

Transurethral and suprapubic mesh resection after Prolift® bladder perforation: a case report

Milou D. Bekker · Rob F. M. Bevers · Henk W. Elzevier

Received: 22 December 2009 / Accepted: 31 January 2010 / Published online: 4 March 2010
© The Author(s) 2010. This article is published with open access at Springerlink.com

Abstract Bladder perforation is a complication which can occur after a Prolift® procedure and may enhance vesicovaginal fistula formation. Different methods of management of bladder perforation caused by mesh procedures are described in the literature, and most authors advise complete excision of the mesh. In the case described in this article, we propose a combined transurethral and suprapubic approach as the optimal method for maximal tape removal, being both minimally invasive and less damaging to the vesical wall. A suprapubic catheter can be removed shortly after surgery to enable optimal tissue healing of the vesical mucosa.

Keywords Bladder perforation · Cystoscopy · Prolift® · Suprapubic · Vaginal mesh

Abbreviations

TVT Tension-free vaginal tape

Introduction

Within the decade, treatment of urinary incontinence and prolapse using meshes has gained popularity. The use of synthetic meshes is becoming increasingly common to optimize surgical outcome and to reduce recurrence rates. The implanted mesh provides mechanical support during the strengthening of the fascia tissue [1]. It allows the development of new connective tissue, which is deficient in genital prolapse.

Postoperative complications are prosthetic material exposition linked to a defect in vaginal cicatrisation, symp-

tomatic retractions of vaginal mucosa, infection of the prosthetic material, and bladder or rectal injuries.

The tension-free vaginal tape (TVT) procedure, during which a suburethral tape is placed, has an operative complication of bladder wall perforation in 5.8% of cases [2]. During a Prolift® procedure, a mesh is placed between the vaginal mucosa and the prolapsed organ, thus recreating support for weakened pelvic structures. A surgeon approaches the repair vaginally, passing specially designed trocars through pelvic landmarks. The trocars can be placed for either anterior and/or posterior vaginal wall repair. Trocar placement for anterior vaginal wall repair involves traversing the obturator membrane and the arcus tendineus fascia pelvis near the ischial spine. After a Prolift® procedure, a bladder perforation rate of 4.0% has been reported [3].

Bladder perforation is easily managed when recognized intraoperatively with reinsertion of the trocar followed by Foley catheter bladder decompression. Unrecognized bladder perforation may cause postoperative hematuria, recurrent urinary tract infections, irritative bladder symptoms, pelvic and urethral pain, fistula formation, and bladder stone formation. Undetected bladder perforation after the Prolift® procedure can cause vesicovaginal fistula formation due to urine leakage through the sutured vaginal incision. Up to date, management of such a vesicovaginal fistula has not been reported yet.

The aim of this report is to show treatment of a bladder perforation after the placement of the anterior Prolift® system.

Case

A 63-year-old woman underwent a Prolift® procedure because of anterior vaginal vault prolapse with complaints

M. D. Bekker (✉) · R. F. M. Bevers · H. W. Elzevier
Department of Urology, Leiden University Medical Center,
Albinusdreef 2,
2333 ZA Leiden, The Netherlands
e-mail: M.D.Bekker@lumc.nl

of stress urinary incontinence. Three weeks after the operation, she was referred to our outpatient urology clinic with complaints of continuous loss of urine and urinary tract infections. At physical examination, after the bladder was filled with a methylene blue solution, a vesicovaginal fistula was diagnosed. Urethrocystoscopy (70° vision) was performed and a piece of mesh was seen entering the bladder next to the left ureteral orifice and leaving the bladder at the left bladder wall. Abdominal ultrasound showed no dilation of the left ureter.

Surgical removal under regional anaesthesia in lithotomic position included localizing the mesh with a cystoscope with 12° vision. Through a standard suprapubic split-needle (5 mm), a laparoscopic Babcock forceps entered the bladder grasping the tape halfway its course through the bladder. With traction on the tape, the mesh was cut transurethrally using bipolar electrocautery (Fig. 1).

This procedure was performed on each side of the tape, deep into the vesical mucosa. The cut piece of mesh was removed transurethrally. On urethrocystoscopy, the vesical mucosa was somewhat damaged and a cut edge of the tape was seen deep within the damaged mucosa. The procedure took 31 min and was performed without blood loss. A suprapubic Foley catheter was placed where the laparoscopic trocar had been, which was removed 2 weeks postoperatively.

Afterwards, the patient recovered without any complaints, including incontinence. Six weeks after the procedure, on urethrocystoscopy, no tape remnants were seen and the bladder wall was perfectly healed (Fig. 2).

