

Female Pelvic Reconstructive Surgery: An Update

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The goal of any reconstructive surgical procedure is to restore the body to its normal anatomic and functional status. A general example of a reconstructive surgery would be the repair of a bulge or protrusion of the body, also known as a hernia repair. Female pelvic reconstructive surgery specifically attempts to normalize female pelvic anatomy, and to restore pelvic functions, such as urinary continence, to normal.

Pelvic Organ Prolapse (POP) is a general term referring to hernias of the vagina. These hernias are categorized or compartmentalized based on their anatomic location within the vagina: anterior, posterior, or apical. Anterior compartment hernias are also called cystoceles, as the bladder (cystos) herniates (cele) into the vagina. Posterior compartment defects can involve the rectum and bowel and are thus called rectoceles and enteroceles. Apical defects involve prolapse or falling of the uterus and upper vagina (*figure 2*). Symptoms of POP include pressure, heaviness, lower back pain, painful or difficult sexual intercourse, and incontinence of urine.

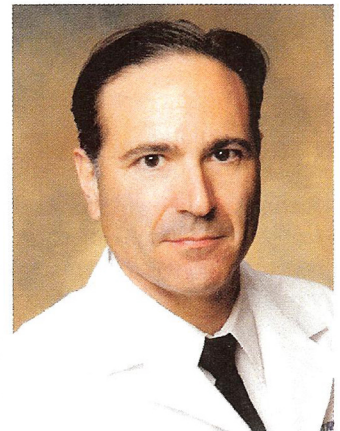
Traditional procedures, over the past 75 years, have relied on plication or pleating of weakened attenuated tissue, and suspension of these tissues with load bearing suture fixation. Historically, patients who have undergone these pelvic reconstructive surgeries have not always enjoyed great success. To appreciate why traditional results have been less than optimal requires an understanding of the underlying anatomy.

All pelvic defects have one common element: a weakening of the endopelvic fascia, through which a herniation occurs (*figure 1*). This fascial weakening may be the result of childbirth, physical stress, hormonal changes, or genetic factors. Microscopi-

cally female endopelvic fascia is unique. Like all connective tissue it contains a mixture of collagen and elastin. But unique to this connective tissue is the presence of wavy smooth muscle fibers, which confer its distinct flexibility required for reproductive function (*figure 3*). Nowhere else in the female body, and nowhere at all in the male

body is connective tissue with this exclusive property found.

Ideally a pelvic reconstructive procedure should replace weakened connective tissue rather than tighten or pleat that fragile tissue, as in our traditional procedures. Such an ideal procedure should also restore normal anatomy, and not overcorrect the defect, as in the case of most surgeries which rely on load bearing suture fixation for suspension. While no surgery is ever ideal, we can now approach our lofty goal with the use of mesh to repair these anatomic defects. Such use parallels the advances of our general surgical colleagues in their application of mesh for hernia repairs. The mesh is made of a monofilament polypropylene material. Each individual strand of material is similar to fishing line, so that it is strong and permanent. The material is knitted into a unique loose flexible weave, specifically designed to mimic the distinct properties of the endogenous female endopelvic fascia. This weave also acts as



