



RESEARCH ARTICLE

INTEREST OF TRANS-OBTURATOR TAPE (TOT) IN STRESS URINARY INCONTINENCE :SERIES OF 173 WOMEN AND 1 MAN

Mohammed Benamar¹, Vincent Richard², Mustapha Ahssaini¹, Soufiane Mellas¹, Jalal Eddine El Ammari¹, Med Fadl Tazi¹, Med Jamal El Fassi¹ and My Hassan Farih¹

1. Urology Department, Hassan II University Hospital, Fez, Morocco.
2. Urological Surgery Department, Hôpital Nord FrancheComté, Trévenans, France.

Manuscript Info

Manuscript History

Received: 05 October 2022

Final Accepted: 09 November 2022

Published: December 2022

Key words:-

Stress Urinary Incontinence, Qmax, Sub Urethral Strip

Abstract

TOT sub-urethral slings have an important role in terms of stress urinary incontinence. They have proven to have excellent functional results over time, with minimal or even exceptional complications. The technique of tape insertion is not complex but requires an experienced surgeon. We report a series of 173 women and 1 man, collected in the urology department of the Nord Franche-Comté Hospital in Trévenans (HNFC) between 03/2017 and 03/2022. The data were collected by a computer system set up at the NFC Hospital through the codes JDDDB005 and JDDDB007 designating the placement of TOT strips. The mean age was 53.03 years. Our patient complained of isolated SUI following radical prostatectomy surgery, wore one pad per day, had no post-void residual volume (PVR) and had a total improvement of his symptomatology after the installation of the Virtue-colooplast tape, no postoperative complications. At the 3-month postoperative consultation the patient reported a disappearance of the SUI with total satisfaction. All our patients had stress urinary incontinence (SUI), of which 133 (76.87%) had isolated SUI, SUI associated with urgency with predominance of SUI in 40 patients (23.12%), with positive Bonney maneuver in all our patients. On gynecological examination, 15 patients had a grade 2 cystocele, 13 patients had a grade 1 cystocele and 90 patients had urethral hypermobility; the post-void residual volume (PVR) measured by suprapubic ultrasound in the consultation was between 0cc and 110cc, the average maximum flow rate (average Qmax) was 17.5ml/s, and sphincter insufficiency (calculated by the 110-age formula) was noted in 83 patients on urodynamic examination. Failure of perineal rehabilitation in all our patients. The immediate postoperative period was marked by pain in 09 patients, malaise and vomiting in 05 patients, resulting in 24-hour hospitalization for monitoring. Intraoperatively, 03 patients had an estimated bleeding between 150 cc and 200 cc, a 24h hospitalization for monitoring was indicated. The follow-up appointment after 6 months showed persistence of SUI in 19 patients (10.98%), persistence of urgency in 15 patients (8.67%) and appearance of dysuria in 11 patients (6.35%). Decrease of the Qmax of all our patients postoperatively with average Qmax at 15.3ml/s compared to 17.5ml/s. Given the persistence of SUI,

the decision was made to monitor and re-investigate for possible re-insertion of sub-urethral strips. Cystoscopy was performed in the 15 patients with persistent urgency and did not reveal any abnormalities; decision to repeat the ECBU, continue the anticholinergic and monitoring with the attending physician. In our study, it was concluded that TOT type sub-urethral slings proved to be effective in the treatment of SUI with few complications, which is in agreement with other studies.

Copy Right, IJAR, 2022,. All rights reserved.

..... **Introduction:-**

Stress urinary incontinence is characterised by urine leakage without feeling the need to urinate, when force is applied to the bladder. It occurs **with small efforts** such as coughing, sneezing, laughing or lifting a heavy object, as well as sports and sometimes sexual activity. Stress urinary incontinence is usually due to **weakening of the perineal muscles or urethral sphincter muscles** and affects women of all ages.

In men, stress urinary incontinence is often iatrogenic and is encountered especially in the aftermath of radical prostate cancer surgery.

The TOT sub-urethral sling is an effective treatment for stress urinary incontinence (SUI), offering the advantages of a minimally invasive technique with good long-term results and low morbidity. The procedure is performed on patients in the gynecological position and a bladder catheter must be inserted prior to the procedure to ensure that the urethra and bladder neck are located and that the bladder is kept clear.

Objective of the work: to evaluate the therapeutic effectiveness of sub-urethral strips.

Materials and Methods:-

This is a single-centre, 5-year retrospective study between 03/2017 and 03/2022 targeting a population of 174 patients (173 women and 1 man).

The data were collected by a computerised system set up at the NFC Hospital through the codes JDDDB005 and JDDDB007 designating the fitting of TOT strips.

Inclusion criteria

- Moderate stress urinary incontinence in our patient after failure of vesico-sphincter rehabilitation.
- Pure stress urinary incontinence (SUI) in our patients after failure of perineal rehabilitation.
- Mixed urinary incontinence in our patients with predominantly stress urinary incontinence without uninhibited detrusor contraction on urodynamic examination.
- Normal preoperative cystoscopy in patients with stress urinary incontinence with Irritative signs in the absence of urinary tract infection.
- Absence of dysuria with no or insignificant RPM.

