

# Infected Multilocular Urethral Diverticulum Complicating Midurethral Transobturator Tape Procedure: A Case Report

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## Abstract

The tension-free vaginal tape (TVT) and transobturator tape (TOT) procedures are now the most commonly performed operations for stress urinary incontinence (SUI) in the UK. The majority of reports in the literature relate to the success of TVT in treating SUI. However, there are little data regarding the associated complications. The occurrence of urethral diverticulum following a TVT is rare. The condition frequently presents with non-specific and non-classical symptoms and this leads to incorrect and delayed diagnosis. Reviewing the English literature, we could find three cases of urethral diverticula after a TVT procedure but we could not find any case of urethral diverticulum post TOT insertion. We report a case of a multilocular infected urethral diverticulum 5 years following TOT operation and we describe the management.

**Keywords:** TOT; TVT; Urethral diverticulum

## Introduction

The midurethral tension-free vaginal tape (TVT) for repair of stress urinary incontinence (SUI) was first described by Ulmsten et al in 1996 [1]. In France in 2001, Delorme introduced the transobturator tape (TOT) sling procedure in humans, and found that the short-term results of the TOT sling procedure were similar to those of the TVT [2]. TVT and TOT are now the most commonly performed operations for stress incontinence in the UK.

Thousands of these procedures have been performed in Europe and the United States.

Several complications have been reported with both surgi-

cal approaches including bladder and urethral injury, bleeding, pelvic hematoma, infection, tape extrusion and *de novo* urge incontinence. Groin pain is associated with the transobturator technique.

Major complications are rare but include bowel perforation and vascular injuries which may be life threatening. Fatalities have been reported [3, 4].

Urethral diverticula are estimated to occur in 1-6% of women; although usually diagnosed between the third and fifth decade of life, they can affect all age groups [5].

Many are asymptomatic or misdiagnosed; therefore, the true prevalence is likely to be much higher. The condition frequently presents with non-specific and non-classical symptoms and this leads to incorrect and delayed diagnosis. A high level of suspicion and appropriate imaging are the critical steps in establishing the diagnosis [6].

We report a case of a multilocular infected urethral diverticulum 5 years following TOT operation and we describe the management.

## Case Report

A 50-year-old multiparous woman was complaining of groin pain, particularly down the right leg, and recurrent abscesses discharging vaginally. Her symptoms started 3 months following a vaginal hysterectomy and insertion of midurethral TOT for treatment of prolapse and stress urinary incontinence (SUI).

Investigations for her symptoms included an MRI that revealed some abscesses around the tape site in the vagina. She was offered surgical removal of the tape. At the operation, a small central portion of the tape was removed vaginally. However, the patient did not experience any improvement postoperatively and her symptoms persisted.

Four years later, she had a further anterior vaginal wall repair to treat a cystocele. Cystoscopy at the time of the operation did not reveal any abnormality and unfortunately, her distressing symptoms persisted.

In 2013, the patient was referred to us for further assessment and management.

Vaginal examination was unremarkable; however, a pelvic MRI revealed a 2 mm cystic lesion around the urethra of unclear significance.

The patient consented to examination under anesthesia

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and removal of the remnants of the TOT. She was aware of all the risks including damage to the obturator nerve and the surgical difficulty in identifying and removing the tape.

Both groins were explored. The tape was identified and excised completely on the right side; however, the tape was not identified on the left side. A cystoscopy failed to identify any abnormality. However, a swelling was palpable over the urethra with pus draining from the urethral meatus upon applying pressure.

The swelling over the urethra was incised and pus was drained and sent for culture and sensitivity. We mobilized and excised a multilocular thick-walled diverticulum, and the ostium into the urethra was sutured with three interrupted 3/0 PDS sutures. An indwelling urethral catheter was left *in situ* for 3 weeks.

The patient made an uneventful recovery and was discharged home after 5 days. She was seen in the outpatient clinic 6 weeks postoperatively where she declared that all of her symptoms had resolved. Histopathology of the excised multilocular abscess confirmed a chronically infected urethral diverticulum.

## Discussion

The majority of reports in the literature relate to the success of TVT in treating SUI. However, there are little data regarding the associated complications. The occurrence of urethral diverticulum following a TVT is rare.

