

A Laparoscopic-Assisted Extraperitoneal Bladder Neck Suspension: An Initial Experience

E.D. RIZA, M.D.(1) and A.S. DESHMUKH, M.D.(2)

ABSTRACT

A new procedure is described for the correction of stress urinary incontinence caused by hypermobility of the urethrovesical junction using an extraperitoneal laparoscopic approach with the use of a new needle. There has been no previous publication of this approach. The initial study show that this procedure offers technical advantages over existing procedures and requires short hospitalization, less use of postoperative pain medication, and early recovery. We hope to report a long-term follow-up in the future.

INTRODUCTION

THERE ARE MANY ANTIINCONTINENCE PROCEDURES described in the literature. Some procedures require an open suprapubic incision, as in the Marshall-Marchetti suspension (1) or the Burch Procedure.(2) Some procedures are done with a vaginal incision, (3,4) and one is done without such an incision.(5) A laparoscopic extraperitoneal approach has been used to perform a modification of an open Marshall-Marchetti procedure.(6,7)

Needle Suspensions of the bladder neck have been established as a satisfactory way of dealing with female stress urinary incontinence resulting from hypermobility of the urethrovesical junction. All of these procedures involve blind passage of a needle from the suprapubic area to the vagina. Cytoscopic monitoring excludes passage of the needle through the bladder or the urethra and judges the proximity of the needle pass to the area that needs the support.

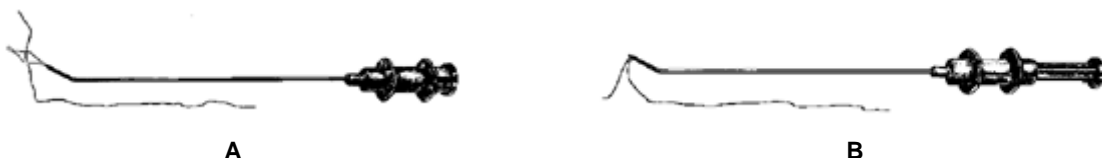
A new method using a laparoscope by the extraperitoneal route to actually visualize a needle pass made from the suprapubic area to the vagina and the use of the Riza-Ribe needle (R-Med Inc., Oregon, Ohio) with a loop to easily retrieve a suture is described (Fig. 1).

MATERIALS AND METHODS

Any patient with stress urinary incontinence caused by hypermobility of the urethrovesical junction is a candidate for this procedure. Preoperative evaluation consists of a history and physical examination, with demonstration of stress urinary incontinence with hypermobility of the urethrovesical junction and detection of medial or lateral defects because of cystocele or prolapse. A cystometrogram is performed to rule out a neurogenic or unstable bladder, and a cystoscopy is done to rule out any problems that may contraindicate the procedure.

(1) Department of Gynecology and (2) Department of Urology, St. Charles Hospital, Oregon, Ohio.

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Cephalosporin is given intravenously in the preoperative and the perioperative period. Under a general anesthetic, the patient is placed in a modified lithotomy position with the legs on the Allan stirrups, allowing access to the perineum and the suprapubic area. A Foley catheter is inserted into the bladder. A 15-mm midline incision is made in the suprapubic area about 2 inches above the pubic symphysis. Open laparoscopic technique is used. Through the incision, a finger dissection is performed toward the pubic symphysis, and a Hassan trocar is inserted and secured. At this time, over a finger in the retropubic space, an incision is made on the right and/or left for a 5-mm trocar 1 inch above the pubic symphysis and 2 inches lateral to the midline. The retropubic space is insufflated with CO₂ at a pressure of 10-13 mm Hg. In our experience, one port usually is adequate. (Fig. 2).

RESULTS

Twenty-two patients were evaluated clinically for urinary incontinence from September 1993 to February 1994. Of these patients, 19 underwent urologic evaluation, and 15 were judged to be suitable candidates for

