



Making the Rounds

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PRACTICE MANAGEMENT

Surgeon & Hospital Volumes Count



Higher surgeon and hospital volume is associated with better outcomes in infants who are treated for pyloric stenosis, according to a Robert Wood Johnson Medical School study. High surgeon volume was found to be associated with fewer complications; surgeons with the highest volume had a 90% lower risk of complications compared to low-volume surgeons. The study was published in the December 2005 *Archives of Surgery*.

CLINICAL UPDATE

Cochlear Implants Effective for the Elderly

Age does not appear to affect outcomes after patients undergo cochlear implantation, according to a Johns Hopkins University report. Patients over the age of 65 were found to have better outcomes than expected after receiving the implant. "This study confirms and extends previous observations that durations of profound deafness and residual speech recognition carry higher predictive value than the age at which an individual receives an implant," the authors concluded. The study was published in the December 2005 *Archives of Otolaryngology—Head and Neck Surgery*.



ICDs Equally Effective for Both Genders

Women who have suffered a heart attack and subsequently were implanted with a cardioverter defibrillator (ICD) to monitor heart rhythm and counter arrhythmias appear to experience as many benefits as men, according to a University of Rochester study. In fact, women who received ICDs had a lower risk for fatal arrhythmic events and episodes of ventricular tachycardia than men. The study was published in the December 2005 *Journal of Cardiovascular Electrophysiology*.

READING ROOM

Brochure Helps Patients Prepare for Surgery

The Agency for Healthcare research and Quality (AHRQ) has published *Having Surgery? What You Need to Know*, a new brochure to assist patients in making informed decisions when planning for surgery. The AHRQ brochure—available at www.ahrq.com—recommends questions that patients should ask their doctor when they are preparing for surgery. Topics include where and when the operation will be performed, the kind of anesthesia that will be used, non-surgical options, and risks and benefits.

THROUGH THE PIPELINE

A Simple & Fast Option for Graft Thrombectomy

The FDA has approved an endovascular system (Resolution Endovascular System, OmniSonic Medical Technologies, Inc.) to treat thrombosed synthetic hemodialysis access grafts. The system is used to reestablish flow on thrombosed access grafts to ensure that patients are able to return to dialysis as soon as possible. According to the manufacturer, the system is a simple and fast treatment option for graft thrombectomies.

Advances in Vasectomy: No Needle, No Scalpel... No Problems?

A no needle technique that delivers local anesthesia in patients undergoing vasectomy appears to be a simple and safe approach that yields high patient satisfaction. The hope is that eliminating needles will decrease the fear of needles in men electing for a vasectomy.



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traditional vasectomy. After the procedure, patients often return to their daily routine within just a few days because there is little or no pain and because no stitching is involved."

Additionally, the no needle, no scalpel vasectomy takes an average of about seven minutes to complete for an experienced surgeon, according to Dr. Goldstein. "Another key advantage is that it requires the use of less lidocaine. Only 0.6 cc of an anesthetic are required because it's more directly targeted to the treatment area [Table 2]. A cone-shaped distribution of the anesthetic is administered and provides effective anesthesia. In turn, the patient experiences much less postoperative swelling."

Learn the No Scalpel Approach First

According to Dr. Goldstein, mastering the no scalpel procedure is necessary before surgeons can begin to learn the no needle, no scalpel vasectomy. "The traditional vasectomy is simple in that we can find the vas deferens more easily when a large incision is made. But the no scalpel approach is all based on feeling the vas deferens and trapping it between the fingers using the three-finger fixation technique. It's a learning curve that requires much experience."

Accurate placement of the high pressure jet injector is important when learning the no needle, no scalpel vasectomy, according to Dr. Goldstein. "Surgeons can actually inject themselves in the finger with the anesthetic if they fail to place the injector in exactly the right place. However, surgeons can minimize this risk as they become more experienced using the technology."

Can All Patients Receive No Needle, No Scalpel Vasectomy?

