summarized by Dr. Heidi Stephany

Abstract 1738: Analysis of 2,967 Semen Retrieval Trials in 481 Men with Spinal Cord Injury (SCI). Emad Ibrahim, Nancy L Brackett, Teodoro C. Abalia, Charles M Lynne. Miami FL. "Best Poster" Recipient.

The authors reviewed semen analyses from patients with spinal cord injuries to assess semen quality as well ejaculation success rates. Most men had either penile vibratory stimulation (PVS) or electroejaculation (EEJ) procedures and a total of 3,694 semen analyses were reviewed. The authors found that 85% of subjects with a T10 or higher injury responded to PVS, vs. 15% of men whose injury was T11 or lower. Sperm was present in the ejaculate in 91% of attempts and most had reasonable yields of motile sperm. The authors recommend evaluating ejaculate before performing surgical sperm retrieval.

Abstract 1727: Six Years of Experience with Microsurgical Longitudinal Intussusception Vasoepididymostomy (LIVE): A Prospective Analysis. Peter T Chan, Richard Lee, Philip S Li, Jamie Libman, Marc Goldstein. Montreal, QC, Canada, and New York, NY

The authors report their six-year experience performing longitudinal intussusception vasoepididymostomy (LIVE) and report their outcomes of 72 men who underwent LIVE for epididymal obstruction. The mean follow-up period was 16.3 months and the authors found an overall patency rate of 92% (66/72). The natural pregnancy rate for patients with over one year of follow-up was 31% (11/36) and 39% achieved pregnancy through assisted reproductive techniques using fresh ejaculated sperm. The clinical experience of the authors supports LIVE as an effective treatment modality for epididymal obstruction with high patency and natural pregnancy rates similar to those with primary IVF/ICSI.

Abstract 1737: Post-Vasectomy SA: Risk Factors for Noncompliance. Alek Mishail, Jacqueline Lee, David Schulsinger, Yefim R Sheynkin. Stony Brook, NY

Objective risk factors, including demographics, for noncompliance with post-vasectomy semen analyses (PVSA) were assessed through a retrospective review of 214 vasectomy patients. Patients failing to provide two post-vasectomy semen analyses were defined as noncompliant. Ninety-nine patients (46.2%) provided no PVSA. Patients younger than 35 years of age, as well as smokers, and men with lower educational levels were identified as risk factors for noncompliance. If men had four or more children, they too were found to be at higher risk for noncompliance; however, marital status did not have any impact on noncompliance. Patient education and reminders may aid in decreasing the high rate of noncompliance in post-vasectomy patients.

Abstract 1734: The Assessment of Serum Hormone Levels in Patients with Non-Obstructive Azoospermia after Microdissection Testicular Sperm Extraction. Yutaka Kondo, Tomomoto Ishikawa, Kohel Yamaguchi, Atsushi Takenaka, Masato Fujisawa. Kobe, Japan

Few studies have compared postoperative serum hormone levels between 46 XY males with non-obstructive azoospermia (NOA) and 47 XXY (Klinefelter's syndrome) undergoing microdissection testicular sperm extraction (MD-TESE). In a retrospective review of 80 azoospermic males, serum levels of FSH at 6 and 12 months and LH at 6 months post-procedure were significantly increased in 46 XY males whereas LH at 12 months and testosterone at 6 and 12 months were not significantly different compared to baseline. In 47 XXY patients, testosterone significantly decreased at 6 and 12 months but FSH and LH levels were not significantly changed. Long-term evaluation of serum hormone levels is warranted in males status post-MD-TESE to identify and treat hypogonadism, especially in 46 XXY patients.

Postvasectomy Check-up: What is the Best Practice?
Summarized by Aimee Wiltz, MD

Complete Azoospermia Required Following vasectomy, the time to spermatozoa clearance can vary widely and there is no standard protocol. One suggested protocol by the WHO is to examine seminal fluid under high power microscope after 15 minutes of centrifugation at 3000 rpm and that two specimens should be examined with the complete absence of sperm to define azoospermia. However, some have proposed that rare nonmotile sperm is adequate and that perhaps centrifugation is unnecessary. These are two issues which must be better defined.