Exclusion criteria

- Mixed SUI with predominantly urgent urine.
- Mixed SUI with uninhibited detrusor contraction on cystomanometry.
- Dysuria with low urine output, significant post-void residual volume (PVR), greater than 20% of urine volume.
- SUI improved by perineal rehabilitation.
- Pre-operative cystoscopy showing a bladder tumour (3 cases).
- Severe coagulation disorders.

Results:-

Of the 174 files obtained, the descriptive study shows an average age of 53.03 years, with extremes of 34 to 87 years, the sex ratio is 0.0057.

Our patient had isolated SUI following radical prostatectomy surgery, wore protection daily, preoperative post-void residual volume (PVR) zero, PAD test (nappy weight test) 130g.

Cystoscopy showed no urethral stricture or bladder abnormality. The patient reported a total improvement of his symptomatology after the Virtue-coloplast tape, no postoperative complications. At the 3rd month postoperative consultation the patient reported a disappearance of SUI, he no longer wore protection and was totally satisfied, the RPM was still zero.

All our patients had stress urinary incontinence, of which 133 (76.87%) had isolated SUI compared to 40 patients (23.12%) who had SUI associated with urgency with predominantly SUI. The Bonneymanoeuvre was positive in all our patients. 23 patients needed protection (13.29%), 15 needed to change it once a day (8.67%) and 8 wore protection at night (4.62%).

On gynaecological examination, grade 2 cystocele was present in 15 patients, grade 1 cystocele in 13 patients and urethral hypermobility in 90 patients; post-void residual volume (PVR) measured by suprapubic ultrasound in the consultation was between 0cc and 110cc, mean max flow (mean Qmax) was 17.5ml/s and sphincter insufficiency on urodynamic examination (calculated by the formula $110 - \text{age} \times 30 \text{ cm}^3 \text{ s}^{-1}$) was noted in 83 patients.

The indication for slinging in all our patients was after failure of perineal rehabilitation.

In the immediate postoperative period, pain was reported by 09 patients with a visual analogue scale (VAS) between 6 and 8, malaise and postoperative vomiting occurred in 05 patients. The intraoperative period was marked by bleeding in 03 patients, estimated to be between 150 and 200cc, hence the indication for a 24-hour hospital stay for monitoring. All our hospitalized patients were discharged the next day.

Follow-up appointment after 1 month post-op

Disappearance of stress urinary incontinence in 136 patients, 32 patients reported a notion of irritative bladder syndrome such as urgency, hence the introduction of treatment with anticholinergic drugs (Toviaz 4mg); persistence of SUI in 37 patients; all our patients had good healing.

Check-up after 3 months

Disappearance of the irritative syndrome in 12 patients, hence the decision to stop the anticholinergic, 09 patients reported a decrease in the intensity of the irritative syndrome and 11 patients reported no improvement, hence the redescription of the anticholinergic for 2 months.

Disappearance of SUI in 10 patients, with persistent stress leakage in 27 patients, decision to monitor closely.

Control appointment at the 6th month

Persistent stress leakage in 19 patients (10.98%), hence the decision to monitor and re-investigate for possible re-insertion of sub-urethral strips if necessary.

Persistence of irritative signs such as urgency in 15 patients (8.67%), appearance of dysuria in 11 patients (6.35%), decrease of Qmax in all our patients with average Qmax of 15.3ml/s.

Cystoscopy was performed in the 15 patients with persistent urgency which did not reveal any abnormalities; decision to repeat the ECBU, continue the anticholinergic and follow up with the treating physician.

Discussion:-

The mean age in our study was 53.03 years, with extremes ranging from 37 to 83 years.

The same average age found in a study by R. Bram (similar average age, at 53 years), with extremes from 34 to 87 years [1].

The Virtue-Coloplast sub-urethral urinary strip was performed in only 1 patient who had isolated SUI following radical prostatectomy surgery and for which he wore daily protection, no postoperative complications, the consultation at 3^{ème} months postoperatively showed a total improvement in symptomatology with patient satisfaction, no post-void residual volume (PVR).

This result is consistent with a study by P. Claudon in the urology department at the University Hospital of Amiens in 2011 on 106 men who had SUI, 81.2% were improved at 3 months after the prosthetic sub-urethral sling, no postoperative complication noted, 10.3% had an post-void residual volume (PVR) that did not exceed 150ml without influence on the quality of miction. [2]

Preoperatively, the mean max flow rate of our patients (mean Qmax) was 17.5ml/s; found to be 23.6ml/s by the study of R. Bram [1].

Intraoperatively, there was bleeding in 3 patients (1.73%) quantified between 100 and 150cc. The immediate postoperative period in our series was marked by pain in 09 patients (5.2%), malaise and vomiting in 05 patients (2.89%), requiring a 24-hour hospital stay.

No early postoperative complications detected in the study by R. Bram [1].

