14 General Points and Concepts in Surgical Procedures for Stress Incontinence

GENERAL CONSIDERATIONS

Objective

The objective of any suspension procedure is to *bring the bladder neck back to the intraabdominal position.* It is not necessary to lift the bladder neck to a maximally elevated position.

Optimal Position at Bladder Neck

Whether using a retropubic approach or a vaginal approach from below, *the proper estimation of the position of the bladder neck is crucial to the success of surgical repair for stress incontinence.*

If stitches are placed *too distally* to the bladder neck, postoperative urinary retention results. Although this problem is usually temporary, it can be prolonged. If stitches are placed *too proximally* to the bladder neck, stress incontinence may not be corrected. Proximal stitches can also potentially injure the bladder.

Compressive Effect on Urethra by Stitch Placement

If the stitches are placed *too close to the urethra,* there is a compressive effect, which leads to temporary urinary retention. Therefore the operations with the more laterally placed stitches at the bladder neck, such as the Raz needle suspension procedure and the modified Burch procedure, have the advantage of causing no urethral compression.

Optimal Correction by Suspension

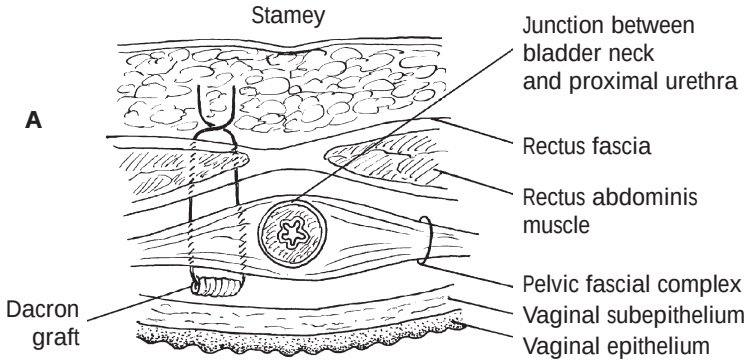
If the surgeon is using a needle suspension procedure from a vaginal approach, the goal is to eliminate the *hypermobility* of the bladder neck area. Therefore lifting the sutures so the bladder neck rests parallel to the floor of the operating room generally corrects the stress incontinence. *It is not necessary to coapt the bladder neck* or to lift it to the maximum.

Intrinsic Incompetence of Bladder Neck

In the special case of an incompetent bladder neck in which the bladder neck and proximal urethral musculature is dysfunctional, *a compressive effect and correction of the position of the bladder neck are needed.* The sling operation as well as the American Medical System (AMS) 800 incontinence prosthesis have compressive effects. The sling operation may cause temporary urinary retention, and the AMS 800 operation requires a period of cuff deactivation.

The comparative efficacy of collagen injections has yet to be borne out.

Variations in Procedures for Stress Incontinence



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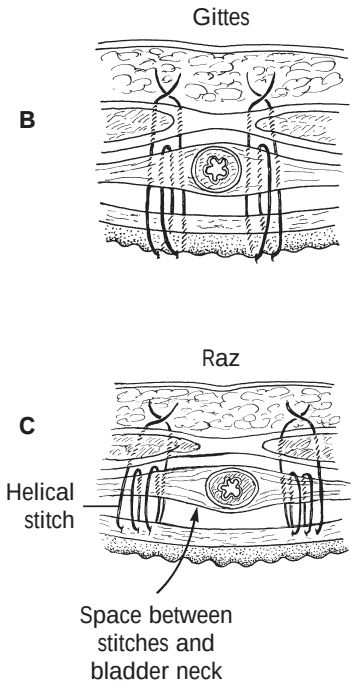

Stress Incontinence–Associated Cystocele

Along with stress incontinence, often there is an associated cystocele or enterocele. If the cystocele is of moderate caliber, it can be corrected by the modified Burch procedure or by a four-corner Raz procedure. However, if there is a large cystocele, a vaginal approach with a combination of a Raz suspension procedure and a correction of the cystocele and/or enterocele may be necessary.

DIFFERENCES BETWEEN SUSPENSION PROCEDURES FOR FEMALE STRESS INCONTINENCE

Stamey Procedure

FIG. 14-1, A. The suspension sutures penetrate the rectus fascia, rectus abdominis muscle, and pelvic fascial complex (pelvic urethral ligament and endopelvic fascia) and then loop back up to the rectus fascia for the anchoring stitch. The sutures are passed through a circular Dacron sleeve at the level between the pelvic fascial complex and the vaginal epithelium; thus the sutures never penetrate the vaginal epithelium. The sutures are placed close to the urethra at the bladder neck.

