Endoscopic treatment of a rectovesical fistula following radical prostatectomy by over-the-scope clip (OTSC)

Milos Brodak, Josef Kosine, Ilja Tacheci, Jaroslav Pacovsky

Department of Urology, Charles University Hospital, Hradec Kralove, Czech Republic

Abstract

The successful management of a rectovesical fistula after radical prostatectomy is difficult. Minimally invasive treatment by over-the-scope clip (OTSC) is a novel method. The authors present results with the use of OTSC. This method was used in 2 patients. The first patient had a rectovesical fistula detected on the fifth day after a prostatectomy. The second patient experienced rectal perforation during prostatectomy and a recurrent fistula after fistulorrhaphy. Both patients had a small fistula located in the vesicourethral anastomosis. Both patients underwent endoscopic OTSC placement. The median follow-up was 26 months. The success rate was 50%. The first patient healed successfully and the second patient had a relapse. The York-Mason procedure was eventually successful. According to our initial experience, the OTSC is suitable for small fistulas detected shortly after a prostatectomy. A more complex fistula, though small, carries a higher recurrence risk.

Key words: rectovesical fistula, radical prostatectomy, endoscopy, over-the-scope clip.

Introduction

Rectovesical fistula following radical prostatectomy is a rare but serious complication. The management of this condition is challenging. Many demanding and invasive, open or laparoscopic procedures have been described [1–5]. According to existing literature and our initial experience, the minimally invasive over-the-scope clip (OTSC) method is a suitable alternative to surgery that could be used in the management of small rectovesical fistulas [6–8]. The OTSC device was primarily proposed for the treatment of complications such as bleeding or perforation, during gastroscopy or colonoscopy. The principle of this method is clasping the tissue and closing the lumen of vessels, or the closure of perforation [6, 9].

The aim of our paper is to present our experience with the OTSC endoscopic method as a minimally invasive treatment of the rectovesical fistula in 2 patients.
sis (Photo 1). A rectoscopy was performed by opening the fistula near the anal sphincter (Photo 2). The method of treatment chosen was OTSC, to ensure minimal invasion, because of the small size of the fistula, and because of the short period since a radical prostatectomy had been performed. The procedure was performed under analgesedation, and the duration of surgery was 20 min. The fistula and its surrounding tissue were clasped with a special device and closed by a special Nitinol clip – OTSC (Photo 3). The indwelling catheter was left in for 21 days after OTSC placement. Broad-spectral antibiotics and a low-residue diet were administered for 5 and 10 days, respectively. The second cystography was performed after 21 days when the healed fistula (Photo 4) and the catheter were removed. The subsequent postoperative course was without complications. The patient became continent within a few days, with no further fecal disturbances, and he was in biochemical negative remission.

Case report 2

A 72-year-old man underwent open retropubic radical prostatectomy and pelvic lymphadenectomy for high-risk prostate cancer, T4aN0M0. The initial PSA was 6.4 ng/ml and the definitive Gleason score was 10. The man had no comorbidities, and a strong desire to remove the cancer. The patient was informed in detail about the risk of a rectal wall injury, recurrence, and other adverse effects, as well as about alternative methods of treatment. During prostatectomy a resection of the rectal wall was performed to prevent a positive surgical margin. The rectal wall was sewn and the sigmoidostomy was executed with the collaboration of an abdominal surgeon. The recurrence of a fistula was found four months after surgery, and the patient underwent open fistulorrhaphy by an abdominal approach, 6 months after the initial prostatectomy. The next recurrence took place 4 weeks after the
fistulorrhaphy. According to the cystography, rectoscopy and cystoscopy, the fistula was very small, located near the vesicourethral anastomosis and anal sphincter. The OTSC method was chosen because of the small size of the fistula and a preference for a minimally invasive method. The surgery was performed under analgosedation. The duration was 19 min, and the procedure went without complications, with the appropriate clip being placed. The indwelling catheter was left in for 21 days. The antibiotics and diet were administered for a week and 2 weeks, respectively. A cystography was carried out after 3 weeks with no transmission between bladder and rectum; the bladder catheter was removed. A fistula relapse was observed 7 days after the catheter had been removed. The next procedure used was the York-Mason transanal rectourethral fistula repair. This procedure was eventually successful. The sigmoidostomy was closed 8 weeks later. The patient received 1-year androgen-deprivation therapy after prostatectomy by LHRH analogues due to very high-risk prostate cancer. The patient was in biochemical negative remission and functionally he was urine- and fecal-continent.

