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Endoscopic removal of intravesical polypropylene suture with plasmakinetic resection after abdominal hysterectomy



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ABSTRACT

INTRODUCTION: Intravesical foreign substances such as mesh or suture are among the rare reasons of recurrent urinary tract infections. Anti-incontinence and prolapsus procedures are associated with mesh/suture extrusion into the bladder, however, this complication is uncommon with abdominal hysterectomy.

PRESENTATION OF CASE: A 61-year-old female, obese patient admitted to our clinic with recurrent urinary tract infections and voiding symptoms which were worsened after abdominal hysterectomy. Radiological evaluation revealed an intravesical foreign material within the bladder. The cystoscopy was performed and a polypropylene suture which was inserted from dome, passed through the base and exited from the dome of bladder during abdominal hysterectomy. Transurethral plasmakinetic resection of superficial layer of urothelium between suture entrance and exit sites was performed and suture was removed from the bladder.

DISCUSSION: Urogynecological procedures are associated with the increased risk of urethral or ureteral injury, intravesical mesh or suture erosion and fistulae formation. Many different techniques including open, laparoscopic and transvaginal approaches were described for the removal of intravesical mesh/suture extrusion in the literature. Transurethral approach with its minimally invasive and safe nature was used to remove suture in this patient. This technique with the use of plasmakinetic energy has the advantage of decreased risk of bleeding and urothelial injury when compared to monopolar cautery. It also avoids the need for open or extensive surgery which may have a high rate of complications.

CONCLUSION: Transurethral resection is the treatment of choice for the removal of intravesical foreign substances. Use of plasmakinetic energy will decrease the risk of complications and avoid the need for open interventions.

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1. Introduction

Recurrent urinary tract infections are commonly seen in the postmenopausal women, especially in diabetic ones. Urinary catheterization, atrophic vaginitis and incontinence procedures are the other accepted risk factors for the development of recurrent infections.¹ Additionally, intravesical foreign substances such as mesh or suture secondary to urogynecological procedures are relatively rare reasons of those infections. Gynecological procedures have some urological complications such as urethral/ureteral injury, bladder perforation and fistulae formation.² Besides, incontinence procedures may be complicated by sling perforation, erosion or intravesical migration which may serve as a nidus for the development of recurrent urinary tract infections. Transurethral, transvaginal, laparoscopic, open and suprapubic approaches can be

applied to remove the foreign substances within the bladder.^{3,4} We report a case of a post-menopausal, diabetic woman with recurrent urinary tract infections and voiding symptoms due to intravesical polypropylene suture one year after abdominal hysterectomy.

2. Presentation of case

A 61-year-old female, obese patient admitted to our outpatient clinic with recurrent urinary tract infections and voiding symptoms of frequency, urgency, dysuria and pollakiuria. Physical examination was normal except for the incision scar performed for the abdominal hysterectomy. The patient was on oral medication for diabetes and her blood glucose level was within the normal ranges. Past medical history revealed that the patient had undergone abdominal hysterectomy for multiple myomas within the endometrium and her urinary complaints, which were previously mild, progressively worsened after this operation. The urine analysis of the patient revealed high amount of leucocytes and erythrocytes. On pelvic ultrasonography (US), a foreign substance

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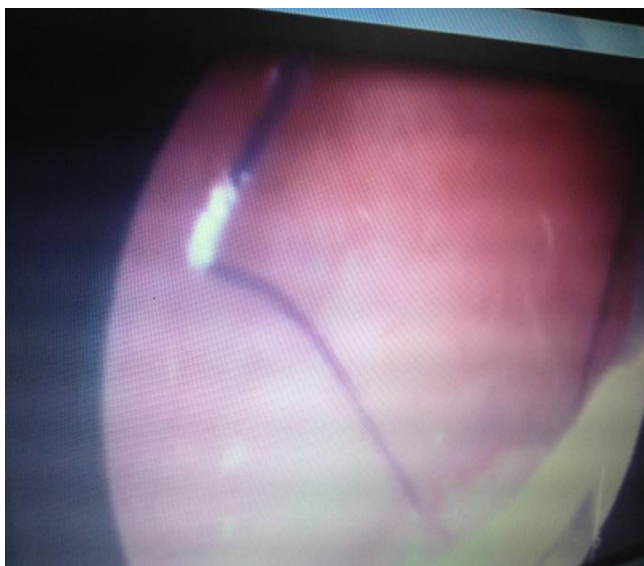