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fig. 1

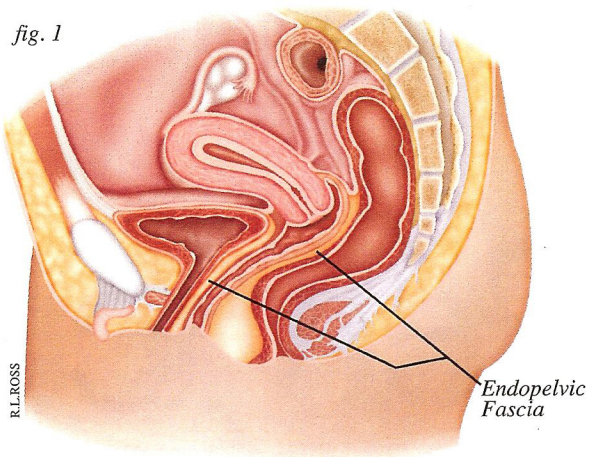


fig. 2

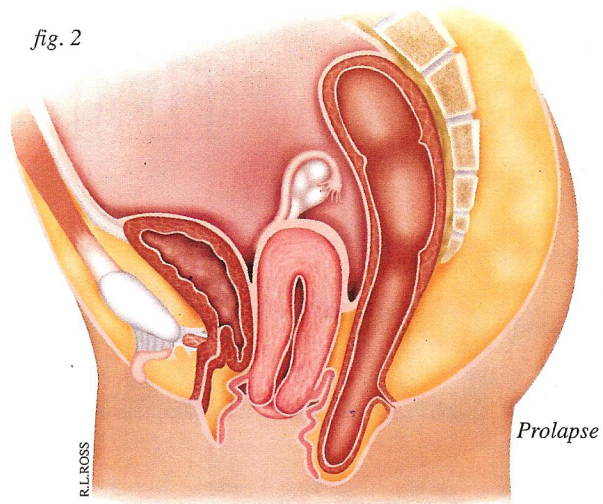


fig. 5

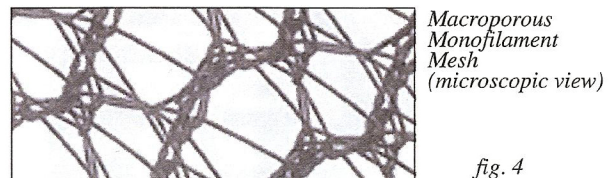
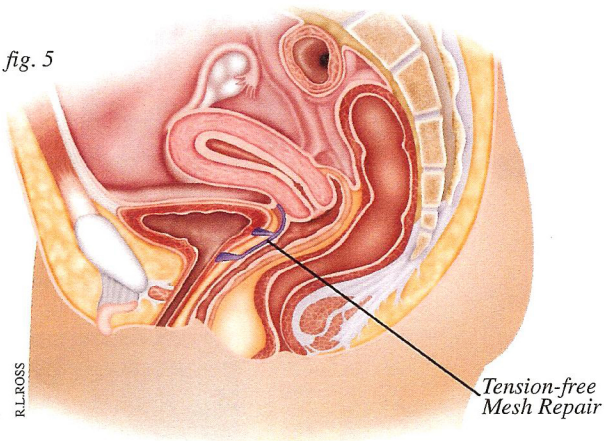
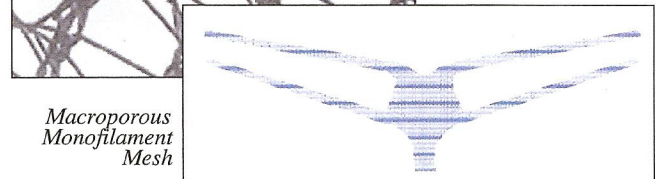
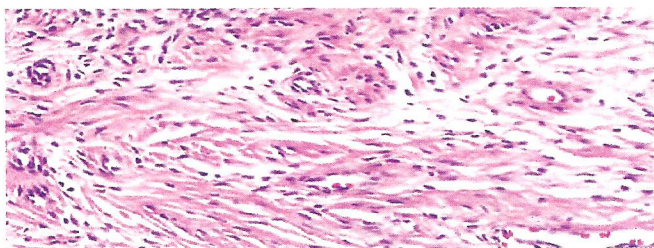


fig. 4



scaffolding, allowing for endogenous tissue in-growth. Importantly, the monofilament material and macroporous weave confer microbial resistance. This mesh is pre-sterilized and is virtually impossible to infect with bacteria. (Figure 4)



Microscopic Connective Tissue

fig. 3

A technique developed by the French in the mid 1990's, allows for the tension-free application of mesh to repair specific anatomic POP defects. Needle passages are required to deliver the system. No load bearing sutures are required, as arm straps secure the mesh in place and become neoligaments. The mesh lies smoothly in a single layer, fully covering the defect, and replaces the weakened attenuated fascia (figure 5). A similar mesh is used to provide a tension free sling under the urethra in cases of stress urinary incontinence (leakage of urine with laughing, coughing, sneezing, running, and jumping). Anatomic stress load is distributed evenly along the entire mesh

implant, thus rendering the repair quite enduring if not indomitable.

These procedures are minimally invasive, and safe, provided the surgeon has proper training, skills, and experience. Pre-operative vaginal preparation with topical estrogens, and proper surgical dissection are critical to the success of the procedure. These mesh procedures should only be performed in women who have completed their child bearing. Operative times are usually less than one hour per compartment, and results have been exceptional. Tension-free mesh repairs for pelvic organ prolapse and stress urinary incontinence restore normal anatomy and function, and to date have provided our patients with excellent results; which of course, is the ultimate goal of any reconstructive surgical procedure.

Dr. Barry Schlafstein is a board certified Obstetrician / Gynecologist. He completed his internship and residency training at The Johns Hopkins Hospital in Baltimore, Maryland. His special interests include minimally invasive gynecologic and pelvic reconstructive surgery, female urinary incontinence, and menopausal hormone replacement. He instructs the 'tension free mesh repair' to gynecologic and urologic surgeons nationally. Dr. Schlafstein can be reached at 912-355-5755