**Discussion**

The use of the OTSC device is an endoscopic procedure primarily developed for managing complications during endoscopy of the gastrointestinal tract, predominantly for bleeding or perforations [9, 10]. The main principle of an OTSC device is the insertion of a Nitinol clip in the surrounding tissue of the fistula. Long-term closure of the fistula optimally leads to its healing. The insertion of the clip is carried out with a special device: Ovesco Endoscopy AG, Tuebingen Germany. The procedure starts with a clip fixed to a cap, fitted on top of the endoscope. After the clip is placed, the surrounding tissue of the fistula is clamped and pulled into the cap. Once the tissue is optimally clamped and pulled into the cap, the clip is put in place by a special releasing system. The clip is made from Nitinol, a special alloy of titanium and nickel with a strong shape memory. In optimal cases the fistula is completely closed in by the wide edge of the rectal wall [6].

The OTSC was first used in gastroscopy and later in colonoscopy [9, 10]. Parodi et al. reported the successful use of the OTSC in 8 out of 10 patients with fistulas in different segments of the gastrointestinal tract [7]. Another successful use of the OTSC was presented in 2 patients with esophageal fistulas. The first patient healed after the OTSC method, whereas the second had a recurrence and underwent a second OTSC procedure. This repeated procedure was successful [11]. More case studies of this procedure in the management of intestinal wall lesions have been published [12–14].

More comprehensive studies assessing the OTSC method were published by Nishiyama et al. and Mönkemüller et al. The first paper described and evaluated a cohort of 23 patients with fistulas in different segments of the intestinal tract. The fistula healed in 19 out of 23 patients, at a success rate of 83%. The main reasons for clipping system failure were either the size of the fistula when bigger than 20 mm, or a long delay after the formation of the fistula [15]. The second paper evaluated the OTSC in a group of 16 patients, at a success rate of 70%. The reasons for malfunctions were similar [16]. The latest study, with a larger cohort of patients, was published by Merckx et al., in 2014. The authors assessed 30 patients with fistulas in different parts of the gastrointestinal tract, predominately in the gastro-duodenal segment. The overall success rate was 71.4%, significantly higher in the gastro-duodenal segment. A rectovesical fistula was the risk factor for recurrence [17].

Only a few papers have been published about the use of OTSC in the management of a rectovesical fistula. A case study exists of rectovesical fistula treatment after colon resection with a combination of the OTSC and cyanoacrylate glue [18]. Another paper describes the successful application of the OTSC method in a female patient with an anal transsphincteric fistula [8]. A year later, the same authors published results in a small cohort of 10 patients with anal fistulas treated by OTSC. Nine out of 10 patients were treated successfully with this method. The reason for a failed procedure in one patient was spontaneous early clip detachment on the third postoperative day [19]. The endoscopic management of a rectovesical fistula following radical prostatectomy has been described only in a case report from Katsinelos et al. The rectovesical fistula was diagnosed 2 weeks after radical prostatectomy. To repair the fistula, the authors employed a combination of tissue glue and endoclips (HX-600-900; Olympus). These clips were smaller but similar to the OTSC. The endoscopic treatment was effective [20].

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Conclusions

The OTSC device is a suitable, minimally invasive method in the management of the rectovesical fistula after radical prostatectomy. According to our first experience, this method is appropriate for smaller rectovesical fistulas detected shortly after prostatectomy. There is higher risk of recurrence in patients with a history of previous surgery and longer periods since fistula formation.

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Conflict of interest

The authors declare no conflict of interest.

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