STRESS INCONTINENCE: A NEW ENDOSCOPIC APPROACH

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ABSTRACT—We describe our experience in using a new endoscopic technique for suspending the bladder neck and urethra in 16 patients with stress incontinence. The procedure was started by dissecting the retropubic space, first with a sound and then with a Foley catheter before passing an absorbable suture from the abdominal fascia to the bladder neck using an elbowed needle introduced into the bladder through the neck and exteriorized through the urethra. The dissection of the retropubic space helped to form postoperative adherences which fixed the bladder neck and the urethra firmly to the pubic symphysis. The technique is simple, it does not require vaginal surgery, and the incidence of complications is minimal.

Since Marshall-Marchetti-Krantz\(^1\) first demonstrated that stress incontinence is due to inadequate support of the base and neck of the bladder and of the proximal urethra, the only known treatment was to reposition the bladder neck superiorly and anteriorly to a site immediately posterior to the pubic symphysis. Today, however, a number of endoscopic techniques\(^2,3\) are being used more and more frequently to conform to the present policy to seek the least invasive surgical techniques, and they give results comparable with open procedures. However, there are three basic problems: the insertion and exact positioning of the needles can be difficult; the procedures involve vaginal surgery with its associated morbidity\(^4\); the use of nonabsorbable sutures and tubes of synthetic materials for the suprapubic fixation increase the risk of infection.

In 1986, Lattanzi, Montague, and Stowe\(^5\) described an experimental technique for suspending the bladder neck from the rectus fascia which used a modified cystoscope fitted with a suture passer and used slowly absorbable sutures, but the permanent fixation of the bladder neck to the pubis apparently could not be fully guaranteed.

We have developed and modified this technique\(^6\) over two years, and present our experience and results to date.

Material and Methods

Operations were performed on a total of 16 patients whose ages ranged from twenty-six to seventy-three years. The diagnosis of stress incontinence was based on the clinical history, the Marshall test, and voiding cystography. A cystometrogram was requested only for those patients who presented symptoms of vesical instability. One patient had had a hysterectomy and another patient, a suprapubic operation for incontinence.

Technique

The patient is placed in the lithotomy position and the lower abdomen and the genital area are scrubbed with povidone iodine solution. An O'Connor drape is used to introduce the finger-cot in the vagina.

A 2 cm transverse incision is made just above the symphysis pubis to expose the anterior rectus fascia in which a 5 or 6 mm longitudinal incision is made. A small caliber sound is introduced and directed inferiorly behind the pubis...
After having established trajectory with sound and having introduced Foley catheter with aid of mandrin, balloon is inflated and blunt dissection of retropubic space is done by displacing balloon with intravaginal digital pressure. Until the pelvic floor is reached; the last part of the maneuver being guided by vaginal palpation with the index finger. The original sound is replaced by progressively thicker sounds, up to 20 F. This is then withdrawn and a 50 mL balloon catheter is passed with a mandrin into the retropubic space. The balloon is inflated and displaced to the left and right with intravaginal digital pressure. The maneuver frees the urethra and bladder neck from the symphysis pubis and connective tissue, as in open surgery, and promotes the subsequent formation of adhesions which will retain the repositioned bladder neck to the pubis (Fig. 1).

In the second part of the procedure the cystoscope is introduced and the bladder is filled to its maximum capacity. An elbowed needle is inserted into one lateral extremity of the exposed rectus fascia and advanced toward one side of the bladder neck (Fig. 2). The portion of the needle at the level of the vesical neck is visually confirmed with the cystoscope. The needle is then pushed to penetrate the side of the vesical neck into the urethra and guided cystoscopically to exit at the urethral meatus (Fig. 3). The needle is threaded with a no. 0 polyglactin suture while it projects from the urethral meatus, and is withdrawn leaving one end of the suture outside the urethral meatus.

The maneuver is repeated by introducing the elbowed needle from the other extremity of the rectus fascial incision. The needle is likewise maneuvered toward the other side of the vesical neck where it will penetrate into the urethra at that level and exit through the urethral meatus under cystoscopic guidance. The other end of the suture that is free outside the urethral
Bladder instability presented requiring six weeks of anticholinergic treatment after which her evolution was satisfactory. Consequently, in 15 of the 16 cases (93.75%) the evolution was satisfactory and without complications.

**Results**

In 1 case the urethra was perforated 1.5 cm from the meatus while externalizing the needle through it, and the maneuver had to be repeated. After this experience, we employed less sharp needles and withdrew the needle together with the cystoscope; the subsequent evolution was satisfactory.

In another case, on tying the sutures over the abdominal fascia, the bladder tore; the perforation was seen through the cystoscope. The suture was repassed taking care to lengthen the intravesical trajectory; the subsequent evolution was satisfactory.

In 1 case, stress incontinence reappeared one month after the operation. The patient had high fever immediately after the procedure which suggested that failure was due to the formation of an abscess in the retropubic space. This occurred before we adopted the O’Conor drape.

In another patient, the stress incontinence was resolved, but after the operation severe bladder instability presented requiring six weeks of anticholinergic treatment after which her evolution was satisfactory.

**Comments**

With the transvaginal approach the suture may be situated too laterally from the urethra or too distally from the bladder neck so that the suspension is inadequate. On the other hand, if the sutures are placed too closely to the urethra they can cause compression and give rise to retention. The proposed technique allows the suture to be placed with precision because it is made visually, and we have proved that one suture is sufficient.

The blunt dissection of the connective tissue of the retropubic space by the balloon catheter is simple and safe, and the subsequent anchorage is equal to that obtained by open surgery. Once the suture has been absorbed, the bladder neck and the urethra are firmly adhered to the symphysis.

The introduction of the needle from above and its externalization through the urethra is easy; no special instrument is required. This operation is technically simple and brief, some twenty minutes suffice. It also has the advantage that no training in vaginal surgery is required.

**References**