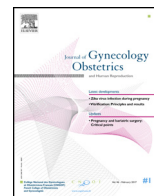




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Original Article

Retrospective study on the management and follow-up of 18 patients with a mid-urethral sling penetrating the urethra or bladder

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ABSTRACT

Introduction. – The mid-urethral sling (MUS) procedure is the gold-standard for the surgical treatment of stress urinary incontinence (SUI). Urethro-vesical sling exposure is one of the most serious complications of this procedure. We describe the treatment and follow-up of 18 patients with bladder or urethral sling exposure.

Patients and methods. – This single-center, retrospective study assessed the diagnosis and management of MUS penetrating the lower urinary tract in 18 women. The lesions included were classed as 4B, T3-4, S3 according to the international classification of complications related to the insertion of prostheses. Diagnosis was confirmed by flexible urethro-cystoscopy. The patients were treated surgically. In all cases, the aim was to remove all synthetic materials eroding the bladder or urethra. The patients were reassessed 6 weeks after the procedure, and functional urologic sequelae were treated. Urologic symptoms were evaluated using the USP questionnaire and urologic comfort was assessed using the Contilife questionnaire.

Results. – Seven MUSs were retro-pubic and 11 were trans-obturator. The material was 11 polypropylene macroporous monofilament, four polypropylene silicone coated and three non-available. There were six cases of urethral sling exposure, nine cases of bladder sling exposure, and three cases of urethral and bladder sling exposure, including five complicated cases of lithiasis and one urethra-vaginal fistula. Thirteen patients underwent one surgical procedure, four underwent two, and one underwent five procedures. Seven patients received a Martius flap. Three surgical approaches were necessary: (i) vaginal approach; (ii) urologic (urethral and suprapubic) cystoscopy approach; and (iii) laparoscopy approach. Median follow-up time was 34.5 months. At the end of follow-up, 17/18 patients had no sling exposure from the MUS, and 12/13 patients were considered comfortable from a functional urologic viewpoint.

Conclusion. – Our study showed that surgery could treat urethro-vesical sling exposure. Three surgical approaches may be necessary. Controlled cystoscopy is vital to confirm healing due to the recurrences of sling exposure in our study.

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1. Introduction

In 1993, Petros et al. laid the foundations for the concept of supporting the mid-urethra with a retro-pubic sling (RPS) to treat stress urinary incontinence (SUI). The objective was to correct deficient pubo-urethral ligaments [1]. This surgical technique was then developed by Ulstem et al. [2,3]

Trans-obturator tape (TOT) was described in 2001 and was based on the same concept as the RPS, the main difference being the trajectory of the lateral arms of the transobturator [4] compared to the RPS. Since then, the mid-urethral sling (MUS) procedure has become the gold-standard for the surgical treatment of SUI [5]. According to the PMSI healthcare database, in France, approximately 22,000 slings were implanted in 2015. However, there has been a reduction in the number inserted per year despite an aging population (17.3% decline between 2002 and 2013) [6]. The curative rate for SUI was reported as being between 71% and 97% for RPSs and between 62% and 98% for TOT [7] after 1-year.

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However, the complication rate was 4–5% [7,8] and, in the context of functional surgery, this is a significant percentage, all the more so as complications led to sequelae that were often more incapacitating than SUI itself. Urethro-vesical sling exposure from a MUS was one of the most serious complications. The literature reported a rate of 0.5–0.6% sling exposures to the bladder [9,10] and 0.007–1.5% for urethral sling exposures [11–14].

We report on the treatment and follow-up of a retrospective series of 18 patients presenting with urethral and/or bladder sling exposure from a MUS.

2. Patients and methods

2.1. Study design and intervention

This single-center, retrospective study describes the treatment and follow-up of 18 patients presenting with a MUS penetrating the urethra and/or bladder. Patients were included by a single surgeon between 21st June 2002 and 26th January, 2016, within the same urology department. Data collection was exhaustive. The lesions included were classed as 4B, T3–4, S3 according to the international classification of complications related to the insertion of prostheses [15]. At each consultation, each patient gave their informed consent to the collection of data, pictures, or videos, and their use in the study. As the study was retrospective and there was no change in the management of the patients, Institutional Review Board approval was not required. The study has been declared to the French National Commission for Informatics and Liberties (CNIL).

All patients underwent initial clinical and paraclinical assessment. The paraclinical examination included systematic urinalysis and flexible cystoscopy. An introital ultrasound was also performed systematically to gauge the position of the MUS, and

urodynamic tests were performed during the treatment period, depending on the functional urologic sequelae.

