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Transobturator tape as a day surgery procedure: A case control study

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KEYWORDS

Transobturator tape;
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Day surgery unit

Abstract This study aims to assess the suitability of the transobturator tape (TOT) as a day surgery procedure. A retrospective study of all the patients who underwent TOT as a day surgery procedure, at a tertiary referral centre in the south-west of Scotland, over a 3-year period (August 2002–July 2005). The outcome measures were as follows: complication rates (both intra- and immediate postoperative), voiding dysfunction rates, analgesic requirements and unscheduled in-patient ward admission following the procedure. One hundred and sixty-seven case notes were examined; the mean operating time was 14.7 min (range: 12–28 min, median: 14 min). 97.8% of patients had blood loss < 100 ml and the mean blood loss was 54 ml (range: 10–500 ml). None of the patients had major complications such as urethral or bladder injury or anaesthetic complications. 79.6% of patients had satisfactory postoperative voiding pattern achieved within the time frame of the DSU (08:30–17:00 hours). No patient had complete urinary retention. However, 34 patients (20.4%) failed to achieve satisfactory voiding within that time frame and warranted in-patient admission. Three other patients required in-patient admission; the reasons being vaginal bleeding ($n = 1$), postoperative nausea and vomiting ($n = 1$) and postoperative pain ($n = 1$). Therefore, a total of 37 patients required in-patient ward admission, with an admission rate of 22.2%. In conclusion, the transobturator tape procedure is suitable as a day surgery procedure in selected patients. There is minimal peri-operative morbidity, and nearly 80% of patients are discharged home within the scheduled time frame. © 2006 Surgical Associates Ltd. Published by Elsevier Ltd. All rights reserved.

Introduction

Sub-urethral sling procedures – mainly tension free vaginal tapes (TVT™) – have been the mainstay of treatment of urodynamic stress incontinence (USI) in women over the last 5 years.

The transobturator tape (TOT) for the treatment of USI was first described by Delorme et al. in 2001¹ (Outside in) and later modified by De Leval et al. in 2003,² a modification that is now called TVT-O (Inside-out). The DeLancey theory³ of pelvic support for the bladder and urethra helps to explain the mechanism of action of the TOT in the treatment of USI, where the position of the tape is similar to that of the natural hammock supporting the urethra. Unlike its predecessor (TVT™), the purely perineal insertion of the TOT avoids entry to the retro-pubic space and therefore

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minimises the risk of trauma to the internal organs; bladder, intestine, major vessels and nerves.

The relatively easy and safe insertion techniques, the low peri-operative morbidity and the short hospital stay described in the short to intermediate follow-up trials, have led to the increasing popularity of utilising the trans-obturator sub-urethral tape as a day-case procedure.^{4,5}

Aim

The aim of this study is to assess the suitability of the transobturator tape as a day surgery procedure.

Materials and methods

This is a retrospective study of all patients who underwent TOT as a day surgery procedure at a tertiary referral centre, in the south-west of Scotland, in a 3-year period (August 2002–July 2005). Twelve surgeons with different learning curves performed the operation. One hundred and seventy-six procedures were carried out during that time interval; we were able to trace 167 case notes for analysis.

Our day surgery unit exclusion criteria are shown in Table 1. This includes BMI > 34, major medical diseases like ischemic heart disease and uncontrolled hypertension. Patient's preference to day surgery is also a determining factor. Some patients did not have TOT in the day surgery due to consultant service arrangements in the unit. Outcome measures were as follows: complication rates (both intra- and immediate postoperative), voiding dysfunction rates, analgesic requirements and unscheduled in-patient ward admission following the procedure. A data collection sheet was developed to record patient details.

All our cases get done as morning lists to allow time for postoperative management. Postoperative voiding assessment protocol includes liberal oral fluid intake (average of 2 l), measurement of urinary output, post-voiding residual urine volume assessment using Bladderscan™. "Satisfactory Voiding" is achieved when voided volume is >200 ml and post-voiding residual urine volume is <100 ml on two occasions. If "Satisfactory Voiding" is not achieved by 17:00 hours patients are admitted to the in-patient gynaecology ward, where they were taught double voiding and continue with conservative management. The criteria for abandoning conservative management in favour of catheterisation are complete urine retention, post-voiding

residual urine volume > 250 ml on two occasions and unsatisfactory voiding for >24 h.

Results

One hundred and sixty-seven case notes were examined (nine case notes were lost). Patient characteristics are shown in Table 2.

One hundred and two patients underwent TOT (60 cases of Obtape – Mentor and 42 cases of ARIS – Mentor) compared to 65 patients who underwent TVT-O (Gynaecare). All the procedures were carried out using general anaesthesia and predominantly using laryngeal mask ($n = 165$). None of the patients had any associated surgery. Intra-operative cough test to check continence was not performed. Mean operating time was 14.7 min (range: 12–28 min, median: 14 min). Only in three patients total operating time was more than 20 min. None of the patients had pre- or postoperative infiltration of local anaesthesia. None of the patients had indwelling catheter at the end of the procedure.

The mean blood loss was 54 ml (range: 10–500 ml). Only three patients had blood loss > 100 ml (200 ml, 350 ml and 500 ml). Reasons given were for different reasons such as 'heavy vaginal bleeding', or 'vaginal tear due to thin scarred anterior vaginal wall'. All three patients were managed conservatively with bimanual compression and/or suturing of the tears.