Fig. 1. Intravesical suture passing through the base and the dome of the bladder and resembling a ring.

resembling a ring inside the bladder was described. We decided to perform a cystoscopy both to diagnose and treat the condition. The patient was placed in the lithotomy position under spinal anesthesia. Cystoscopy was performed with the use of saline. During cystoscopy, a polypropylene suture which was inserted from the dome of the bladder, passed through the wall of the base and then taken out from the dome again which resembled the suture like a ring was observed inside the bladder (Fig. 1). With the aid of plasmakinetic energy loop, the superficial urothelial tissue between suture entrance and exit sites both in the dome and the base of the bladder resected separately and by this way dissected off from the bladder (Fig. 2). Then the suture was removed with a biopsy forceps out of the bladder (Figs. 3 and 4). Further cystoscopic evaluation was performed to identify any residual material and exclude any inadvertent urothelial injury. After haemostasis, a 16 f foley catheter was inserted and the operation was completed. The duration of the operation was approximately 10 min. Patient has been sent from

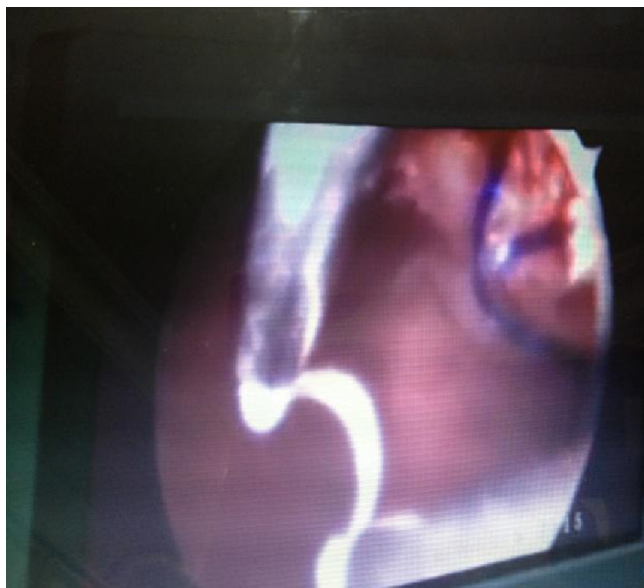


Fig. 2. Resection of superficial urothelial tissue to dissect the suture material.

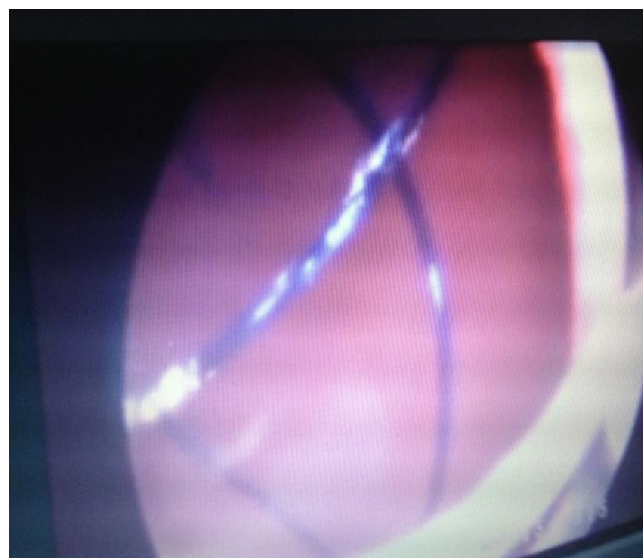


Fig. 3. Suture material dissected from the bladder walls.

the hospital the day after without any complaints. Follow-up was performed on an outpatient basis every three months thereafter with an interview and urinalysis and the patient was symptom free 1 year after the procedure.