The patients were treated surgically using three different approaches depending on the clinical case: (i) vaginal approach; (ii) cystoscopy approach; or (iii) laparoscopy approach.

In patients with transurethral penetration of the MUS, a transvaginal approach was favored (Fig. 1) and, in certain specific cases, cystoscopy was also performed. In cases of trans-obturator MUS, where TOT penetrated the bladder, the preferred approach was cystoscopy. This was conducted via dual access to the bladder (i.e. suprapubic percutaneous access and urethral access), where one or two pairs of laparoscopic forceps were introduced directly into the urethra to pull the MUS. The MUS was then removed and destroyed by an instrument introduced via the suprapubic route, most often an endoscopic resectoscope or, more rarely, a Holmium laser probe or simple endoscopic scissors (Fig. 2). The optics used for the suprapubic or cystoscopy route depended on the circumstances.

In patients with a RPS penetrating the bladder, a cystoscopy or laparoscopy approach was considered. In all cases, the aim was to remove all synthetic material penetrating the bladder and/or urethra. At the end of the procedure, a suprapubic and/or transurethral bladder-drainage catheter was inserted systematically.

All patients were reassessed 6 weeks after the procedure using a flexible cystoscope to ensure that there was no persistence of the implant in the urethra and/or bladder. Treatment of any functional urologic sequelae was proposed during follow-up.

2.2. Outcomes

The characteristics of the patients with a MUS penetrating the lower urinary tract are summarized in Table 1. The methods of surgical resection of the penetrating MUS, and complications that occurred during or after resection, are summarized in Table 2. Follow-up and the need for further surgical treatment after resection of the penetrating MUS are described in Table 3.

The urinary symptoms of the patients after surgery were quantified using the Urinary Symptom Profile (USP) questionnaire [16] during regular follow-up consultations. Some patients completed an MHU questionnaire [17], and the score was converted into a USP score to allow homogeneous reading of outcomes. The Contilife quality-of-life (QoL) questionnaire [18] was sent to all patients between January 2015 and February 2017. The time from the first surgical resection until data collection using the questionnaires was considered the follow-up time. The USP and Contilife questionnaires are summarized in Table 3.

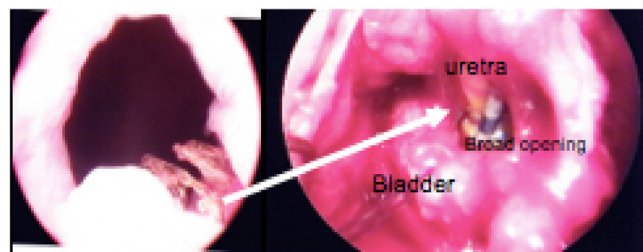


Fig. 1. Correction of urethral sling exposure by the vaginal route. The urethral defect after tape removal may be large. After urethral repair, a Martius flap can promote healing by providing waterproof protection.

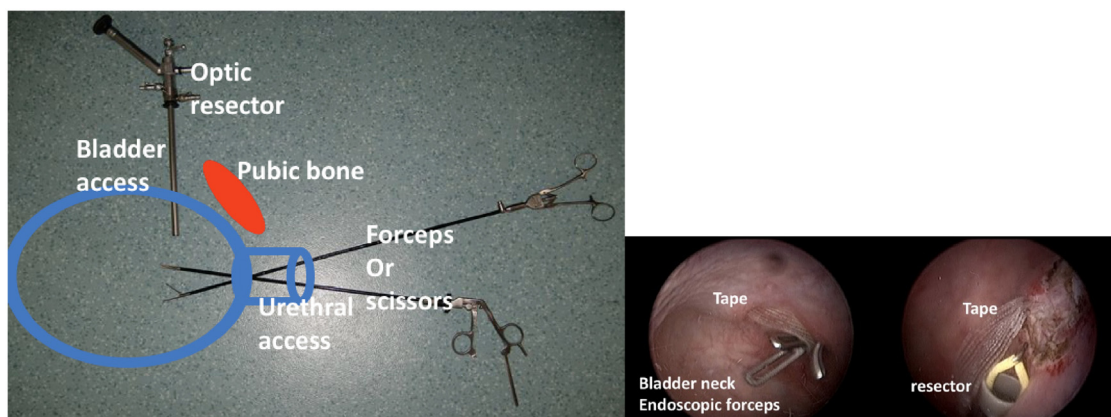


Fig. 2. Endoscopic urology by the cystoscopy approach. Two access points help during surgery (i.e. suprapubic and urethral access).

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