None of the patients had major complications such as urethral or bladder injury or anaesthetic complications. In two patients, using the outside in-technique, the tape (ARIS – Mentor) dropped from one side after insertion and prior to closing the vaginal incision. A fresh tape had to be inserted in both cases, hence prolonged operative time.

In the immediate postoperative period, 125 (74.8%) patients received co-codamol, diclofenac sodium or a combination of both, for analgesia. Forty-one (25%) patients did not require any postoperative analgesia. One patient required parental opiate analgesia and admission to the gynaecology ward due to postoperative pain.

Two patients were diagnosed with urinary tract infection on routine urine analysis prior to discharge, however, no patients developed postoperative pyrexia.

One hundred and thirty-three (79.6%) patients had satisfactory postoperative voiding pattern achieved within the time frame of the DSU (08:30–17:00 hours). No patient had complete urinary retention. However, 34 patients (20.4%) failed to achieve satisfactory voiding within that time frame and warranted in-patient admission. Out of the 34 admitted patients, 17 were managed conservatively and

Table 1 Day surgery exclusion criteria

A	BMI > 34
B	Age > 70 years
C	Major medical conditions like hypertension and ischemic heart disease
D	Previous history of major anaesthetic complications
E	Living alone/potentially to be alone at postoperative day, patient preference

Table 2 Patient characteristics

Characteristics	Median value (range)
Age	48 years (26–62 years)
Parity	2 (0–5)
Pure urodynamic stress incontinence	92
Mixed urodynamic incontinence	75

Table 3 Reasons for admission

Reason for admission	No. of patients
Voiding dysfunction	34
Postoperative nausea and vomiting	1
Postoperative pain	1
Vaginal bleeding	1

were discharged home the next day with satisfactory voiding (in-fact the voiding pattern in nine admitted patients settled soon after admission and could have been discharged the same evening). However, 17 patients (10.2%) required insertion of indwelling catheter for periods which varied from 24 h ($n = 12$) to 7 days ($n = 4$) and one patient needed surgical release of the tape due to unsatisfactory voiding pattern following 7 days of catheterisation.

A total of 37 patients required in-patient ward admission, with an unscheduled in-patient admission rate of 22.2%. The reasons for admission are summarised in Table 3.

Discussion

It is widely accepted that transobturator tape procedures in general are safe minimal invasive procedures with low peri-operative morbidity and short hospital stay. In a worldwide survey carried out by the authors, the majority (84%) of responding surgeons perform transobturator tape procedures as a day-case and indeed 7.8% perform them under local anaesthesia alone.⁶

In this study, none of the patients had a major intra-operative complication that required further intervention with subsequent disturbance of the day surgery list. The vast majority were done with an operative time of less than 20 min, with only a few cases taking slightly longer (up to 28 min). These procedures were mainly in the beginning of the surgeons' learning curve. In two cases the prolonged operative time was explained by the need for bimanual compression for haemostasis.

Two cases of postoperative lower urinary tract infection (UTI) were detected on routine urine examination. These two patients were asymptomatic and were discharged home on oral antibiotics for one week. We could not tell indeed if this infection existed preoperatively because, at that stage, we did not routinely test urine preoperatively. More recently our protocol includes routine preoperative urine assessment and routine intra-operative parenteral antibiotics.

Temporary postoperative voiding dysfunction affected nearly 20% of patients, leading to unscheduled in-patient admission. Half of these patients were managed conservatively without catheterisation and could have been discharged on the same day. Short stay wards (up to 22:00 hours) associated with the day surgery unit may have prevented the unnecessary overnight stay for a number of patients. However, the cost effectiveness of such wards remains to be established. Current 20% admission rate following day surgery is high in day surgery standards and the current management of voiding dysfunction is being reviewed. We also require specialist nurse input in teaching patients preoperatively regarding intermittent self-catheterisation which could have potentially avoided unnecessary admissions of 91%. This will require more resources but would potentially save beds and money in the long term.

Conclusions

Transobturator tape procedure is suitable as a day Surgery procedure. There is minimal peri-operative morbidity, and nearly 80% of patients are discharged home within the scheduled time frame. Major cause of unscheduled admission was due to temporary voiding dysfunction and preoperative counselling of the patients is mandatory.

References

1. Delrome E, Droupy S, de Tayrac R, Delmas V. Transobturator tape (Uratape): a new minimally-invasive procedure to treat female urinary incontinence. *Eur Urol* 2004;45:203–7.
2. De Leval J. Novel surgical technique for the treatment of female urinary stress incontinence: transobturator vaginal tape inside-out. *Eur Urol* 2003 Dec;44(6):724–30.
3. DeLancey JO. Structural support of urethra as it relates to stress urinary incontinence: the hammock hypothesis. *Am J Obstet Gynaecol* 1994;179:1713–20.
4. Waltregney D, Reul O, Mathanthu B, Gasper Y, Bonnet P, de Leval J. Inside out transobturator vaginal tape for the treatment of female urinary stress incontinence. Interim results of a prospective study after 1 year follow up. *J Urol* 2006;175(6):2191–5.
5. Deval B, Ferchaux B, Berry R, Gambino S, Ciofu C, Rafii A, et al. *Eur Urol* 2006 Feb;49(2):373–7.
6. Abdel Fattah M, Ramsay I. Transobturator tension free vaginal tapes: are they the way forward in the surgical treatment of urodynamic stress incontinence? *Int J Surg* 2006.