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Sling exposure after treatment of urinary incontinence with sub-urethral transobturator slings

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ABSTRACT

Objective: Sub-urethral slings are the "gold standard" when treating female urinary incontinence, but placing the prosthetic material has its own specific complication, exposure.
Study design: A retrospective study was performed on all patients who had a sub-urethral sling (TVT-O or TVT Secur) in Lille University Hospital Centre from 2006 to 2008. Follow-up was undertaken to look for re-intervention and to try to determine the risk factors.
Results: A total of 386 patients were studied with a median follow-up of 4 years. The rate of exposure was 4.32%. TVT Secur gave rise to more exposures (13.79%) than TVT-O (3.51%) ($p = 0.0203$). Association with Prolift for cure of prolapse significantly reduced the rate of exposure of sub-urethral slings ($p = 0.0161$).
Conclusions: It seems important not to use mini-slings of the TVT Secur type as they induce a higher rate of prosthetic exposure. Cure of urinary incontinence may be done with cure of prolapse at the same surgical operation without higher risk of exposure.

Introduction

Female urinary incontinence is a major problem. Sub-urethral slings (SUS) are now considered the "gold standard" and recommended as first-line treatment by the French College of Gynaecologists and Obstetricians (CNGOF) [1]. Many authors have compared efficacy and complications between the retropubic and transobturator routes, whether in-out or out-in [2], and have studied complications during surgery such as bladder wounds and short-term complications [3–8]. The majority of studies similar to ours rarely have a follow-up longer than 2 years [9–11].

SUS, however, have a specific risk, exposure with potential risk of infection. Symptoms are often pain or dyspareunia. Our aim was to study complications in a retrospective cohort of patients treated with sub-urethral transobturator slings or with single incision slings. We wanted to pinpoint the risk factors for this complication. Few studies have been interested in this approach using such a large number of patients and with such a long follow-up [12].

Material and methods

This is a retrospective study of a cohort of patients surgically treated for urinary incontinence between January 2006 and December 2008. All had a sub-urethral sling introduced vaginally, using either a TVT-O® (Gynecare) or a TVT-Secur® (Gynecare) prosthesis. All patients were under the care of the Gynaecological Surgery Department of Jeanne de Flandre Hospital, Lille University Hospital Centre (CHU), France.

Surgical indications were symptomatic urinary incontinence or incontinence detected before treating genital prolapse. When patients complained of urinary incontinence, its importance and eventual association with urge incontinence were determined. When patients did not complain of pure stress urinary incontinence, urodynamic testing assessed the benefits of surgery.

When patients complained of prolapse, its stage was determined with a simplified version of the Pelvic Organ Prolapse Questionnaire (POP-Q) of the International Continence Society (ICS) initially described by Swift et al. [13]. Clinical examination looked for concomitant urinary incontinence or incontinence revealed by a cough test during prolapse reduction. Patients with urinary incontinence (symptomatic or masked) underwent a single operation treating both with sub-urethral sling and a Prolift

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vaginal prosthesis, as described in previously in a tension-free vaginal mesh (TVM) group [14].

For TVT-S, we used the trans-obturator route. The tension of the sling can be adjusted in two ways. The first technique is to perform a 5 mm plication of the sling with an Allis forceps put in place under urethra, and then remove the forceps so as to avoid overtightening. The second cannot be performed under general anesthesia, as the tension is determined by a cough test. The bladder is filled with 250 ml fluid beforehand and the sling tightened to allow a slight leakage on coughing. Other procedures may be included in the same operation such as vaginal hysterectomy, Richter's intervention, and levator myorraphy. All patients had a gynecological examination 2 or 3 months after surgery.

At time of the first consultation, we noted age at time of surgery, parity, history of pelvic surgery, and grade of stress urinary incontinence using the Ingelman-Sundberg and Stamey classification. Grade 0 was given to patients with masked urinary incontinence. We noted association with urge incontinence, genital prolapse, stage of prolapse. We also noted date of intervention, experience of the surgeon, possible concomitant surgery, and complications during and after surgery.

We contacted all patients by phone between June and October 2011 to check if they had had further surgery in another hospital, so as not to underestimate the number of re-interventions. Patients who could not be contacted were excluded.

We then noted the type of complication, and the nature and date of re-intervention. Complications were classified following the Dindo classification [15], which gives an objective evaluation: we then studied only the most severe (Grade 3 or more). Our aim was to study re-intervention for exposure, to analyze the risk factors for this complication and to classify them following the International Urogynaecological Association (IUGA) and ICS system [16].