In Y. Salhi's review of 13 studies, age over 65 years was shown to be a clinical predictor of immediate postoperative urinary retention and voiding disturbance [3].

In our study, there was no immediate postoperative retention or voiding problems, even in patients over 65 years of age.

At the 6^{ème} months consultation, a significant cure rate was found of 89.02%, persistence of SUI in 19 patients (10.98%) with persistence of urgency in 15 patients (8.67%) and appearance of dysuria in 11 patients (6.35%). Decrease in Qmax in all our patients with an average Qmax of 15.3ml/s.

Another study of 50 patients (study by R. Bram) also showed a high cure rate of 94%, persistence of stress urinary incontinence in 6%, dysuria in 14% and urgency in 6%; the mean max urinary flow rate had dropped from 23.6ml/s to 18.9ml/s [1].

Anger JT found in his study of over 1000 Medicare patients that the incidence of postoperative dysuria was 7% [6], while R. Bram found a higher percentage of postoperative dysuria of 14% [1].

In our study, we found a percentage of dysuria of 6.35% which is closer to the percentage found by Anger JT and a higher percentage of persistent SUI than that found by Bram (10.98% vs 6%).

K.DEL Santo et al had shown that bladder and urethral wounds are exceptional (< 1%), favoured above all by inexperience on the part of the surgeon, the presence of a cystocele increases this risk, urethral wounds may be due to a spindle, a peroperative tear by the awl or a secondary erosion; Postoperative acute urine retention is quite rare, estimated at 0.5%, and may be the consequence of an abnormality in bladder contractility or an overly taut sling responsible for urethral obstruction. [4]

The same conclusion found by X.Biardeau in his study in relation to postoperative bladder and urethral lesions did not lead to any conclusion as to associated complications. [8]

In our study, there were no cases of bladder injury, urethral injury or UAR.

Hong.B found in his sample that the main predictor of acute postoperative urine retention was a maximum micturition rate of less than 15 ml/s [5].

In the study by Schimpf MO, 10% of patients had installed de novo urgency with a frequency increasing with time without it being possible to say whether this was a consequence of the sling or of vesico-sphincter ageing [7]. A slightly lower percentage of around 6% was found in the study by R. Bram [1].

X.Biardeau concluded that the risk of de novo hyperactivity is rare and did not conclude that it is an associated complication [8].

In our study, 8.67% had persistent urgency, but no de novo urgency .

□ Limitations of our study

It is a retrospective study with missing data especially at the level:

- History of pelvic surgery,
- Parity, Gesture
- Only one case of SUI in a man with the use of strips,
- No questionnaires found on the system judging the severity of UTI preoperatively,
- Difficulty in evaluating our patients by telephone at a distance from the operation (35 patients unreachable, incomplete number recorded in the system for 9 patients, 27 patients refused to participate to fill in the questionnaires at a distance from the surgery, 03 patients died of other pathologies).

Conclusion:-

The TOT sub-urethral sling has been shown to be effective in the treatment of SUI, the sling technique is simple and leads to excellent results but requires an experienced surgeon. The decision to use the sling is based on several criteria, notably the clinical examination data which objective the urethral hypermobility and its correction by the supporting manoeuvres (Bonney), as well as the flowmetry and the measurement of postmictional residue. The various published works have confirmed the great therapeutic interest of TOT in the treatment of SUI.

References:-

- [1]. R.Bram, G.Robert, O. Lapouge, P. Ballanger ; clinical and urodynamic repercussions after treatment of female stress incontinence with transobturator suburethral tape, *purol*.2009.09.042.
- [2]. P. Claudon* , R. Spie , M. Bats , F. Saint , J. Petit ; Male stress urinary incontinence: Medium-term results of treatment by sub-urethral bone anchored sling InVanceTM, 2011.
- [3]. Y Salhi, S Vieillefosse, M Vandekerckhove, M Vinchant, X Deffieux ; [Predictive factors of immediate post-operative acute urinary retention or voiding dysfunction following mid-urethral sling surgery: A literature review], *purol*.2020.05.008.
- [4]. K. Del Santo, J.-F. Hermieu; Treatment of female stress urinary incontinence by suburethral sling, 2018 Elsevier Masson SAS.
- [5]. Hong B, Park S, Kim HS, Choo M. Factors predictive of urinary retention after a tension-free vaginal tape procedure for female stress urinary incontinence. *J Urol* 2003;170:852-6.
- [6]. Anger JT, Rodríguez LV, Wang Q, Pashos CL, Litwin MS. The role of provider volume on outcomes after sling surgery for stress urinary incontinence. *J Urol* 2007;177:1457-62.
- [7]. Schimpf MO, Rahn DD, Wheeler TL, Patel M, White AB, Orejuela FJ, et al. Sling surgery for stress urinary incontinence in women: a systematic review and metaanalysis. *Am J Obstet Gynecol* 2014;211, 71.e1-71.e27.
- [8]. X Biardeau, M Zanaty, F Aoun, S Benbouzid, B Peyronnet; [Approach and complications associated with suburethral synthetic slings in women: Systematic review and meta-analysis].