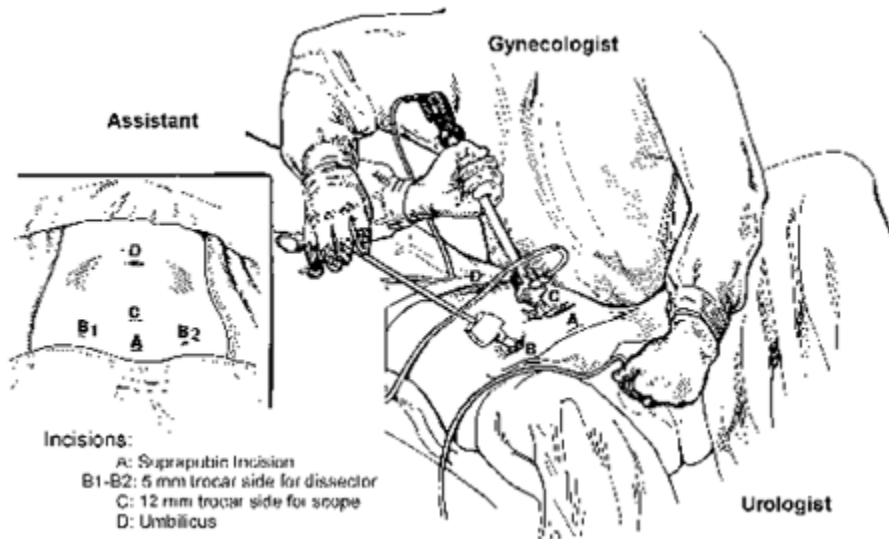


Fig. 2. A. A schematic illustration of abdominal trocar placement sites; suprapubic incision; and positions of gynecologist, urologist, and assistant. **A.** suprapubic incision. **B1.** 5-mm port for right-handed surgeon. **B2.** 5-mm port for left-handed surgeon. **C.** 12-mm port. **D.** Umbilicus.

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Fig. 3. Initial view of Space of Retzius.

surgery. Thirteen of these underwent the suspension procedure by the method described. The other 2 patients underwent an LAVH and so were not considered suitable for this procedure. Of these patients who underwent this procedure, 4 had previous TAH, 1 had alaparotomy. 1 had TAH and a failed MMK procedure, 1 had LAVH, 3 had tubal ligation, and 1 had a cardiac transplantation.

The initial operating time was 85-110 min. The last 8 procedures took 47-62 min, indicating a short learning curve. Five patients were treated as outpatients, and the rest were treated on a 23 h observational status.

The first office visit was 2-6 days postoperatively. At the initial visit, 4 patients had less than 50 mL residual urine, 1 had 125 mL residual urine, 6 had more than 125 mL residual urine when a catheter was placed for 4 more days, and 2 had retention. The longest duration for the residual urine to drop below 100 mL was 12 days.

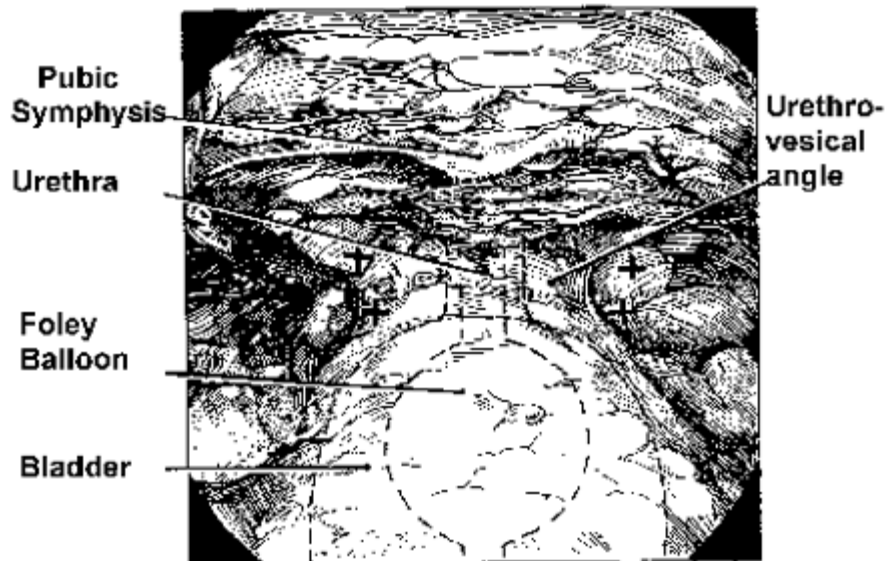


Fig. 4. Space of Retzius after complete dissection. +, points of suture passes.

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Three weeks after surgery, all patients were continent and had less than 5 mL of residual urine, except 1 patient who needed to take urecholine for 3 weeks. All the patients returned to work after 3 weeks.

