

Bladder lithiasis on tension-free polypropylene tape after TVT technique

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Abstract We describe a case of a 74-year-old woman with a history of hysterectomy and subsequent placement of tension-free tape, according to TVT procedure, who presented with bladder lithiasis secondary to bladder perforation after placement of the aforementioned tape. The treatment included endoscopic lithotripsy for lithiasis removal and resection of distal and proximal ends of intra-bladder tape with the aid of endoscopic scissors, and photocoagulation of the resulting carved lesions with Holmium:Yag laser. The composition of lithiasis was magnesium ammonium phosphate with some calcium phosphate 1 month later, the patient feels asymptomatic; cystoscopy reveals complete restitution of bladder mucosa and absence of intra-bladder protrusion of the aforementioned material.

Keywords Polypropylene tape · TVT · Perforation · Bladder lithiasis

Abbreviations

TVT Tension-free vaginal tape

Introduction

The arrival of minimally invasive techniques in the treatment of stress urinary incontinence brought about a revolutionary advance in urogynecology.

We present the case of a 74-year-old female, who was hysterectomized 8 years earlier, underwent subsequent

placement of tension-free polypropylene tape, which developed vesical lithiasis on it.

Case report

A 74-year-old patient with a history of appendectomy, tonsillectomy, arterial hypertension and paroxysmic auricular fibrillation, who underwent hysterectomy 8 years earlier due to a tumor, subsequent placement of a tension-free polypropylene tape according to TVT procedure. The patient has suffered from irritative urination for 1 year; cultures were positive for *E. coli*, and evolution was bad despite antibiotic treatment. Urinary pH was 7.0, urinary density 1,020, urinary calcium and phosphate was normal. Simple X-ray on the abdomen region revealed radiopaque image on pelvis, which was compatible with lithiasis; abdominal ultrasound techniques confirmed bladder lithiasis and did not show any other alterations in the genitourinary system. The patient underwent endoscopic bladder lithotripsy which evidenced bladder lithiasis on right lateral wall of the bladder and on a foreign body. Electrokinetic lithotripsy with EKL-Compact lithotriptor fragmented lithiasis to the full, whereas this revealed a polypropylene tape localized on the floor and lateral right wall of the bladder, on a region anterior to the bladder trigone. It was decided to perform a sectioning of the proximal and distal regions of this intra-bladder tape with the aid of endoscopic scissors, and photocoagulate the resulting carved lesion with Holmium:Yag laser. The composition of lithiasis was magnesium ammonium phosphate with some calcium phosphate (Figs. 1, 2 and 3).

A month later, follow-up review with cystoscopy revealed a reconstituted bladder mucosa, and no intra-bladder protrusion of the tape.

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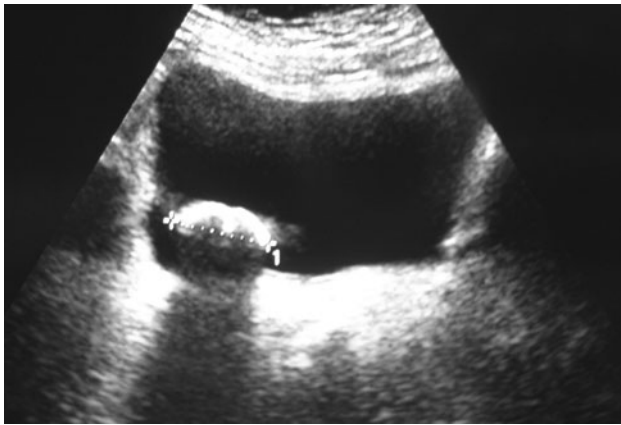


Fig. 1 Intra-bladder lithiasis on right lateral wall shown by abdominal ultrasound imaging



Fig. 2 Residual stone fragments of lithiasis, and tension-free vaginal tape after removal

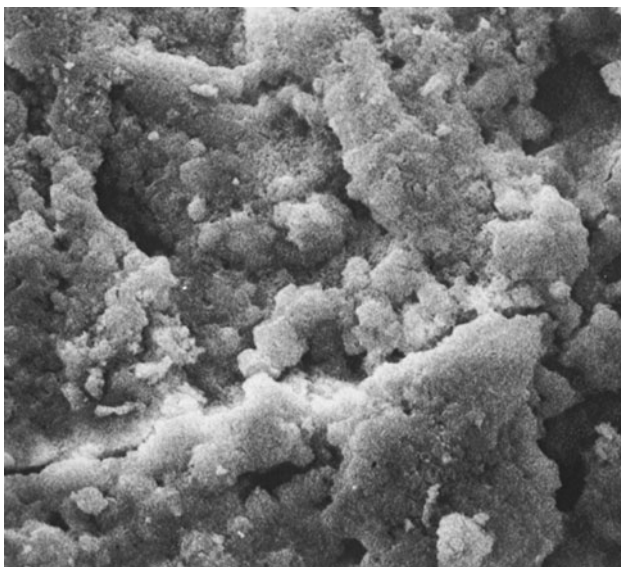


Fig. 3 Electron microscopy of crystals of magnesium ammonium phosphate

Discussion

With the aim of improving results and decreasing morbidity, the placement of tension-free vaginal tapes for the management of stress urinary incontinence has evolved over the last years. Ulmsten et al. [1] described this technique for the first time in 1996; a technique which reported low number of complications and a high number of successful results. However, a series of complications are derived from this procedure, which include bladder perforation (4–12%, depending of some series), postoperative urinary retention (10–17%, depending on the series), long-term catheterization (1.7–6%, depending on series), bruises (2–3.5%, depending on the series), urinary urgency, dyspareunia and defective vaginal cicatrization.

The presence of lithiasis on tension-free tapes is due to bladder perforation that may occur during the process of placing such tape, which, if it goes unnoticed, may result in urinary symptomatology and bruises in the first hours after placement.

In 2005, Kato et al. [2] published two bladder lithiasis cases secondary to TVT procedures; patients presented with painful urination, urinary sediments and pyuria, 3–6 months after operation; cystoscopy conducted on both cases determined bladder lithiasis, while obstruction and bladder erosion after tape placement were regarded as the two main risk factors for developing lithiasis.

Irer et al. [3] published in 2005 a lithiasis case secondary to bladder perforation after tension-free tape placement with TVT procedure; they performed bladder endoscopic lithotripsy and removed simultaneously the synthetic material. Tzortzis et al. [4] described in 2007 two cases of bladder lithiasis secondary to perforation due to tension-free tape placement with TVT procedure; supra-pubic cystostomy and removal of lithiasis and synthetic material resolved the problem. Mustafa et al. [5] report the case of a 48-year-old patient who presented with bladder lithiasis on vaginal tension-free tape diagnosed by computed tomography; they performed endoscopic pneumatic lithotripsy and transurethral mesh resection; integral reconstitution of bladder mucosa was observed during a subsequent control.

We regard the TVT procedures as a safe and reliable technique that yields a high rate of success, which, depending on the series, varies between 85 and 97%, but bearing in mind, though, the appearance of possible complications due to an incorrect management of this technique. As for the occurrence of bladder lithiasis due to perforation after tension-free tape placement, we opt for endoscopic lithotripsy and resection or cutting the tape whenever it may be possible, while we regard open or laparoscopic surgery as a second option.

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