Statistical analysis was carried out in conjunction with the Biostatistical Department of Reunion Island University Hospital Centre. Data were analyzed with SAS software. Quantitative variables with normal distribution were analyzed with average values and standard deviations. Quantitative variables not following normal distribution were analyzed in medians and percentiles. Qualitative variables were expressed in percentage terms. Statistical comparisons used χ^2 test for qualitative data or Fisher's exact test if populations were not sufficient. For numerical data, the Mann–Whitney test was used. A value of $p < 0.05$ was considered significant.

Results

During our period of study, 419 patients were found to be eligible. All the patients' data were accessible within the hospital, and 371 (88.5%) replied to our phone calls and so could be included in our study. Of the 48 patients not available, 10 (2.4%) were deceased when data collection was attempted, and 38 (9.1%) did not reply to phone calls and so were not considered in our investigation.

There was no significant difference between included and excluded patients except for age ($p < 0.0001$). Excluded patients were on the whole older (65 against 57). Another difference was found for concomitant surgery: Prolift was used in 35.3% of included patients as opposed to 52.1% of the excluded patients ($p = 0.027$).

The overall rate of surgery in included patients was 14.8% ($n = 55$). Three had re-intervention in another establishment. In the group of excluded patients; 3 patients out of 48 were re-operated in Lille CHU. There was no significant difference in re-intervention between the two groups.

Table 1
Characteristics of population.

	$n = 371$ (88.5%)
Age (average, SD)	57.3 (12)
Parity (average, SD)	3 (1.46)
History	
Any pelvic surgery	31.5% (117)
Hysterectomy	21.8% (81)
Prolapse surgery	11.9% (44)
Urinary incontinence surgery	12.9% (48)
Grade of SUI	
0	10.8% (40)
1	17.8% (66)
2	44.5% (165)
3	27% (100)
Urge incontinence associated	27% (100)
Surgeon	
Senior	83% (308)
Junior	17% (63)
Anesthesia	
General	91.6% (340)
Rachianesthesia	7% (26)
Local	1.4% (5)
Tension of sling	
Plicature	96.8% (359)
Cough test	3.2% (12)
Type of sling	
TVT-O	92.2% (342)
TVT Secur	7.8% (29)
Association of Prolift	35.3% (131)
Anterior	2.4% (9)
Posterior	4.9% (18)
Total	28% (104)
Additional Surgery	26.4% (98)
Hysterectomy	17.5% (65)
Prolapse treated without mesh	1.1% (4)
Anal incontinence	0.8% (3)
Complications during surgery	0.8% (3)
Complications before surgery	1.4% (5)
Overall Reinterventions	14.8% (55)
For urinary incontinence surgery	11% (41)
For prolapse surgery	1.9% (7)

Median follow-up was 49 (31–69) months. Characteristics of the population are summed up in Table 1. Exposure of prostheses was our main concern, and this complication occurred in 16 of our patients (4.31%). Table 2 describes exposure of sub-urethral slings, their size, position, length of time of discovery after initial surgery, IUGA/ICS classification and also their treatment.

Of these 16 patients, 14 were treated by partial resection of exposed prosthesis and vaginal suture. Two cases were treated by simple vaginal suture without resection of the prosthesis. The average period for re-intervention after exposure was 3.2 (0.3–31.3) months. Out of all the exposures 10 (62.5%) were diagnosed at post-operative consultation. Among these 16 patients, 4 had a second exposure of sub-urethral sling which was surgically treated, at 1, 2, 14 and 43 months of first surgery for exposure. All re-interventions were partial resections of the prosthesis. Three of the four re-operated patients had already had a resection, and one had had simple stitching. Of the 15 patients who had resection of the prosthesis, there was only one reccurrence of stress urinary incontinence needing placement of a TVT.

Table 3 shows all risk factors, and respective rates of exposure in our study with odds ratios when the probability test was significant.

Patients who had re-intervention for exposure were significantly younger (49.9) than patients without exposure (57.7) ($p = 0.02$). Rate of exposure varied with the year of intervention, and the result is significant with $p = 0.04$. The number of exposures is significantly higher with TVT-S ($p = 0.03$), with an odds ratio of 4.4. Among the 16 patients with exposure, 25% were associated with a TVT-S although they were only 7.8% of the slings that we