DISCUSSION

The ability of the surgeon to visualize the needle pass on the videomonitor enables him or her to judge the effectiveness of the suspending suture. The new needle is smaller than the needles available in the market. The retractable loop makes it easy to grasp the suture. The suture makes a good loop, suspending the urethra rather than making it adhere to the pubic periosteum, which avoids scarring around the urethra. Also, the technical difficulty of anchoring sutures to the periosteum or Cooper's ligament is avoided.

Previous incisions in the area do not contraindicate the procedure. If the peritoneum is opened inadvertently, a pursestring suture or an endoloop can be used to close it, and the procedure can continue.

A needle holder or a bipolar cautery forceps through the 5-mm port is used to complete the dissection around the bladder neck and the urethra to define the area for passage of a needle. The bleeding points can be secured with a bipolar cautery (Figs. 3, 4).

A weighted speculum is inserted into the vagina, and the labia are sutured laterally. A zero Prolene suture is passed through the vaginal mucosa in a helical manner starting well above the bladder neck and going toward the midurethra (Fig. 5). At this stage, a small suprapubic incision is made just above the pubic crest, and dissection is performed down the fascia. A newly constructed RR needle is used. It is a small-bore needle with a plunger. Pushing the plunger makes a retractable loop of wire appear in the vagina to help grasp a suture. The first pass of the needle is made 0.5 cm lateral to the bladder neck. The second pass is made 1 cm lateral and caudal to the first pass. (Fig. 6). The loop of the needle in the vagina grasps the suture ends that were used previously to plicate the vaginal mucosa and pull it into the suprapubic wound (Fig. 7).

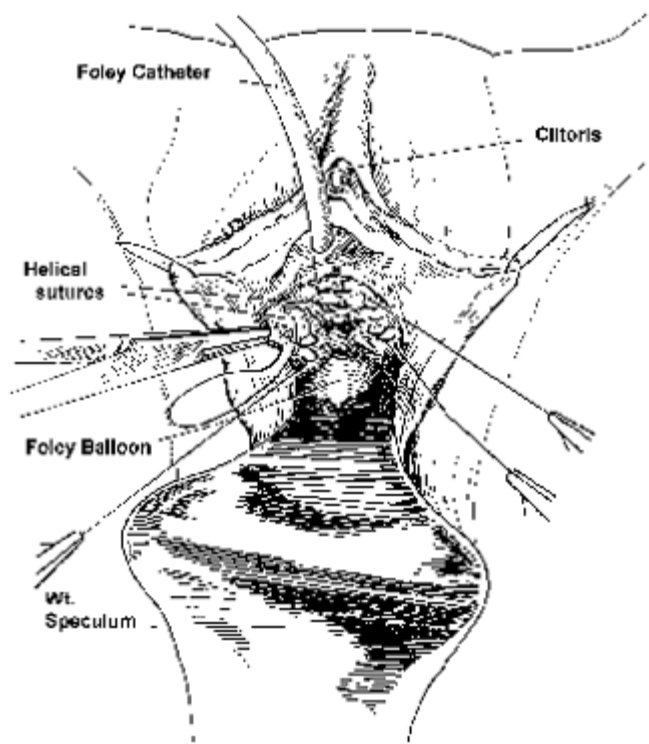


Fig. 5. Placement of helical sutures with 0 Prolene.

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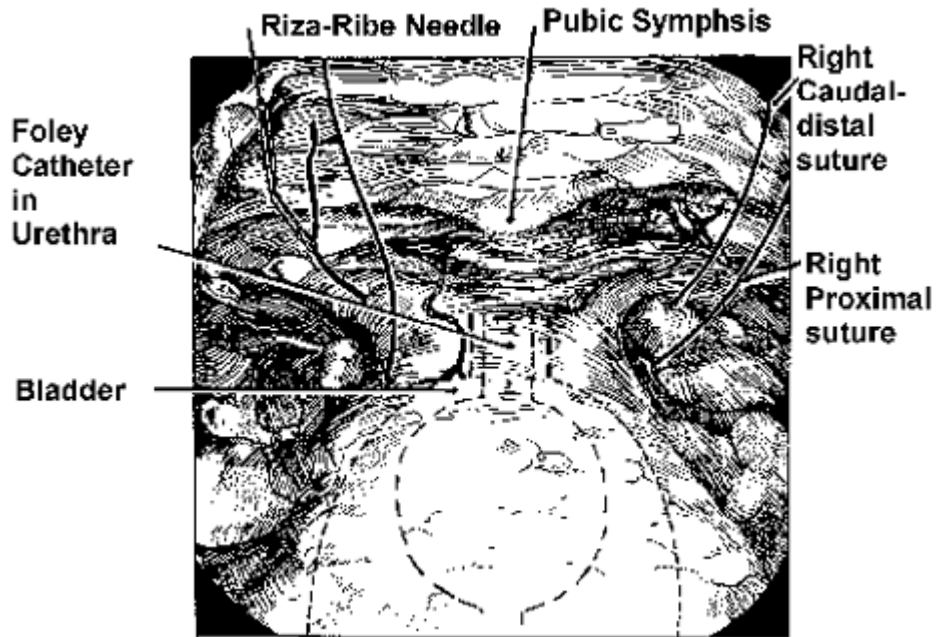