Gittes Procedure

FIG. 14-1, B. The supporting helical stitches penetrate the rectus fascia, rectus abdominis muscle, pelvic fascial complex, and vaginal epithelium. The vaginal epithelium will grow over the stitches. The stitches are placed close to the urethra at the bladder neck and are anchored on the rectus fascia.

Raz Procedure

FIG. 14-1, C. The sutures penetrate the endopelvic fascia, pelvic fascial complex, and vaginal subepithelium. The helical fascial stitches are placed more *laterally* than in the Stamey or Gittes procedures. The anchoring stitches are placed on the rectus fascia close to the midline.

Modified Burch Procedure

FIG. 14-1, D. The stitch penetrates the endopelvic fascia from the abdominal side, pelvic fascial complex, and vaginal subepithelium. The stitches are placed more laterally as in the Raz procedure. The sutures are anchored more *laterally* to the Cooper's ligament rather than to the pubic ostium as for the Marshall-Marchetti-Krantz repair. The vaginal fascial complex is suspended on *but does not touch the Cooper's ligament*. This procedure corrects stress incontinence and medium-sized cystoceles.[1]

Marshall-Marchetti-Krantz Operation

FIG. 14-1, E. The stitches penetrate the endopelvic fascia, pelvic fascial complex, and vaginal subepithelium as in the modified Burch procedure. The stitches are placed closer to the bladder neck and urethra and more distally than the modified Burch procedure. The anchoring stitches are placed at the pubic ostium.

Sling Procedure

FIG. 14-1, F. For the sling operation described by Blaivas,[2] a segment

TABLE 14-1
Suspension Procedures for Stress Incontinence

Operation	Suspension Stitches at Bladder Neck	Structure to Which Suspension Stitches Are Anchored	Features and Complications
Marshall-Marchetti-Krantz	Stitches close to urethra at bladder neck	Pubic ostium	Postoperative urinary retention Potential ostitis pubis
Modified Burch procedure	Stitches lateral to urethra at bladder neck	Cooper's ligament	Correction of associated medium-sized cystocele Abdominal incision Postoperative urinary retention rare
Stamey suspension	Prolene stitches and Dacron graft close to urethra at bladder neck	Rectus fascia	Postoperative urinary retention Dacron sleeve may migrate Not used for associated medium-sized cystocele
Gittes suspension	Stitches close to urethra and through vaginal epithelium	Rectus fascia	Relatively simple procedure Vaginal epithelium overgrows stitches
Raz suspension	Helical stitches lateral to urethra at bladder neck	Rectus fascia	Four-corner Raz procedure for associated medium-sized cystocele
Sling procedure	Sling placed lateral to urethra at bladder neck	Rectus fascia	For type III stress incontinence Compressive effect on urethra Dissection similar to Raz procedure
AMS 800 incontinence prosthesis	Cuff around urethra at bladder neck	—	For type III stress incontinence Difficult dissection to get around bladder neck Prevention of infection with antibiotics Compressive effect on urethra Period of deactivation necessary

of rectus fascia is tunneled through the endopelvic fascia and the pelvic fascial complex, around the urethra at the bladder neck, and back up to the rectus abdominis muscle on the contralateral side. This procedure is similar to the Raz procedure except that the fascial segment has a compressive effect on the urethra.

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In the Marshall-Marchetti-Krantz, Stamey, and Gittes procedures, the bladder neck stitches are placed close to the urethra. In the Raz and modified Burch procedures, the bladder neck stitches are placed more *laterally*. The first three operations are prone to cause urinary retention in the immediate postoperative period. Refer to Table 14-1 for a comparative chart of the procedures for stress incontinence discussed in this chapter.

REFERENCES

1 Tanagho EA: Colpocystourethropexy: the way we do it, *J Urol* 116:751, 1976.
2 Blaivas JG: Commentary—pubovaginal sling procedure. In Whitehead ED, editor: *Current operative urology*, Philadelphia, 1990, JB Lippincott, pp 93-99.

SUGGESTED READING

Reynolds CL, Miller HC: Subpubic urethropexy: a new remedy for stress incontinence, *J Urol* 111:361, 1974.