3. Discussion

Urogynecological procedures such as incontinence and prolapse surgeries were associated with a moderate rate of urethral or ureteral injury, intravesical mesh or suture erosion and fistulae formation. The clinical presentation of intravesical foreign substances includes pain, voiding dysfunction, storage symptoms and recurrent urinary tract infections.³ Many studies reported the presence and also treatment alternatives of intravesical mesh or suture secondary to incontinence surgery, however, data about the management of the intravesical suture after hysterectomy is limited. Treatment modalities for the management of intravesical



Fig. 4. Endoscopically extracted suture material.

substances include open, laparoscopic, transurethral, transvaginal, laparoscopic-assisted transurethral, and suprapubic-assisted transurethral mesh resection. In this case, we present a novel technique for the removal of intravesical polypropylene suture by the aid of plasmakinetic energy. There were many reports in the literature presenting the endoscopic removal of intravesical foreign substances after gynecological procedures. In one of those studies, Giri et al. reported the endoscopic management of three cases who underwent incontinence procedures by holmium laser excision of intravesical tension-free vaginal tape and polypropylene sutures.⁵ Davis et al. also reported endoscopic laser excision of polypropylene mesh or sutures after incontinence procedures and conclude that this treatment was an acceptable first line approach for the management of eroded biomaterials due to its high success rate and minimally invasive nature.⁶ In another case report, intravesical tension-free tape and non-absorbable suture after anti-incontinence surgery was removed endoscopically by the help of nephroscopic scissors without any complication.⁷ Similarly, Bieniek et al. reported the endoscopic removal of intravesical synthetic mesh extrusion with endoloop sutures and endoscopic scissors.⁸ Advantages of endoscopic removal include a minimally invasive approach and low morbidity. Furthermore, the use of plasmakinetic energy has the advantage of decreased risk of bleeding and urothelial tissue damage when compared to monopolar resection. Insertion of polypropylene suture into the bladder during hysterectomy is a very rare condition with the literature only containing one case report. In this report, patient who underwent vaginal hysterectomy and anterior colporrhaphy presented with recurrent urinary tract infections after the procedure.⁹ However, there is no report of intravesical suture insertion through the base of the bladder after abdominal hysterectomy in the literature. In the present case, patient underwent abdominal hysterectomy due to excessive bleeding secondary to multiple endometrial myomas one year ago. Her voiding symptoms, which were previously mild, progressively worsened after the procedure. The reason of voiding symptoms in this patient was not only the presence of suture in the bladder but also restriction of the bladder capacity since the suture passed through both the dome and the base of the bladder. Suture placement through the bladder was accidental presumably because initial surgeon did not suspected any foreign material inside the bladder and prescribed antibiotics for recurrent urinary tract infections. Besides, a routine bladder control for any suspected injury after those operations was not performed in that center. For this patient, pelvic US was the only imaging we had and thought be sufficient since it did not reveal any extravescical pathology. However, if US suspected any extravescical attachment or transurethral approach was failed, further radiologic modalities including computerized tomography (CT) or magnetic resonance imaging (MRI) would be applied. In this case, laparoscopic or open interventions should be preferred.

4. Conclusion

Incontinence and prolapse surgeries were associated with increased rate of intravesical tape or mesh erosion and suture

migration, however, intravesical polypropylene suture secondary to abdominal hysterectomy is an extremely rare entity. For this reason, one should kept in mind that voiding symptoms that appeared or substantially worsened after hysterectomy might be developed due to the suture passed through the bladder during the surgery. Transurethral approach with plasmakinetic energy eliminates the need for open surgery with its minimally invasive nature and safety. This type of treatment either with plasmakinetic energy, laser or endoscopic scissors should be preferred as the first line treatment in the management of intravesical suture or other substances secondary to urogynecological procedures.

Conflict of interest

None.

Funding

None.

Ethical approval

Not applicable.

Consent

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

Author contributions

Dr. Faruk Küçükdurmaz performed the surgery and wrote the manuscript. Dr. Selman Can took the pictures during the surgery. Dr. Osman Barut contributed to the writing of the manuscript.

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