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The Case for Minislings for Stress Incontinence

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Urodynamic Stress Incontinence

Urodynamic stress incontinence (USI) is the *leakage of urine through an incompetent urethra without bladder contractions, i.e. coughing.*

- Ten percent of middle-aged women report weekly incontinence, but only 1 in 1000 undergo surgery.
- USI is amenable to physical therapy and to surgery.
- Drug therapy for USI has been disappointing.
- Bulking agents injected around the urethra have a role in treating women with severe incontinence that have undergone repeat surgery, or those medically unfit.

Slings

Slings for USI have become *the Gold Standard*. Placement of a narrow piece of polypropylene under the urethra, the width of a shoelace, gives surgical support to keep it from becoming hyper mobile. It has largely replaced more invasive procedures such as the Kelly Plication, the MMK (Marshall-Marchetti-Krantz), and the Burch colposuspension. These techniques indirectly suspended the urethra by using fascial and vaginal tissues as a hammock. Unfortunately, tissues often stretched or sutures pulled through to give 20-40% failure rates.

- Autologous fascial sling procedures, using the patient's own tissues from another body location, were developed but carried harvesting morbidity.
- Synthetic materials, such as GoreTex, carried unacceptable erosion rates.
- Peyrera, Raz, and Stamey retropubic needle/suture bladder neck suspensions were developed

and found to be safer but the long-term outcomes were poor.

- Gynecare TVT was developed in Europe in the mid 1990s and became the first implantable dedicated mesh sling device for the treatment of female USI. Mesh tape was passed retropubically and placed without tension under the midurethra. Cure rates were 85-90%.

Although considered minimally invasive, these new TVT sling procedures carried a 7% bladder perforation rate, demanded cystoscopy, and were associated with hemorrhage, bowel perforations, and deaths. There was a significant problem with irritative symptoms and overactive bladder and urinary retention in up to 8% of patients. Simple local anesthesia was insufficient.

The next generation of slings placed a similar device under the urethra but through the obturator foramen above the inner thigh.

- This reduced the bladder perforation rate to near zero and reduced the problems with irritative symptoms and urinary retention.
- However, groin and lower limb neuropathy was associated with full-length transobturator techniques in 15-24% initially and 4.75% long-term.

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Minislings

Minislings were then developed to bypass the obturator foramen and eliminate the lower limb neuropathy.

- Minislings are short tape mesh slings (8-14 cm) with paired anchors at each end.
- They require local analgesia and a single vaginal incision and are inserted with short needle introducers.
- The first minisling clinical series were successful as office procedures under local analgesia. However, early results showed 40% failure rates.
- Companies then added anchor tips to help stabilize the minislings. Examples include MiniArc and Solyx slings. Long term data are pending.

Minitape, made by Mpathy Medical, then developed the first stabilized minisling using a short, ultra-lightweight polypropylene mesh implanted in the mid to distal urethra through a vaginal incision.

- Absorbable stay sutures are brought externally to paired suprapubic or transobuturator foramen skin exits. The sutures are fixed for 3-10 days before release or adjustment.
- There were no long term findings of groin pain and the sling could be adjusted if there was still leakage.
- An initial observational series of over 140 women demonstrated a 97% symptomatic dry rate at about one year.

These results suggest *benchmark effectiveness* associated with full-length slings in a less invasive device that also has the capability of short-term adjustability.

For more information about Mission Hospital's Medical Surgical Services, contact:

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Minitape® minisling by Mpathy Medical

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Dr. Red Alinsod is a urogynecologist in Laguna Beach, CA, with specialization in incontinence, pelvic prolapse, and aesthetic vaginal surgery.

Dr. Alinsod graduated from Loma Linda University School of Medicine and completed his OB/GYN residency from Loma Linda University Medical Center with a focus on pelvic surgery. He was the first Rutledge Fellow at MD Anderson Cancer and Tumor Institute, was accepted as a Galloway Fellow at Memorial Sloan Kettering Medical Center, and was accepted to Yale's Gynecologic Oncology fellowship. He headed the Gynecologic Services at George Air Force Base, CA and Nellis Air Force Base, NV where his focus on hysteroscopic and advanced laparoscopic surgery earned him the honor as one of the first fellows of the Accreditation on Council of Gynecologic Endoscopy. Dr. Alinsod left the military as a Major to concentrate on his private practice where his focus has been on pelvic surgery and providing the highest quality of care to his patients in a compassionate and trustworthy manner.

For feedback or questions related to the content of this article, contact Susan Fox, Mission Hospital's Physician Relations Specialist, at (949) 364-4269 or susan.fox@stjoe.org.

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