According to Dr. Goldstein, most patients seeking a vasectomy can undergo the no scalpel approach. "The only patients who would be excluded from having this procedure would be those who have had extensive prior scrotal surgery. Previous surgery can make it difficult for surgeons to totally visualize the vas deferens. Also, there may be a contraindication if the patient exhibits prior scarring from scrotal surgery or if they have cryptorchidism. In the 20 years that I have been performing no scalpel vasectomy, I have had just two patients who have been unable to have the procedure."

With regard to the no needle, no scalpel vasectomy, Dr. Goldstein says that patients are eager to undergo this less invasive procedure. "However, only a few institutions in the United States currently have the capability to perform the no needle, no scalpel vasectomy. It may take some time before

Table 1

The No Needle Jet Injection Technique

The jet injection technique uses an instrument that generates a high pressure spray that forces anesthetic solution through the skin and surrounding vassal tissues, providing painless anesthesia and rarely requiring application of additional anesthetic.

- Approximately 4-5 cc of anesthetic solution is loaded into a filling chamber that is fixed to the jet injector.
- A spacer with a notch at the tip of the jet injector fits over the vas deferens and allows enough distance for the spray of anesthesia to spread out in a cone-shaped distribution prior to and just after penetrating the skin.
- The instrument is then primed by pumping the lever and firing several times to ensure it is functioning properly.
- The right vas deferens is grasped using the three finger technique and brought to the surface of the scrotal skin at the median raphe.
- The skin over the median raphe only has to be swabbed with an alcohol pad prior to the administration of analgesia.
- The groove in the spacer on the tip of the jet indicator is placed firmly over the right vas on the median raphe at the junction of the upper third and lower two thirds of the scrotum.
- Three sprays of anesthesia are applied along the left lateral aspect of the median raphe about 4-5 mm apart.
- The same technique is used for the left vas deferens except that three injections are applied to the right lateral aspect of the median raphe adjacent to the previous injections.
- The jet injection is effective because the anesthetic solution disperses in an inverted cone-shaped area, affecting all of the tissues to a depth of 4-4.5 mm from the skin surface.
- No skin wheal or local edema is present at the injection site, making no scalpel vasectomy easier to perform.

Source: Marc Goldstein, MD, FACS

Table 2

Comparing No Scalpel Vasectomies

According to a study published in the May 2005 Journal of Urology, the no needle, no scalpel vasectomy offers significant advantages to the no scalpel vasectomy:

Per Vasectomy	No Scalpel Vasectomy	No Needle, No Scalpel Vasectomy
Conventional Needle		
Average lidocaine volume	6 cc	0.6 cc
Average time to anesthesia onset	60-90 seconds	10-20 seconds
Average cost of anesthesia*	\$0.79 US Dollars	\$0.07 US Dollars

* Not including capital outlay for injector.

Source: Weiss RS, Li PS. No-needle jet anesthetic technique for no-scalpel vasectomy. *J Urol.* 2005;173:1677-1680.

the procedure becomes more widely available because physicians must acquire the instrumentation and learn the proper technique. The instruments must also be maintained perfectly in order to be utilized safely and effectively. It's a good practice to have at least two high pressure jet injectors so that an alternative is available should one fail during the procedure."

For a full list of Readings & References, please visit www.physweekly.com.

Easing Back Pain With Vertebroplasty

Patients who undergo vertebroplasty may experience decreased back pain while at rest and during physical activity, and have improved function during normal daily activities, according to a study from investigators at the Mayo Clinic and University of Washington. Following vertebroplasty, patients had a seven-point improvement in pain at one week. This trend continued in subsequent follow up. The authors indicated that further studies were required to confirm the efficacy of vertebroplasty. The study was published in the November/December 2005 *American Journal of Neuroradiology*.



Decompression Surgery May Help Sleep Apnea

Surgery to relieve compression on the brain stem that is caused by Arnold-Chiari malformation—a condition in which the cerebellum portion of the brain protrudes into the spinal canal—also appears to improve sleep apnea, according to a French study. In 16 people with Arnold-Chiari Malformation and syringomyelia who were analyzed in the study, 12 patients also suffered from associated sleep apnea (six of these people had rare central sleep apnea). Eight patients underwent decompression surgery, and the investigators found that the number of central sleep apnea

cases decreased by 90%. The study was published in the January 10, 2006 issue of *Neurology*.

