

Minimally Invasive Surgical Treatment of Stress Urinary Incontinence in Women – Initial Experience of Craiova Urology Department Using the Transobturator Tape Procedure (TOT)

STOICA L.⁽¹⁾, TOMESCU P.⁽¹⁾, DRĂGOESCU O.⁽¹⁾, PĂNUȘ A.⁽¹⁾,
ENACHE M.⁽¹⁾, CERNEA N.⁽²⁾

⁽¹⁾Department of Urology, University of Medicine and Pharmacy of Craiova; ⁽²⁾Department of Obstetrics and-Gynecology, University of Medicine and Pharmacy of Craiova;

Introduction

Text Stress urinary incontinence (SUI) represents the involuntary loss of urine along with increased intraabdominal pressure (cough, laugh, sneeze etc.). It is a common condition with symptoms of different grades of severity that significantly affect the quality of life for patients of all ages. Prevalence of this disease among women increases with aging. Diagnose is usually late because of delayed presentation. The quantity of urine leak varies from a few drops to significant urinary flow. The increase of intraabdominal pressure when coughing, effort making, or sneezing is transmitted to the bladder, the normal urethral pressure is above normal so that incontinence appears. There are numerous risk factors involved in the etiology of incontinence: natural birth, menopause, chronic constipation, obesity, pelvic surgical procedures (through denervations, scaring), pelvic irradiation, neuromuscular sphincteric dysfunction. Diagnosis requires a thorough medical history which reveals potential risk factors, followed by complete clinical examination including genital examination. This proves the incontinence and allows assessing the possible results of a surgical procedure (the Boney test allows the selection of patients that will benefit from TOT). Common lab tests (including urine culture) as well as ultrasound and in selected cases cystoscopy and urodynamics are required. Surgical treatment for incontinence has gone through many changes along with the technical development and the understanding of physiopathology of incontinence. This is based on inner and outer factors (involvement of the urethra, mechanical support of the bladder neck and the urethra provided by the pelvic floor muscles which keep the bladder neck within the pelvis as well as the local hormonal

balance, intact neurological component). The theory that supports the efficiency of TOT is the integral theory (Petros and Ulmsten, 1990)^[1] which states that a physiological support for the urethra is created by binding the middle portion of it to the pubic bones resulting in strengthening the pubourethral ligament. This type of synthetic tapes were first placed behind the pubic bone (TVT) but with a high rate of intraoperative incidents (perforation of the urethra, bladder, intestines or bleeding, etc.), so Delorme^[2] initiated the TOT technique in France in 2001 which reached the US in 2003. This technique is followed by a significantly lower complication rate, with an efficiency similar to TVT and superior to Burch type indirect colposuspension, perineal repair surgery or other invasive open surgery techniques. Lately mini polypropylene slings have been designed. They don't require transobturator placement, but the experience of using them is quite limited.

Material and method

Between September 2008 and June 2009, 26 female patients with stress urinary incontinence had a minimally invasive surgical procedure – TOT. The mean age of patients was of 56±8 years. The protocol of investigations included a medical, complete physical examination (including perineal and genital examination), lab tests (complete blood count, urea, creatinine, glycemia, urinalysis) and abdominopelvic ultrasound. In selected cases urography, cystoscopy, neurological examination were also performed. The surgical procedures were performed under lumbar spinal anesthesia, with antibiotic protection - third generation cephalosporin, analgesics as well as low molecular weight heparin and estrogenic vaginal ovules during postoperative follow-up.



Fig. 1 TOT schematic

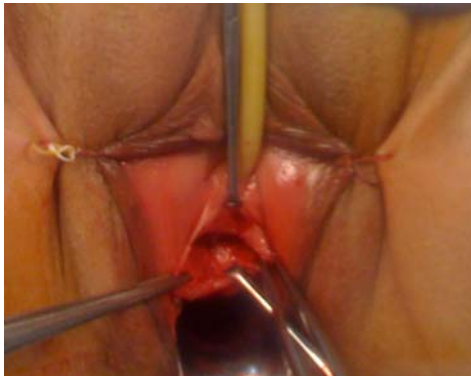


Fig. 2 Lateral dissection on both sides of the urethra



Fig. 3. Leading the needle-hook through the obturator membrane



Fig. 4. Positioning of the TOT

The surgical procedure was performed through vaginal approach, the patient being placed in perineal position. After placing a Foley catheter and emptying the bladder, a vertical incision of approximately 3 cm is made with the lower end 1 cm above the external urethral meatus, and the upper close to the bladder neck. The next step consists of lateral dissection on both sides of the urethra until the medial edge of the ischiopubic bone is reached. Two small skin incisions are made on both sides where the lateral edge of the ischiopubic bone is projected, on the horizontal line that runs through the external urethral meatus. The two ends of the sling tape are led through the incisions and the obturator membrane using the special needle-hook ("tunneler"). The sling is placed under the middle of the urethra, tension-free, and the two ends of the sling are sectioned and the vaginal incision is closed (fig.1, 2, 3, 4).

The Foley catheter is kept 24-48 hours postoperative and the patients are usually discharged 3 days after surgery (average), and reexamined after 14 days and every 3 months subsequently.

Results

The mean duration of this procedure was of 20.8 ± 9.1 minutes. Patients were hospitalized an average of 3.4 ± 0.6 days.

The results were favorable cases leading to continence in most patients.

There were no intraoperative incidents, bleeding was insignificant, there was no case of postoperative urine retention or dysuria after suppression of the Foley catheter.

There was one case with urgency immediately after suppressing the Foley catheter which disappeared after the first doses of anticholinergic drug.

In only one case the incontinence was partially cured after TOT, the patient needing to follow a long anticholinergic postoperative drug treatment.

We had no cases of vaginal erosions, pelvic organs perforations, bladder or urethro-vaginal fistulas that are described in the medical literature.

Discussions

Minimally invasive surgical procedures used for the treatment of patients with stress urinary incontinence were well received worldwide due to of a good rate of patients postoperative comfort (superior efficiency compared to any other colposuspension technique in treating the incontinence - more than 90%) and low impact on patients lives (even though this is not a risk-free procedure, the short hospitalization period and fast

social reinstatement provide advantages far beyond the reach of any other technique of open surgery). Our experience is though encouraging from all points of view. The technique is at the beginning and has to pass the test of time so that this minimally invasive procedure should become the standard treatment of stress urinary incontinence. We think that the very high rate of curability we obtained is due to rigorous and adequate selection of all patients.

Conclusions

- TOT is designed for cases of pure stress urinary incontinence, without high grade genital prolapse or rectocele which involve other surgical correction procedures.
 - TOT is a minimally invasive alternative to the classical open surgery procedures described in literature, because its high efficiency, patient comfort, and fast social reinstatement.
- The technique is rather easy to perform and doesn't require special surgical instruments or equipment.
 - The procedure involves minimal risks and complications and has a rapid learning curve.

References

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Correspondence Adress: Stoica Lucian, MD, PhD Student, Department of Urology, University of Medicine and Pharmacy of Craiova Str Petru Rares nr. 4, 200456, Craiova, Dolj, România; email: stoicale@yahoo.com