

Management of recurrent or persistent stress urinary incontinence after TVT-O by mesh readjustment

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Abstract

Introduction and hypothesis The aim of this study was to evaluate, retrospectively, the place of sub-urethral mesh readjustment when treating recurrent stress urinary incontinence (SUI) after TVT-O.

Methods Between August 2006 and August 2008, eight patients had recurrent or persistent SUI. They were treated surgically by tightening the pre-implanted sling.

Results Medium delay between first surgery and mesh adjustment was 6 months. One patient needed a second TVT-O for rupture of the pre-implanted mesh during adjustment. Among the seven patients who underwent a mesh readjustment, three were cured, three improved, there was one failure. Mean follow-up was 25 months.

Conclusions The sub-urethral mesh readjustment is a simple and safe procedure for patients with recurrent SIU after TVT-O procedure. Success rates are high, surgery minimally invasive but long-term follow-up is needed to evaluate efficiency.

Keywords Recurrent stress urinary incontinence · Mesh readjustment · Transobturator route · Stress urinary incontinence

Abbreviations

SUI Stress urinary incontinence
ISD Intrinsic sphincter deficiency
TVM Trans-vaginal mesh

Introduction

The preferred surgical treatment of female stress urinary incontinence (SUI) consists nowadays in the placement of a sub-urethral synthetic mesh by retropubic or transobturator route as described by Ulmsten, Delorme and de Leval [1–3]. This is really successful [4], but the management of failures is still not standardized, as only small numbers of studies are published.

Apart from pelvic floor exercises, surgeons may use different techniques: Burch colposuspension, bulking injections, new sling procedure [5–9], or shortening of the pre-implanted tape [10–15]. Our aim is to evaluate sub-urethral tape readjustment in recurrent SUI after TVT-O.

Material and methods

Between August 2006 and August 2008, we performed 274 TVT-O procedures (TVT-O®, Gynecare, Somerville, NJ) treating stress urinary incontinence by the technique described by de Leval [3]. Out of these patients, eight had recurrent or persistent SUI treated by tightening the pre-implanted tape. Following French recommendations for exploration of non-neurological female urinary incontinence, we do not routinely use pad test or urodynamic exploration if clinical diagnosis is pure stress incontinence [16].

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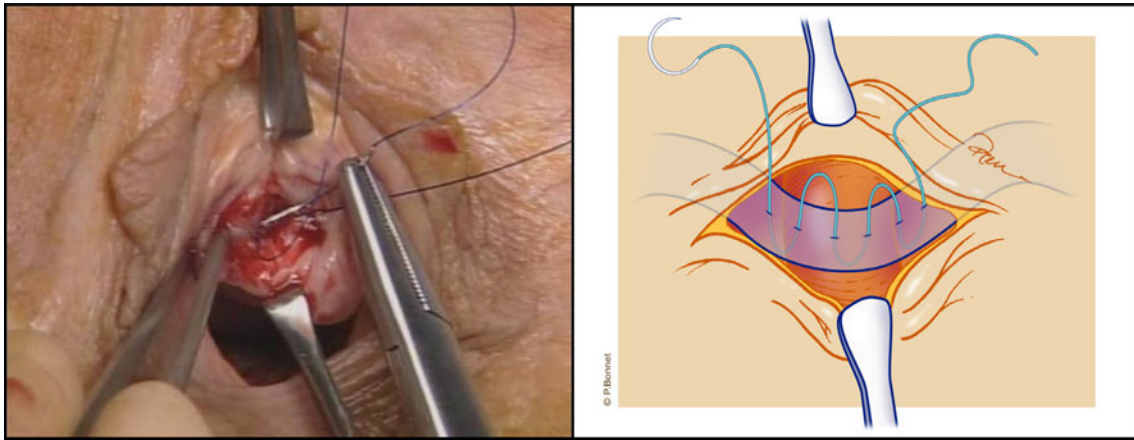


