Stress urinary incontinence management with transobturator sling technique: experience over five years


ABSTRACT

Introduction: Stress urinary incontinence continues to be a health problem affecting millions of women each year. An estimated 10-35% of older adults present with urinary incontinence and the figure goes up to 50% in geriatric patients. Transobturator vaginal sling technique has become the treatment of choice in stress urinary incontinence, whether due to urethral hypermobility or to intrinsic sphincter deficiency. Complications are not common and include acute urine retention caused by excessive pressure of the mesh on the urethra, bleeding due to venous plexus injury at the 2 o’clock and 10 o’clock positions on the bladder neck from mesh passage during puncture, and recurrence or persistence of urinary incontinence reported by 10-30% of patients that have undergone surgery. This latter complication is the result of poor sling placement, mesh degradation, and a lack of tension by the mesh on the urethra. Urethral erosion and mesh infection are the most common complications.

Objective: To evaluate results and intraoperative and postoperative complications with transobturator sling in

RESUMEN

Introducción: La incontinencia urinaria de esfuerzo sigue siendo un problema de salud que afecta a millones de mujeres cada año. Se calcula que de 10% a 35% de los adultos mayores presentan incontinencia urinaria y en los pacientes geriátricos hasta 50%. La técnica de sling vaginal trans-obturador (TOT) se han convertido en el tratamiento de elección en los pacientes con incontinencia urinaria de esfuerzo ya sea por hipermovilidad uretral o por deficiencia intrínseca del esfínter. Las complicaciones son poco comunes, las cuales incluyen: retención aguda de orina originada por la tensión excesiva de la malla sobre la uretra, sangrado por lesión del plexo venoso localizado a las dos y 10 del cuello vesical al pasar la malla durante la punción, recurrencia o persistencia de la incontinencia urinaria reportado de 10% a 30% de los pacientes sometidos a cirugía donde las causas son: mala colocación del sling, degradación de la malla y la falta de tensión de la malla sobre la uretra. La erosión de la uretra e infección de la malla siendo las más comunes.
patients presenting with stress urinary incontinence at the authors' institution over a five-year period of time.

Methods: Forty-one patients having undergone transobturator sling technique for stress urinary incontinence over a period of five years at the authors' institution were analyzed. Degree of urinary incontinence was revised with preoperative Sandvik Severity Scale and the type of stress urinary incontinence was revised through urodynamics study with abdominal leak-point pressure. Analyzed variables were: number of vaginal births, intraoperative complications, immediate or late postoperative complications, and degree of postoperative incontinence at six, twelve, and thirty-six months by means of the International Consultation on Incontinence Questionnaire - Short Form.

Results: Mean patient age was 56 years, mean number of vaginal births was 3, and there was no statistical predilection for the type of urinary incontinence. A total of 54% of patients presented with moderate incontinence and 24% with severe incontinence. The type of stress incontinence determined through abdominal leak-point pressure was type I (39%), type II (22%), and type III (39%), without being a determining factor in surgical success. There were no intraoperative complications; only one patient presented with acute urine retention symptoms, and 24% of patients presented with some type of complication, the most common being urethral and vaginal pain that represented 12% of all complications. The success rate for the present study was 90% at six months, 85% at twelve months, and 82% at thirty-six months. There was 100% continence.

Conclusions: Transobturator sling has been substituting other urinary incontinence surgical techniques because it is a safe and effective method for patients presenting with stress urinary incontinence, regardless of the type of incontinence, and it is a procedure with an acceptable morbidity rate.

Keywords: Urinary incontinence, transobturator sling, complications, Mexico.

INTRODUCTION

Stress urinary incontinence continues to be a health problem affecting millions of women each year. It is estimated that 10-35% of older adults present with urinary incontinence, as do up to 50% of geriatric patients.1 There are three types of stress urinary incontinence: Type I is mild incontinence with no urethral hypermobility. Type II is involuntary loss of urine with urethral hypermobility. Type III, the most serious type, is defined as involuntary loss of urine with urethral hypermobility.
loss of urine with intrinsic sphincter deficiency. Diagnosis can be made by measuring maximum abdominal urine leak-point pressure. Pressure under 60 cm H$_2$O for producing leakage is considered type III, pressure of 90-120 cm H$_2$O is considered type II, and pressure over 120 cm H$_2$O is considered type I. Surgical indication for sling placement is stress urinary incontinence that directly affects quality of life. Transobturator vaginal sling technique (TOT) has become the treatment of choice in patients with stress urinary incontinence caused by either urethral hypermobility or by intrinsic sphincter deficiency.

Complications are uncommon and include:

- Acute urine retention due to excessive mesh tension on the urethra.
- Bleeding from the venous plexus at the 2 o’clock and 10 o’clock positions on the bladder neck from the passing of the mesh during puncture.
- Urinary incontinence recurrence or persistence has been reported in 10-30% of patients having undergone TOT surgery and its causes are: poor sling placement, mesh degradation, and lack of mesh tension on the urethra.
- Urethral erosion and mesh infection are the most common complications.