Reviewing the English literature, we could find three cases of urethral diverticula after a TVT procedure and there are two other cases reported in the Czech literature. These were diagnosed and treated within 6 months of the tape insertion; however, we could not find any case of urethral diverticulum reported post TOT insertion [7-10].

The etiology of urethral diverticula complicating midurethral tape procedures is not fully understood.

Hammad [7] in his case report suggested that the increased intraurethral pressure resulting from the placement of the TVT had caused the diverticulum to form. A suggestion was supported by the fact that the diverticulum was found proximal to the sling site.

However, Mahdy et al [9] found in their case report the diverticulum to be located distal to the sling site. They suggested that the diverticulum may have developed because of extensive periurethral dissection which may result in trauma to the urethra causing a urethral erosion and possibly urethral diverticulum, especially if the new tape is associated with obstructive voiding.

The exact cause of the diverticulum in our case is difficult to ascertain. Nevertheless, the most likely predisposing factor is the TOT surgery which was performed at the time of vaginal hysterectomy and anterior repair. This is supported by the fact that the patient's symptoms of recurrent vaginal abscesses and urinary tract infections appeared only a few months after the insertion of the midurethral TOT. However, it is difficult to exclude the possibility that the patient might have had a very small diverticulum before the TOT operation which got worse

as a result of surgery.

Patients with urethral diverticulum often present diagnostic dilemmas with non-specific lower urinary tract symptoms and the diagnosis is often delayed [11].

The case presented, along with the three cases described previously, supports the need for an accurate diagnostic workup in the face of symptoms suggestive of urethral diverticulum following midurethral tape procedures. The diverticulum is usually best demonstrated by MRI [12].

In conclusion, midurethral tape procedures may predispose to the formation of urethral diverticula or exacerbation of already existing undiagnosed ones. This needs to be considered in patients complaining of non-specific persistent symptoms following these procedures.

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## Conflict of Interests

None of the authors have any conflicts of interest to disclose regarding this publication.

## Author Contributions

Mr. C.M. performed the surgical procedure on the patient and reviewed and critically revised the article. Dr M.S. assisted in the surgical procedure and wrote the article.

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## References

1. Ulmsten U, Henricksson L, Johnson P, Varhos G. An ambulatory surgical procedure under local anaesthetic for treatment of female urinary incontinence. *Int Urogynecol J Pelvic Floor Dysfunction*. 1996;7(2):81-85.
2. Delorme 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(2):203-207.
3. Abouassaly R, Steinberg JR, Lemieux M, Marois C, Gilchrist LI, Bourque JL, Tu le M, et al. Complications of tension-free vaginal tape surgery: a multi-institutional review. *BJU Int*. 2004;94(1):110-113.
4. Karram MM, Segal JL, Vassallo BJ, Kleeman SD. Complications and untoward effects of the tension-free vaginal

- tape procedure. *Obstet Gynecol.* 2003;101(5 Pt 1):929-932.
5. Martensson O, Duchek M. Translabial ultrasonography with pulsed colour-Doppler in the diagnosis of female urethral diverticula. *Scand J Urol Nephrol.* 1994;28(1):101-104.
  6. Aspera AM, Rackley RR, Vasavada SP. Contemporary evaluation and management of the female urethral diverticulum. *Urol Clin North Am.* 2002;29(3):617-624.
  7. Hammad FT. TVT can also cause urethral diverticulum. *Int Urogynecol J.* 2007;18:467-469.
  8. Chmel R, Vlk R, Horcicka L. [Effectiveness and safety of the tension-free vaginal tape (TVT) operation during the learning period]. *Ceska Gynekol.* 2003;68(2):94-98.
  9. Mahdy A, Elmissiry M, Ghoniem GM. Urethral diverticulum after tension-free vaginal tape procedure: case report. *Urology.* 2008;72(2):461 e465-466.
  10. Athanasopoulos A, McGuire EJ. Urethral diverticulum: a new complication associated with tension-free vaginal tape. *Urol Int.* 2008;81(4):480-482.
  11. Romanzi LJ, Groutz A, Blaivas JG. Urethral diverticulum in women: diverse presentations resulting in diagnostic delay and mismanagement. *J Urol.* 2000;164(2):428-433.
  12. Kim B, Hricak H, Tanagho EA. Diagnosis of urethral diverticula in women: value of MR imaging. *AJR Am J Roentgenol.* 1993;161(4):809-815.