Laparoscopic repair of vesicovaginal fistula

Laparoskopowe zaopatrzenie przetoki pęcherzowo-pochwowej

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Summary

A vesicovaginal fistula is one of the complications that a gynaecologist is bound to face after oncological operations, especially in postmenopausal women. Over the years there have been introduced many techniques of surgical treatment of this entity, including transabdominal and transvaginal approaches.

We present a case of a 46-year-old patient who suffered from urinary leakage via the vagina due to the presence of a vesicovaginal fistula that developed after radical abdominal hysterectomy and subsequent radiotherapy. The decision was made to repair it laparoscopically due to retracted, fibrous and scarred tissue in the vaginal apex that precluded a transvaginal approach. A small cystotomy followed by an excision of fistula borders was performed. After six-month follow-up no recurrence of the disease has been noted.

We conclude that laparoscopy is an interesting alternative to traditional approaches that provides comparable results.

Key words: vesicovaginal fistula, laparoscopy.

Streszczenie

Jedną z komplikacji operacji onkologicznych, zwłaszcza wśród kobiet po menopauzie, są przetoki pęcherzowo-pochwowe. Na przestrzeni lat zostały opracowane liczne techniki naprawy tej patologii – zarówno drogą pochwową, jak i brzuszną.

W niniejszej pracy zaprezentowano przypadek 46-letniej kobiety cierpiącej z powodu występowania przetoki pęcherzowo-pochwowej, która pojawiła się po radykalnej histerektomii sposobem Wertheima-Meigsa i następnie radioterapii. Podjęto decyzję o laparoskopowym zaopatrzeniu przetoki ze względu na obecność włóknistej, zbliżającej tkanki w szczycie pochwy, która uniemożliwiła operację drogą przezpochwową. Wykonano małe nacięcie pęcherza, uwidaczniając jej ujście, a następnie wycięto brzegi. Po 6 miesiącach od operacji pacjentka nie zgłasza żadnych dolegliwości związanych z występowaniem nawrotu przetoki.

Laparoskopia wydaje się być interesującą alternatywą w zamykaniu przetok pęcherzowo-pochwowych dla tradycyjnego dostępu operacyjnego, zapewniającą porównywalne odległe efekty terapeutyczne.

Słowa kluczowe: przetoka pęcherzowo-pochwowa, laparoskopia.

Background

A vesicovaginal fistula (VVF) is a hygiene and social issue that disturbs patients’ everyday activities. In underdeveloped countries VVF is a major health problem that is related to prolonged labour and low standard of obstetric care [1]. In contrast, in developed countries abdominal hysterectomy accounts for more than 90% of cases. VVF occurs in 1 of 1800 surgical interventions of this kind [2, 3].

There are two main recognized types of VVFs: simple and complex fistulas. Large (more than 0.5 cm), multiple, chronic or developing after radiotherapy fistulas are classified as complex ones [4]. Single, non-radiated and small (less than 0.5 cm) fistulas are considered to be simple ones.
Conservative treatment is recommended after diagnosing a VVF. It consists of undisturbed bladder drainage for several weeks and proper antibiotic therapy when needed. Unfortunately, it is effective only in about 10% of patients [5]. For the rest of them corrective surgery is indicated. Over the past years there have been introduced many surgical techniques of treating this entity, including transvaginal and transabdominal approaches. Despite the fact that laparoscopy is a very popular procedure in urogynaecology, it is not widely used to repair the condition of VVF. We present a case of a 46-year-old patient who suffered from vesicovaginal fistula that occurred after radical abdominal hysterectomy because of cervical cancer in stage II A according to FIGO. After this primary surgery and subsequent radiotherapy a small leakage of urine via the vagina was noted and clinical examination showed a 6 mm wide opening in the vaginal apex. Therefore, cystoscopy and cystourography were performed to examine the pathology and exclude the existence of ureterovaginal fistula. These procedures revealed a fissured opening of the vesicovaginal fistula that was located on the posterior wall of the bladder above the ureteric orifices. A trial of conservative treatment turned out to be unsuccessful and the patient eventually decided to undergo an operation of the fistula two years after the primal hysterectomy. Cystoscopy and urography were performed once more to confirm the localization of the fistulous tract. The laparoscopic approach seemed to be appropriate as clinical examination revealed that the fistula opening was difficult to access via the vaginal route. After radiotherapy the tissue in the vaginal apex was scarred and fibrous.