Fig. 1 Readjustment of the TVT-O by an in-out running suture

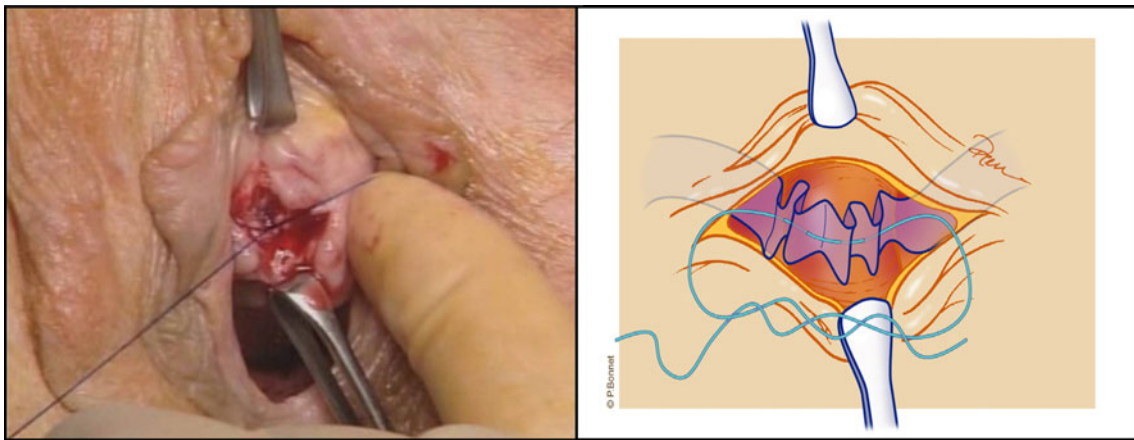


Fig. 2 Mesh tightening with nonabsorbable suture

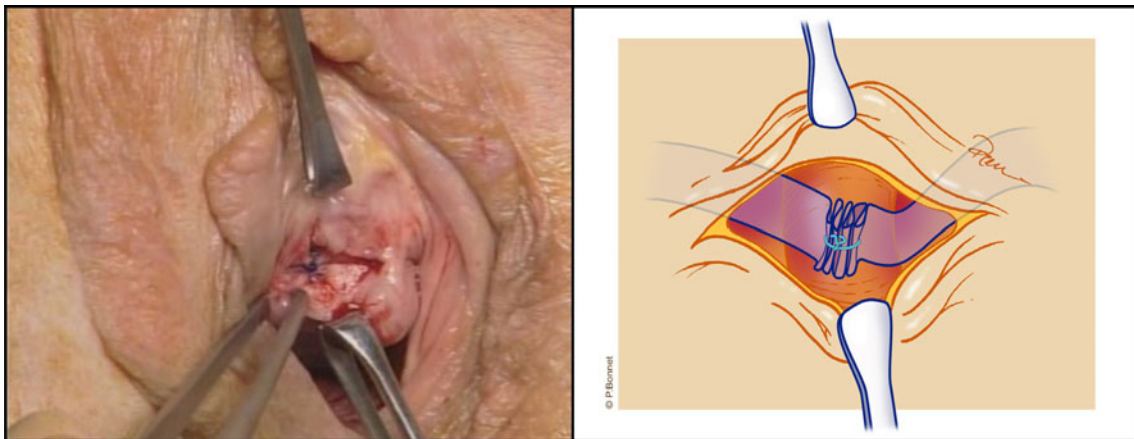


Fig. 3 Final view of the mesh readjustment before closing the vaginal mucosa

Table 1 Demographics

Patient	Diagnosis	Initial procedure
1	SUI	TVT-O
2	SUI	TVT-O
3	SUI, prolapse	TVT-O, laparoscopic assisted vaginal hysterectomy, anterior and posterior TVM
4	SUI, prolapse, left ovarian cyst	TVT-O, anterior TVM, laparoscopic bilateral salpingo-oophorectomy
5	SUI, prolapse	TVT-O, anterior and posterior TVM
6	SUI, prolapse	TVT-O, anterior and posterior TVM
7	SUI, prolapse	TVT-O, laparoscopic sacrocolpopexy
8	SUI	TVT-O

Surgery begins by a large sub- and para-urethral infiltration with diluted Xylocaïne adrenaline. The tape is localized by digital palpation, sometimes with the help of an intra-urethral device, a transversal incision is performed at its level. The incision is sagittal when the localization of the tape is difficult. The dissection is lateral, close to the tape, grossly following the ischio-pubic ramus. The mesh is individualized and tightened by an in-out running suture with non-absorbable suture (Figs. 1, 2, 3). If the procedure is performed under local anesthesia, tension is controlled by a cough test after filling the bladder with 250 ml of normal saline solution. Then, the vaginal mucosa is closed with an absorbable suture.

Patients were discharged from hospital after control of post-mictional residue (twice under 100 ml). In this retrospective study, data of the postoperative evaluation were collected at 6 weeks by physical examination and subjective analysis. Patients were then questioned every year by phone with an analogic score (VAS) recording patient's satisfaction (from 0, unsatisfied, to 10, totally satisfied). Results of the surgical procedure were subdivided in three groups: patients cured with no urine leakage during stressful activities, improvement with significant decrease leakage, or total failures.

Results

Eight patients underwent a mesh tightening procedure for persistent SUI in seven cases and the eighth patient for recurrent SUI, after coughing in the early postoperative period.

Initial TVT-O had always been done under general anesthesia. SUI was asserted before surgery; urodynamics in five cases confirmed pure stress incontinence, with ISD in two cases. Five patients had concomitant pelvic organ prolapse surgically cured by vaginal approach (TVM technique, Prolift®, Gynecare) in four cases and laparoscopic sacrocolpopexy in one case (Table 1). Medium delay between first surgery and mesh readjustment was 6 months (1–16).