Reducing Heart Irregularity Risk After Cardiac Surgery

A Canadian study suggests that using oral amiodarone can cut the overall incidence of atrial tachyarrhythmias following cardiac surgery in half. Patients receiving amiodarone experienced fewer ventricular tachyarrhythmias than patients in the placebo arm of the study. No differences in serious complications, in-hospital mortality, or hospital readmission were noted for the amiodarone group. Delaying non-emergent surgery may be a good strategy to initiate amiodarone therapy, the authors suggested. The study was published in the December 28, 2005 *JAMA*.

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In My Opinion ...

Cervical Spinal Fusion: New Developments & Potential Alternatives



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Cervical spinal fusion has a successful long-standing record as a method to correct spinal problems caused by trauma, instability, deformity, and degenerative disc disease. The procedure was initially developed in the mid-1900s, but advancements in techniques and materials have vastly contributed to the spinal fusion armamentarium since then. The surgery involves removing one or more discs in the spine, and then reconstructing the disc space by allowing the bone to heal together. While much has happened since its inauguration, new devices on the horizon have the potential to offer an alternative to this procedure.

Alternative Bone Replacement Materials Cause Less Postoperative Pain

In order to promote fusion of the bone surrounding the removed disc, replacement material must be inserted into the open segment of the spine. Initially, fusions were performed using a patient's own bone (autograft). Bone was harvested from the patient's anterior hip area to replace the removed disc. The fusion rates obtained with autograft are very high, but hip pain from the second procedure is significant.

Recently, more surgeons have been switching to allograft bone—bone taken from cadavers—and synthetic inter-body implants. Although allograft bone replacement and synthetic materials help to avoid the pain caused by bone graft harvest, these materials have a lower fusion rate when used alone. However, when used in conjunction with an effective stabilizing element, the fusion rate of these alternatives is comparable to that of autograft bone.

Internal Fixation Offers Added Stability

Cervical spinal fusion is facilitated by a complete elimination of motion. In the past, casts and braces were used to stabilize the head and neck, but these tools were simply too cumbersome to wear and the equipment usually did a poor job of limiting motion enough for the fusion to heal. In the last decade, internal fixation via plate and screw systems has been adopted by most surgeons. The plate is fixed on the front of the vertebrae and the screws are inserted into the vertebral

“Experiments with new shapes and materials have produced more streamlined plates with less hardware.”

body to keep the bone graft from slipping out of place. More recently, plate development companies have strived to decrease the size of the plate and the amount of screws required while still providing the stability needed for optimal fusion rates. Experiments with new shapes and materials have produced more streamlined plates with less hardware.

Although cervical spinal stabilization has progressed exponentially in recent years, a persistent complication has spurred debate, as well as a possible alternative to fusion. When fusion occurs at one level, degeneration of the discs adjacent to the fusion site may be observed—an event known as adjacent segment degeneration. One possible explanation for this occurrence is that, as motion is impeded at the fusion site, the discs surrounding the fusion must take up compensatory stress, causing accelerated degeneration of these areas. While this explanation holds merit, many experts believe that adjacent segment degeneration is a natural occurrence in many patients with degenerative disc disease, and would occur with or without the fusion.

Alternative Procedures on the Horizon?

To promote more motion of the spine and possibly combat adjacent segment degeneration, artificial discs have been created as a potential alternative to spinal fusion. These discs are designed to be implanted into the spine to imitate the functions of a normal disc, primarily bearing weight and allowing full range of motion. However, these artificial discs are not yet approved by the FDA for cervical spinal use. With all the advancements in cervical spinal fusion, there is no doubt that the procedure has become more patient-friendly. Still, as new products become approved, we may one day eliminate the need for cervical spinal fusion entirely.

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