



# Unmasking of an Ectopic Ureter after Insertion of Tension-Free Vaginal Tape

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### Abstract

**Introduction:** Ectopic ureters draining into a place other than the posterior-lateral aspect of the trigone is uncommon. Patients may be asymptomatic or present with the classic symptoms of normal voiding associated with continuous urinary leakage. We present a case of an adult female whose ureteric duplication was unmasked after insertion of tension free vaginal tape (TVT).

**Patient and Methods:** A 49 year-old female presents with worsening urinary stress incontinence confirmed by urodynamics. Following insertion of a TVT, she was able to void normally but had continuous urinary incontinence. Imaging revealed a right-sided duplex kidney with an ectopic ureter arising from the upper moiety draining to vaginal skin below the external urethral meatus.

**Results:** After discovery of the duplex kidney and its ectopic ureter, the upper moiety and the ectopic ureter were resected. At 3-years postoperatively, she was still continent. Her concomitant hypertension also resolved soon after surgery.

**Conclusion:** Given ectopic ureters often present uniquely, this case should inform treating physicians to be suspicious of an ectopic ureter should the woman complain of dribbling or continuous urinary leakage.

**Brief Summary:** An unusual case of previously unidentified ureteric duplication that was unmasked after insertion of tension free vaginal tape (TVT) is presented.

### Keywords

Adult ectopic ureter continuous incontinence post-TVT

### Case Report

A 49-year-old woman presented with worsening stress urinary incontinence in spite of pelvic floor rehabilitation. Urodynamic stress incontinence was confirmed. Past medical history included hypertension and a hysterectomy at age 39 years. TVT was inserted without any intra-operative complications. At the 6-week post-operative follow-up, the woman reported good voids of about 500 mls with no stress urinary incontinence (SUI). She did, however, complain of continuous urinary leakage which commenced post operatively. Mid-stream urine for infection was negative as was examination for a fistula.

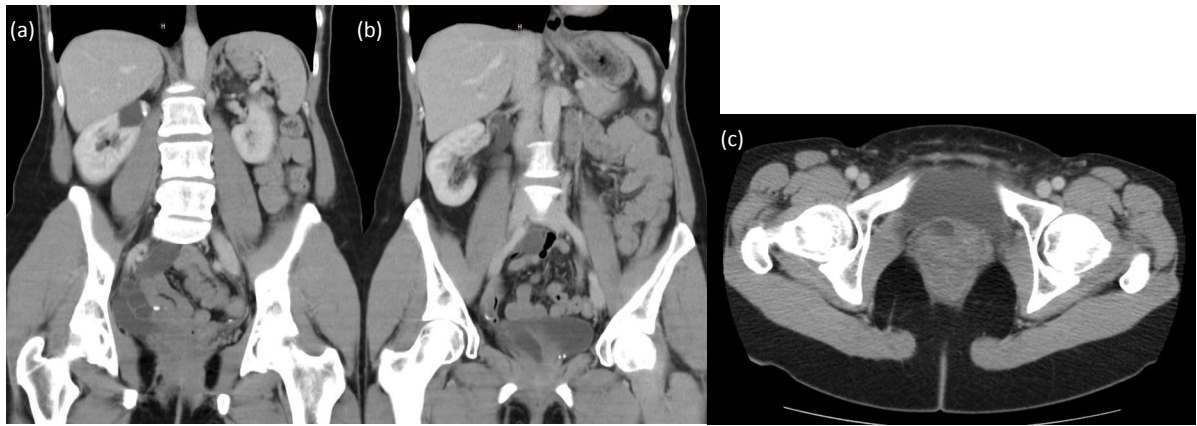
An ultrasound of her renal tract showed a dilated tubular structure extending from the upper pole of the right kidney running posterior and inferior to the bladder to the region of the urethra. Computerised tomography (CT) scan confirmed a duplex right kidney with atrophic upper moiety, dilated upper moiety ureter with a normal cortical thickness in the lower moiety (Figure 1). The ureter of the lower moiety drained into the bladder but the ureter of the upper moiety drained in the region of the urethra below the bladder. Examination under anaesthesia confirmed urine coming from the orifice of an ectopic ureter located at the vaginal skin below the external urethra meatus. Cystoscopy confirmed single ureteric orifice bilaterally in the trigonal region. Given the poor function of the upper moiety, the patient agreed to a right laparoscopic partial nephrectomy. Histology of the upper moiety confirmed an atrophic dysplastic upper moiety of right kidney with no evidence of malignancy. Follow up of the patient at one, thirteen and thirty-five months confirmed no further urinary incontinence. In addition, her hypertension resolved significantly and she was able to cease her anti-hypertensive medications a few months following the partial nephrectomy.

### Discussion

Duplication is the most common congenital abnormality of the renal tract with the incidence rate being 1 in 152 [1]. Eighty percent of ectopic ureters are related to duplex kidneys and drain out of upper moieties [2].

### Introduction

Ectopic ureters are defined as ureters that drain into a place other than the posterior-lateral aspect of the trigone. Here, we present a previously unreported case of a female with proven stress incontinence who had a tension free vaginal tape (TVT) inserted, and subsequently developed continuous urinary incontinence. On further investigation, she was found to have an ectopic ureter draining from a duplex kidney which was treated with a partial nephrectomy.



**Figure 1:** Computerized tomography present a coronal view of the upper kidney moiety and the duplex ureter in the pelvis (a and b) and the duplex ureter running posterior to the bladder heading towards vaginal skin (c).

The incidence of ectopic ureters is 1 in 1900 [3] but may be higher because it is often under-diagnosed when asymptomatic. Patients are symptomatic when their ectopic ureter ends beyond the external urethral sphincter. The most common sites of insertion for females is as follows [3] - bladder neck and upper urethra (33%), vaginal vestibule between the urethra and introitus (33%), vagina (25%) and cervix and uterus (< 5%).

It is often a diagnostic challenge because it is seen so rarely. However, female patients often present so similarly, a diagnosis can often be made on history alone. According to Lane [4], any female who has always been incontinent of urine must be considered to have an ectopic ureter until proven otherwise. The importance of this is that a cure can be guaranteed and life transformed for the patient [4]. Male patients do not present with incontinence as the insertion of their ectopic ureter is always proximal to the urinary sphincter [3]. Both male and female patients may present with a UTI, flank pain or rarely, as urinary obstruction.

Although this case presented did not have the classic symptoms from childhood, it would seem that the insertion of the TVT unmasked the ectopic ureter. The ectopic ureter may have been inserted at an angle that prevented its continuous leakage, which was then disrupted by the TVT.

There are a number of complications that are associated with duplex kidneys and ectopic ureters. As kidneys play a major role in regulating blood pressure, it comes as no surprise that should part of it be diseased, hypertension may result. Other complications include obstructive atrophy, pyelonephritic scarring, nephrolithiasis and tumours [5].

There are two options for treatment, depending on whether the upper moiety is functional or not [3]. Should the upper moiety not be functional, partial nephrectomy and resection of the proximal ureter is indicated. If the upper moiety is functional, the ectopic ureter is either implanted into the bladder or into the normal ureter.

## Conclusion

To our knowledge, there have been no previous cases of a TVT unmasking the presence of an ectopic ureter. Given it often presents uniquely, this case should inform treating physicians to be suspicious of an ectopic ureter should the woman complain of dribbling or continuous urinary leakage.

## Declaration

Written informed consent was obtained from the patient for publication of this case report and any accompanying images.

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