Fig. 6. View after two proximal and one caudal sutures were retrieved. Left caudal suture retrieved with Riza-Ribe Needle.

The adequacy and accuracy of placement of the sutures are provided by visualization of the passage of the needle on the screen and endoscopic evaluation. When the placement of the sutures is deemed to be satisfactory, they are tied suprapubically. Simultaneously, the bladder neck is evaluated by cystoscopy for satisfactory occlusion.

The vagina and the retropubic space are thoroughly irrigated with an antibiotic solution throughout the procedure. The fascia in the large trocar wound is closed with one suture of 0 PDS. The rest of the wounds are

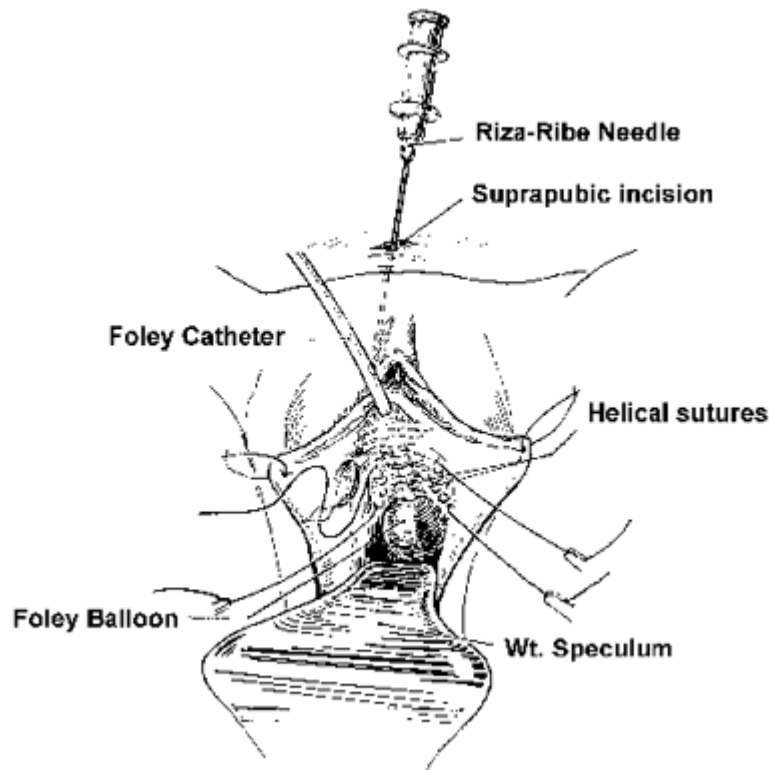


Fig. 7. Sutures retrieved with Riza-Ribe Needle.

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closed with subcutaneous and subcuticular sutures. The use of a drain through the 5-mm incision is an option in case of excess bleeding in the retropubic space.

The patient is discharged the same evening or the next morning with an indwelling catheter. She is kept on an oral cephalosporin and is examined on the fourth postoperative day after removal of the catheter. A follow-up examination consists of wound inspection and a determination of residual urine. A urine culture is obtained if deemed necessary. A pelvic examination is performed to check for any bleeding and to check for an enterocle.

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ADDENDUM

Since acceptance of this manuscript for publication, the authors has performed seven more laparoscopy-assisted extraperitoneal bladder neck suspensions without a complication.

Address reprint requests to:

Erol D. Riza, M.D.
3465 Navarre Ave.
Oregon, OH 43616