The sling technique, based on the integral theory of Petros and Ulmsten and on the pressure transmission theory of Enthörning, was introduced in 1978 by McGuire and Lytton, who used the fascia lata to suspend the urethra. The use of synthetic, non-degradable materials such as polypropylene, allows tension to be kept on the urethra for several years. Sling procedure focuses on creating a hammock around the urethra, providing extra support to prevent urethral mobility. In Holland in 1998 Nickel et al reported the first successful procedure using polyester tape that went through the obturator fossa and around the urethra as stress urinary incontinence treatment in dogs. In France in 2001, Delorme introduced transobturator sling treatment in humans in which there was no major retropubic and cystoscopic dissection. In 2002 Dargent reported short-term results of procedure in 71 patients employing pubovaginal sling.

### OBJECTIVE

To evaluate intraoperative and postoperative results and complications with the use of transobturator sling in stress urinary incontinence patients over a period of five years at the authors’ institution.

### METHODS

Case records of 48 patients that underwent transobturator sling surgical procedure for secondary stress urinary incontinence and mixed urinary incontinence within the time frame of January 2005 to January 2010. Patients with complete case records who had data on all the variables analyzed were included in the study. Patients with incomplete case records, with clinical or urodynamic evaluation that was inadequate for stress urinary incontinence diagnosis, and patients that did not have follow-up of at least 6 months were excluded from the study.
The analysis group was made up of 41 patients. Variables analyzed were age, number of births, type of stress incontinence or mixed incontinence, degree of incontinence according to Sandvik Severity Scale (slight, moderate, severe, very severe) (Table 1), type of stress incontinence according to abdominal leak-point pressure (ALPP) obtained through preoperative urodynamically study, clinical Marshall test, and intraoperative and immediate (within the first 24 hours) or late (after 24 hours) postoperative complications.

The International Consultation on Incontinence Questionnaire - Short Form (ICIQ-SF) was used as follow-up at 6, 12, and 36 months after surgery to measure the degree of incontinence as well as the degree of patient satisfaction (Table 2). An open, retrolectic, cross-sectional study was carried out and results were analyzed using descriptive statistics.

## RESULTS

A total of 41 women with mean age of 56 years (45-78 year range) were analyzed. Twenty-one of these patients (51%) were operated on for stress incontinence only and the other 20 patients for mixed incontinence (49%). Three patients (8%) presented with slight incontinence (Sandvik Severity Scale), 21 patients (51%) with moderate incontinence, 10 patients (24%) with severe incontinence, and 7 patients (17%) with very severe incontinence (Image 1). Of the patients presenting with severe and very severe incontinence, 21 (51%) had had more than 3 vaginal births. All patients presented with positive clinical Marshall test. Sixteen patients (39%) had intrinsic sphincter deficiency with preoperative ALPP under 60 cm H$_2$O, 9 patients (22%) had urethral hypermobility and preoperative ALPP of 60-120 cm H$_2$O, and 16 patients (39%) had no urethral mobility and preoperative ALPP over 120 cmH$_2$O (Image 2). In regard to complications, only 1 patient presented with acute urine retention in the immediate postoperative period and had ALPP of 135 cm H$_2$O and slight incontinence. Thirty-one patients (76%) did not present with late postoperative complications. The most common late complications were urethral or vaginal pain and presented in 5 patients (12.2%) with mean presentation at 6.6 months. One patient presented with chronic suprapubic pain and 4 patients presented with mesh extrusion that was managed by removing mesh at mean 8 months (Image 3). Five patients (12%) presented with de novo urgency. In regard to the applied questionnaire, at 6 months 37 patients (90.2%) had not incontinence data and were 100% satisfied with surgery. Four patients presented with some symptom of incontinence, and only 2 patients did not have 50% improvement of urinary incontinence symptoms. Of the patients with 100% continence, only 35 (85%) remained the same at one year and 3 presented with some degree of slight incontinence. Thirty-three patients (82%) continued with 100% continence at 3 years. At the end of the study symptom improvement did not surpass 50% in only 4 patients (9.7%) (Image 4).

## DISCUSSION

At the University of California, Shlomo Raz (2003) reported transobturator sling success rate of 89% with follow-up at 1 year, analyzing results by means of incontinence questionnaires. Surgical success was defined as more than 50% improvement of symptoms. In a study from the Mayo Clinic on 40 patients that underwent sling procedure, Steven reported a recurrence rate under 14% and 12% postoperative complications. The present study reported 23% postoperative complications. In 2003, Darshan reported on his 5-year experience with sling procedure in 49 patients, showing success rate of 81% at follow-up at 59 months and only 4% complications. Baessler (2005) reviewed sling complications in 4 hospitals and found that the most frequent complications resulting in mesh removal were surgical mesh infection and retropubic abscess. Less severe and more common
complications were dyspareunia, chronic vaginal discharge, and pelvic pain syndrome. Upon late complication revision in the present study, urethral pain and vaginal pain were the most frequent complications and there were 4 mesh removals due to mesh rejection.

### CONCLUSIONS

Transobturator sling procedure has been substituting other urinary incontinence surgery since it is a safe and effective method for patients presenting with stress urinary incontinence, regardless of type, and it is a procedure with acceptable morbidity rates.

### BIBLIOGRAPHY