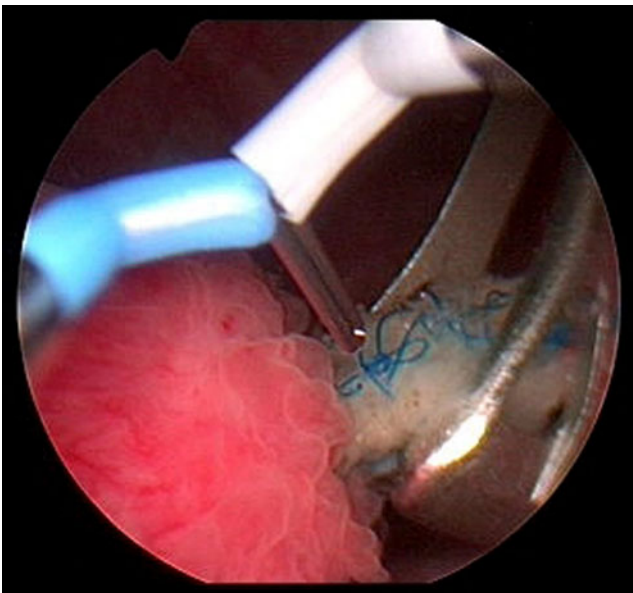


Fig. 1 Traction on the tape with the Babcock forceps and cutting it with electrocautery

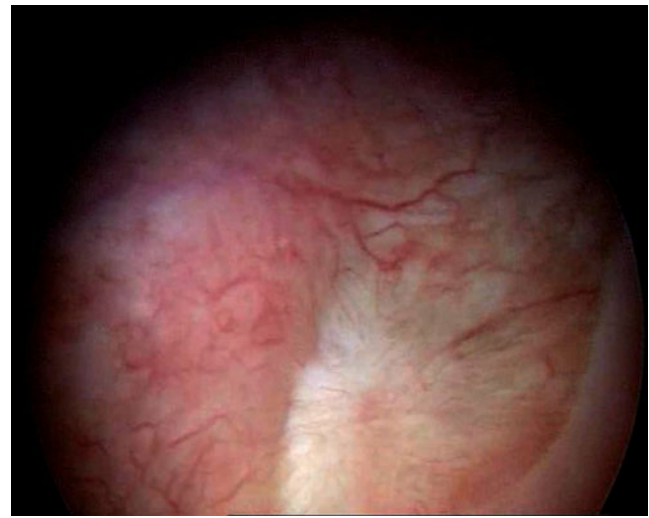


Fig. 2 Cystoscopic view on the healed bladder wall, 6 weeks postoperatively

Discussion

Perforation of the bladder is an uncommon complication of a Prolift® procedure for vaginal vault prolapse. Early detection of bladder injuries by performing an intra-operative cystoscopy with a 30° or 70° lens is mandatory when performing a TVT procedure. For a Prolift® procedure, this is only preferable but not mandatory. Diagnosing bladder perforation intra-operatively is important because, when diagnosed, it can easily be managed by reinsertion of the trocar followed by Foley catheter bladder decompression. Alternatively, filling the bladder with a methylene blue solution can also be of help. Some form of bladder injury detection should be mandatory for all procedures with a risk of bladder perforation. Unrecognized bladder perforation may cause hematuria, urinary tract infections, irritative bladder symptoms, and stone formation.

After a Prolift® procedure, unrecognized bladder perforation may also cause a vesicovaginal fistula because urine can leak from the perforation through the sutured vaginal incision. Treatment of such a vesicovaginal fistula has not been described in the literature yet. However, in the case in which any type of mesh is found to have been eroded into the bladder and vagina causing a vesicovaginal fistula, complete excision of the mesh is warranted [4]. Removal of mesh can be exceedingly challenging due to tissue ingrowth into the interstices of the graft. Often, the graft and involved tissue must be sharply removed.

In the described case, we chose to treat the vesicovaginal fistula by removing only the piece of tape in the bladder to abolish the fistula. We considered transurethral removal of the tape but chose to perform it combined with suprapubic assistance for tension on the tape in order to be able

to remove the tape deep into the bladder mucosa. The bladder mucosa thus is enabled to close over the remaining tape remnants. Without tension on the tape, residual mesh fibers may be left intravesically and, in time, could still cause stone formation, recurrent infections, and pelvic pain. With the described technique, maximal tape removal is enabled and there is no need for complete excision of the mesh. Also, potential benefits of this technique are reduced postoperative pain, speedier recovery, and improved tissue healing.

In conclusion, the combined transurethral and suprapubic approach to remove bladder perforating tapes causing a vesicovaginal fistula is the optimal method. Moreover, this technique should be considered for other operative procedures in the bladder, whenever a single transurethral approach is insufficient, rather than performing complete excision of meshes.

Acknowledgements None.

Conflicts of interest None.

Open Access This article is distributed under the terms of the Creative Commons Attribution Noncommercial License which permits any noncommercial use, distribution, and reproduction in any medium, provided the original author(s) and source are credited.

References

1. Birch C, Fynes MM (2002) The role of synthetic and biological prostheses in reconstructive pelvic floor surgery. *Curr Opin Obstet Gynecol* 14(5):527–535
2. Abouassaly R, Steinberg JR, Lemieux M, Marois C, Gilchrist LI, Bourque JL et al (2004) Complications of tension-free vaginal tape surgery: a multi-institutional review. *BJU Int* 94(1):110–113
3. Altman D, Vayrynen T, Engh ME, Axelsen S, Falconer C (2008) Short-term outcome after transvaginal mesh repair of pelvic organ prolapse. *Int Urogynecol J Pelvic Floor Dysfunct* 19(6):787–793
4. Kobashi K (2009) Management of erosion of graft materials in pelvic floor reconstruction. *Sci World J* 9:32–36