At the beginning of the surgery general anaesthesia was administered, a transurethral Foley catheter was placed in the bladder and pneumoperitoneum was established subsequently. After inserting 4 ports (a 10 mm camera port and three additional 5 mm ports for tools) abdomen exploration, release of postoperative adhesions and a wide incision of the peritoneum between the vagina and the bladder were performed. Identification and visualization of the fistulous tract was not problematic owing to the precise dissection of the bladder away from the vagina. A small cystotomy was performed in the proximity of the fistula opening, allowing its fibrotic borders to be excised. The bladder was closed with continuous 2-0 suture and then the

**Case report**

A 46-year-old woman, gravida 1, was admitted to the Department of Surgical Gynaecology and Endoscopy in August 2010, complaining of urinary leakage via the vagina. Two years prior to admission the patient had undergone radical abdominal hysterectomy because of cervical cancer in stage II A according to FIGO. After this primary surgery and subsequent radiotherapy a small leakage of urine via the vagina was noted and clinical examination showed a 6 mm wide opening in the vaginal apex. Therefore, cystoscopy and cystourography were performed to examine the pathology and exclude the existence of ureterovaginal fistula. These procedures revealed a fissured opening of the vesicovaginal fistula that was located on the posterior wall of the bladder above the ureteric orifices. A trial of conservative treatment turned out to be unsuccessful and the patient eventually decided to undergo an operation of the fistula two years after the primal hysterectomy. Cystoscopy and urography were performed once more to confirm the localization of the fistulous tract. The laparoscopic approach seemed to be appropriate as clinical examination revealed that the fistula opening was difficult to access via the vaginal route. After radiotherapy the tissue in the vaginal apex was scarred and fibrous.

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peritoneum was used to cover the place of the surgical incision. Drainage of the pelvic cavity was applied and trocars were removed.

The operation lasted for 85 minutes and the blood loss was estimated to be approximately 150 ml. Appropriate antibiotic therapy and anticoagulant prophylaxis were administered. The patient was discharged after seven days of stay in the hospital and returned to the department in two weeks to remove the Foley catheter. After a follow-up of 6 months no signs of relapse have been noted so far.

Discussion

The choice of surgical technique for repair of VVF is a controversial issue. Eilber et al. emphasized that the approach chosen should depend on the surgeon’s abilities, preference and experience [6]. Transvaginal procedures include both Latzko partial colpocleisis and the “layered closure” technique. They are considered to be effective in simple fistulas, with a success rate of approximately 90% [3]. Transvaginal repair is also a very convenient and quick surgical technique that can be carried out in an outpatient setting. What is more, it allows one to decrease the patient’s blood loss and postoperative pain [7]. The transabdominal approach is commonly used in cases of: high retracted fistulas in a narrow vagina, fistulas located next to the ureters, complex fistulas, or when there is other concomitant pelvic pathology requiring surgical treatment [8-10]. The advantages of this route include high success rates, optimal access and possibility to cure multiple fistulas in radiated tissue [11]. On the other hand, the transabdominal approach is a much more invasive technique that causes higher morbidity rates, greater postoperative pain and the necessity of a longer hospital stay [7]. The first laparoscopic repair of VVF was reported in 1994 by Nezhat et al. [12]. Since then other authors have shared their own experience in this matter, concluding that laparoscopy is an interesting alternative to traditional laparotomy. It offers minimal invasiveness, magnification of the operated area, improved haemostasis, less postoperative pain and faster recovery [10, 11, 13, 14].

Another controversy is the time for surgery, as there is no consensus among authors on this matter. Some of them recommend an early repair of VVF within 3 months, whilst others are proponents of a delayed closure in order to wait for the inflammation to subside. However, there is no evidence showing the superiority of any of these approaches. Performing an early surgical repair allows one to achieve the same success rate as a delayed one [15].

The laparoscopic technique of fistula closure differs in several case reports that have already been published. Some surgeons, for instance Chibber et al. [11], prefer traditional cystotomy starting at the dome of the bladder and continuing down to the fistula posteriorly. It is similar to the transabdominal technique that was originally described by O’Conor [16]. Such a large cystotomy provides excellent visualization of the site; however, it is more traumatic to the bladder, causes more blood loss and increases the operative time due to the necessity of intracorporeal suturing. Rizvi et al. believe that a smaller incision also allows one to perform successful surgery [17]. The advantage of this strategy is a lower risk of probable postoperative bladder irritability. In the case presented above we performed a small cystotomy only to excise the fibrotic orifice of the fistula.

Catheterization of both ureters and the fistula was performed in the majority of published cases. We did not perform any of these. The same strategy as ours was previously applied by Porpiglia et al. and Rizvi et al. It seems that there is no need for ureteric catheterization if the fistula is located at a distance of more than 1 cm from the orifices and the risk of injuring the ureters is low [17, 18].

Another controversial issue that has to be mentioned is the use of interposition flaps in VVF repair. The publication of Evans et al. showed a higher success rate when a graft of vascularized tissue was placed between the vagina and the bladder. The authors of this study successfully treated all patients in whom omental interposition was performed. In contrast, when flaps were not used the success rate decreased to about 66% [1]. However, some authors do not recommend this strategy for fistulas smaller than 1 cm as they usually do not tend to relapse after primal surgery. Goyal et al. reported an excellent success rate of 97.5% in patients who underwent transabdominal or transvaginal repair without use of the omental flap [19]. Nevertheless, there has been reported only one case of laparoscopic repair of VVF omitting a transposition. Lee et al. concluded that their method might be “effective in select patients with small sized fistulas” [20]. We did not perform tissue interposition in our patient because the size of the fistula was less than 1 cm.

References