Five readjustments were performed under local anesthesia, three with short sedation. Before mesh tightening, physical examination with a cough test showed urine leakage and persistent urethral hypermobility, confirmed in three cases by urodynamic exploration. Patient characteristics are reported in Table 2. Mean age was 60.2 years (SD ±13.6) and mean body mass index was 30.7 (SD ±8.4). Median vaginal parity was 3 (range 1–8). We realized in six cases a simple tape tightening by monofilament suture. In one patient presenting mesh exposition, partial resection of the mesh was done before shortening. Another had a second TVT-O for rupture of the pre-implanted mesh during the adjustment. There were no per- or post-surgical complications. We observe no urine retention after tightening of the mesh, and all post-mictional residual urine volumes were normal in the immediate post-surgical time. Mean hospital stay was 1 day (range 0–2).

Among the seven patients who underwent a mesh readjustment, three were cured, three improved, and the procedure failed in one case. The patient who underwent a second TVT-O procedure is now cured. No patient complains of dysuria. Mean follow-up was 25 months.

Discussion and conclusions

In the Lille Department of Gynecologic Surgery, we use routinely the transobturator technique described by de Leval to treat SUI [3]. The first time, general anesthesia is the rule. We do not routinely use the cough test. Tension is

Table 2 Patient characteristics

Age [year (mean ± SD)]	60.2±13.6
BMI [kg/m ² (mean ± SD)]	30.7±8.4
Vaginal parity [median (range)]	3 (1–8)
Menopause [<i>n</i> , (%)]	5 (62.5)
Previous hysterectomy [<i>n</i> , (%)]	1 (12.5)
Previous SUI surgery [<i>n</i> , (%)]	0 (0)

standardized, regulated with an Allis forceps and a loop of 1 cm between the extremities of the forceps. The mesh is placed below the urethra, both ends are cut, and then the loop is released without additional tension. The balance between correct tension without producing dysuria may be difficult to obtain. Optimal tension is a key issue for reaching good results.

When SUI is persistent after TVT-O, different options are available, Burch colposuspension, bulking injections, and placement of a second TVT-O, TOT, or TVT. Burch colposuspension after a first-mid urethral sling procedure has not been evaluated. In 2007, Cochrane published a review of 12 trials of periurethral injection therapy for urinary incontinence in women and found some limited evidence that this can relieve SUI [17]. Two or three injections are likely to be required to achieve a satisfactory result. The continence beyond 1 year remains unknown as well as the results in recurrent SUI. In repeated sling procedures, Lee et al. reported 75.9% of success and 6.9% of improvement in 29 patients, whatever the approach [6]. Moore et al. published 100% of success rate for TVT after five failures of TOT sling [7]. Palva and Nilsson reported data in 20 patients, 75% were cured or significantly improved after repeated TVT [8]. Van Baelen and Daelaere studied about 21 TOT after failure of sling treatment and reported 55% of cure, 15% of improvement, and 30% of failures [9].

However, there are few reports on mesh readjustment in literature [10–13]. Neuman reports 75% of objective success after performing four TVT [14]. Lo et al. report similar success rate (71.4%) in 14 cases [15].

In well-selected cases, readjustment seems to be the most simple and efficient surgery to be proposed as the first option. The technique is simple, mostly done under local anesthesia, with low or absent morbidity. Cost issues are also low avoiding to apply a second device.

No author yet reported correction of a too loose tension after TVT-O. The small number of patients in this study does not allow to draw final conclusions. Our results are encouraging seven patients had a readjustment, three with total success, and three with partial improvement. We have the same range of success rate not only in literature but also in small samples. In daily practice, we think we offer to selected patients high chances to cure urinary incontinence, in a limited noninvasive way. We do not exclude other techniques such as repeated sling procedures.

This retrospective study lacks systematic urodynamic evaluation, so we do not understand precisely the mechanism of these persisting or recurrent SUI. Evaluation was not systematic as all the patients had objective stress urinary incontinence at the first post-surgical clinical examination. Assessment performed in three cases before the mesh readjustment confirmed SUI. The other limit,

already mentioned, is the small number of patients, too small to compare the different techniques, when SUI recurs. All surgeons have such excellent success rates [4]; we must gather larger cohorts of patients to really evaluate outcomes of these therapeutic options.

To conclude, the sub-urethral readjustment of trans-obturator meshes is a simple and minimally invasive option to treat recurrent or persistent SUI after TVT-O. Success rates are important for this minimally invasive procedure. Large series and long-term follow-up are needed to better evaluate the efficiency of this therapeutic approach and to standardize the management of recurrent SUI after TVT-O.

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Conflicts of interest None.

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