Time and Patient Compliance Most Important To evaluate the impact of postvasectomy protocols, semen analysis was requested at 2 and 3 months post-vasectomy in 436 patients. Compliance was low in both groups of men who were given a specific date of follow-up versus those who just received instructions. Of note, only 75% presented for follow-up overall, 58% submitted a single sample, and only 21% complied with instructions to provide semen analysis two times within two months. Thus the recommendation should be that the protocol most likely to confirm sterilization should be a semen analysis at 3 months. Patients can be advised that they are likely to be sterile if they are azoospermic or have RNMS.

Number of Ejaculations Most Important Review of literature regarding post-vasectomy monitoring has revealed no consensus on minimum number of ejaculations prior to semen testing, ranging from no testing to a median of 25-30 in a Mexican study. In that study, median time to azoospermia was 5 weeks faster for men who ejaculated 3 or more times a week. Immotile sperm at low concentrations can be achieved in 10-15 ejaculations if that is used as the criteria for sterility. Age and anatomy of the vas deferense may influence the number of ejaculations required. If the number of ejaculations can be determined, this may be more useful than semen analysis testing as follow-up compliance is so poor after vasectomy.

European Guidelines on Vasectomy: Gert Dohle, MD, PhD
Summarized by Dr. Neil Haraway and Dr. Victor Brugh

Vasectomy is a simple and reliable method of definitive contraception and is performed in 21% of Dutch men. Although infrequent, problems and complications may occur, including insufficient patient counseling, bleeding and infection, chronic scrotal pain and recanalization. High quality guidelines should give the physician evidenced-based recommendations for optimal patient care. Recommendations should be based on strong (level one) evidence.

In the European guidelines, there are several recommendations. For the safest surgical approach, a no-scalpel technique is recommended. There is insufficient evidence regarding effectiveness, safety and acceptability of vas occlusion techniques, since only low-quality and underpowered studies are available. Fascial interposition and cauterization have improved success rates in terms of low numbers of recanalization. Semen analysis should be performed 3 months after the vasectomy and clearance can be given in cases of azospermia. If occasional immotile spermatozoa are found, "cautious assurance of success" (special clearance) can be given.

Medical Malpractice and Urology: Francis E. Pierce, III
Summarized by Dr. Neil Haraway and Dr. Victor Brugh

The basic concepts of a medical malpractice case include duty of care, breach of duty or deviations from standard of care, causation, and damages. Informed consent is extremely important. Lack of informed consent is considered negligence and absence of informed consent is considered battery. Elements of a proper informed consent include a diagnosis, nature of the procedure, risks that are known or should be known, prospects of success and reasonable alternatives. There is no duty to disclose remote or inconsequential risk. If a case is taken to court, the consent is usually shown as evidence.

Vasectomy litigations have included wrongful birth and life cases, complications such as hematoma, pain, infection, and family law issues. A national computer search showed 900 total cases of vasectomies that were taken to court. A report from one professional liability representative showed 10 urology cases, 7 of which were vasectomy cases. Risk management tools include documentation of the consent, video presentation, technology-aided consents with computers, and thorough history and physical exams of pre-existing conditions.

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The Society for Male Reproduction and Urology (SMRU) is an affiliate society of the American Society for Reproductive Medicine (ASRM) whose members have special interests in male reproduction. The SMRU includes members who are urologists, andrologists, clinical endocrinologists, gynecologists, laboratory scientists involved in clinical activities and/or research, nurses, and other health care professionals. The SMRU is open to all Active and Associate members of the ASRM.

- Associate Membership in the SMRU shall include members who are residents, fellows, or postdoctoral students with special interest in male reproduction. Associate members must apply for Active membership upon completion of their training. This membership category shall be entitled to all rights and privileges of the membership in the Society, except for the right to vote or hold office.

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The ASRM reserves the right to charge the correct amount if different from the total payment listed above.

Name _____

Address _____

City _____ State _____ Zip _____

Phone _____ Fax _____

Email _____

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