Laparoscopic Retropubic Colposuspension The Burch Procedure

June 30, 2011 | Laparoscopy [1], Laparoscopy and Hysteroscopy [2], ObGyn Compensation Survey [3], Urogynecology [4], Incontinence [5], Surgical Gynecology [6]
By Joseph R. Feste, MD [7]

Reported in the literature are more than 100 different kinds of surgical treatments for stress urinary incontinence in women, including anterior colporrhaphy (Kelly plication), retropubic urethropexy (Marshall-Marchetti-Krantz procedure, Burch procedure, ), paravaginal suspension, various kinds of needle urethropexy, and suburethral sling procedure.

Reported in the literature are more than 100 different kinds of surgical treatments for stress urinary incontinence in women, including anterior colporrhaphy (Kelly plication), \(^1\) retropubic urethropexy (Marshall-Marchetti-Krantz procedure, \(^2\) Burch procedure, \(^3\)), paravaginal suspension, \(^4\) various kinds of needle urethropexy, \(^5-8\) and suburethral sling procedure. \(^9\) Furthermore, among these procedures are many modifications, all of which present a somewhat confusing picture for the practicing surgeon in choosing a proper surgical procedure for incontinent patients. However, with better understanding of the pathophysiology of genuine stress urinary incontinence and with more published data available, there seems to be a consensus, especially among gynecologists that retropubic colposuspension (Burch procedure) is the surgical treatment of choice for genuine stress urinary incontinence in patients who have intact urethral sphincteric mechanism but with poor urethral support and displaced urethrovesical junction. \(^10,11\) However, the abdominal Burch procedure requires patients to undergo laparotomy; and the poor visibility of the retropubic space complicates the dissection of space of Retzius and mobilization of the bladder and tends to incur more blood loss. Additional disadvantages include prolonged operating time and increased surgical morbidity. On the other hand, the various kinds of needle urethropexy can be performed easily with a short operating time and hospital stay. However, most reports in the literature indicate that the long term results do not appear to be as effective as retropubic colposuspension. \(^12-15\) In our own experience with laparoscopic retropubic colposuspension there has been minimal blood loss, low morbidity and shortened hospital stay and postoperative recovery. This procedure can conveniently be performed with a laparoscopic hysterectomy when the patient presents with both uterine problems and urinary stress incontinence.

PRE-OPERATIVE EVALUATION
The diagnosis of genuine stress incontinence must first be confirmed and detrusor instability excluded. The pre-operative evaluation includes a complete history and physical examination with particular emphasis on neurological history and details of current medication. The office incontinence questionnaires and patient's urinary voiding diary (urolog) can add valuable information. Pelvic examination and lower neurological examination with emphasis on the sensory and motor dermatome pattern of S2, S3, and S4, are also necessary. The examination is supplemented by office investigations including urinalysis and urine culture, a stress test and a Q-tip test as well as a simple office cystometry\(^{16}\) and measurement of residual urine. If there is any abnormality in these tests or if the patient has had previous failed incontinence surgery, she should undergo more sophisticated multi-channel electronic urodynamic studies before any treatment is selected.

OPERATIVE TECHNIQUES
Under general anesthesia with endotracheal intubation, the patient is placed in a low lithotomy position with legs supported in Allen's Stirrups (Allen Medical, Mayfield, Ohio, U.S.A.). A #20 French sized Foley catheter with a 30ml balloon tip is then inserted into the bladder, and 50ml concentrated indigocarmine dye is instilled into the bladder. The Foley catheter is then clamped. Inadvertent penetration of the bladder during the procedure will immediately be revealed by the escape of blue dye. A 10mm laparoscope is inserted through a vertical intraumbilical incision, and four 5mm puncture sites are made in the abdomen (Figure 1). The lower pair of puncture sites is made lateral to the deep inferior epigastric vessels, and the upper pair is placed lateral to the rectus muscle at about the umbilical level. Careful inspection is made of the internal viscus after which the patient is then placed in 20 degree Trendelenberg position, and the pelvic organs are then meticulously
examined. All visible pathologies such as adhesions and endometriosis are excised as described in the previous chapter and the uterus with or without the ovaries are laparoscopically removed as described in chapter 5. After the vaginal cuff has been closed the pelvic area is irrigated with copious amounts of Ringer's lactate solution. Underwater examination of the surgical sites is performed to ensure satisfactory hemostasis. The cul-de-sac is then obliterated using 2-0 permanent sutures with either the Halban or Moschcowitz procedure through the laparoscope. The Halban procedure\textsuperscript{17} consists of placing several sagittal sutures within the cul-de-sac, and the Moschcowitz procedure\textsuperscript{18} involves placing one or more purse-string sutures to obliterate the cul-de-sac. It is important to obliterate the channels on either side of the sigmoid colon in both procedures. Either procedure, if properly executed, can prevent future enterocele formation.

1) The laparoscopic retropubic colposuspension proper begins with an incision made about 1 inch above the symphysis pubis in the anterior wall peritoneum. This should be made laparoscopically between the two obliterated bladder folds with laparoscopic scissors.

2) The anterior peritoneum is dissected away from the anterior abdominal wall and the retropubic space is entered.

3) The bladder is mobilized and paravaginal tissue is identified. The fatty tissue around the paravaginal areas is removed and hemostasis achieved with bipolar forceps. No dissection is performed within 2-2.5cms of the urethra.

4) Two sutures of non-absorbable material are used to raise and pull the anterior vaginal wall forward to the Cooper's ligament. The pair of sutures are inserted at the level of the mid-urethra and the urethrovesical junction. The sutures are inserted at least 2cms from the urethra. A double bite of the whole thickness of the vagina avoiding the vaginal cavity is taken and is then passed through the Cooper's ligament on the ipsilateral side at a level immediately above the location in the anterior vaginal wall. During the insertion of this suture the assistant places his middle and index fingers at the level of the urethrovesical junction. Tenting of the anterior vaginal wall in this manner facilitates the correct placement of the sutures. Once the suture has been correctly placed, it can be tied using the extracorporeal technique with the Clark-Reich knot pusher 18 previously described. Tying is facilitated if the assistant pushes the fingers in the vagina up towards the Cooper's ligament. The procedure is then repeated on the contralateral side. During the tying of the knots, particular care must be taken to avoid compressing or kinking the urethra. It is not necessary to have the vaginal wall in direct contact with Cooper's ligament and adequate support will be obtained if the sutures are snugly tied without undue tension. Excessive tension will produce necrosis at the suture sites and may result in suture release and surgical failure.

5) The retropubic space is then irrigated with copious amounts of Ringer's lactate solution. Any bleeders are coagulated with bipolar forceps.

6) A suprapubic catheter is inserted into the bladder under direct visualization. The peritoneal defect is closed with 2-0 absorbable suture.

7) Cystoscopic examination is then performed to ensure that no suture material penetrated the bladder wall. 5ml of indigocarmine eye and 20mgs of Furosemide (Lasix) may then be injected intravenously to confirm the integrity of the ureters.

References:

**REFERENCES**


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