Case Reports

Surgical repair of a complicated urethro-vaginal fistula: case report and review of the literature

C. Grigoriadis, P. Bakas, A. Liapis

Second Department of Obstetrics and Gynecology, University of Athens, Medical School, Aretaieion Hospital, Athens (Greece)

Summary

Background: Urethro-vaginal fistulae (UVF) occur usually as infrequent complications of a variety of gynecological surgical procedures. The aim of this study was to present an interesting case of a complicated UVF diagnosed after gynaecological surgery. *Case:* A 61-year-old gravida-2, para-2, post-menopausal woman was referred with a complaint of urine loss through the vagina. She had undergone anterior and posterior vaginal wall repair due to cystocele and stress urinary incontinence (SUI). Transvaginal repair was performed 20 weeks after primary surgery. However, a second transvaginal reconstructive surgery using Martius-flap originating from the bulbocavernosus muscle was necessary due to persistent urine leakage in the vagina. Thirty-two months after successful urethro-vaginal treatment, the patient self-referred for persistent SUI. Burch colposuspension was performed and at 16 months follow-up the patient remains continent. *Discussion:* Surgical repair of complicated UVF seems to be more successful with Martius flap interposition than with no interposition.

Key words: Urethro-vaginal fistula; Martius flap; Burch colposuspension; Stress urinary incontinence.

Introduction

Urethro-vaginal fistulae (UVF) are uncommon in the developed world. They usually occur as an infrequent complication of a variety of gynecological surgical procedures. Anti-incontinence procedures, urethral diverticulectomy, and placing of bladder neck (autologous) slings are considered to be common surgeries that may lead to UVF. Surgeries for anterior vaginal wall prolapse, radiation therapy, and operative vaginal delivery can cause UVF due to tissue ischemia, problems related to healing, or radiation necrosis. Congenital UVF are considered to be extremely rare.

The aim of this study was to present the management of an interesting case of a UVF complicated after its successful surgical repair by urodynamic stress incontinence. The authors report all surgical steps that were followed with an attempt to analyze available data from current literature as well.

Case Report

The patient, a 61-year-old gravida-2, para-2, post-menopausal woman with history of osteoporosis underwent anterior and posterior vaginal wall repair in a district general hospital due to cystocele and stress urinary incontinence (SUI). She was referred 12 weeks later to this Department with a complaint of continuous urine loss through the vagina.

The diagnosis of UVF was confirmed clinically by a three-swab methylene blue test and urine loss was noted during vaginal examination and cough stress test. During cystoscopy, the fistula's orifice in the proximal urethra was recognized and moderate trigonitis was confirmed. Urodynamic study showed normal bladder capacity and confirmed the diagnosis of urodynamic stress incontinence. The patient also underwent intravenous pyelography that was normal. The progressive emptying of the bladder from the fistula was observed, but without clear detection of the fistula's location. Transvaginal ultrasound (TVUS) examination found no pathology from the uterus or the adnexae. The patient received antibiotic therapy for six weeks prior to the surgical repair of the UVF.

Transvaginal repair of the UVF was performed, with the cooperation of urologist, under general anesthesia, 20 weeks after primary surgery. After detection and surgical preparation of the fistula's margins (maximum diameter of the fistula's orifice 0.5 cm), a two-layer closure of the mucosa with absorbable 4-0 vicryl sutures was performed. The operative time was about 120 minutes and no transfusion was needed. The patient presented at the four-week follow-up with persistent urine leakage in the vagina.

A second transvaginal reconstructive surgery was performed following cystoscopy and bilateral stenting of the ureters. Surgical mobilization of the para-urethral and para-vesical space was followed by excision of the fistula and closure of the defect in two-layers using a Martius flap originating from the bulbocavernosus muscle. A drainage was placed at the left major labium, at the position from which the graft was removed. Finally, cystoscopy and removal of the pig-tails followed. Antibiotic prophylaxis was given to the patient. The operative time was less than 120 minutes and no transfusion was needed. The four-week follow-up revealed completely restored anatomy of the urethra; however, 32 months after successful management of UVF, the patient presented for management of persistent SUI. New urodynamic study confirmed urodynamic stress incontinence with a maximum urethral closing pressure (MUCP) of 32 cmH20. Burch colposuspension was performed and the patient remains continent 16 months after the last surgery.

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Discussion

The ideal timing and appropriate surgical procedure for the repair of UVF are still debated [1]. Good quality healthy vaginal tissue is considered to be one of the main factors that favor successful outcome, so early repair after injury is not most likely the best approach. For cases in which tissue is otherwise healthy, early vaginal repair within two to three weeks of injury is possible without increased morbidity or failure rates [2]. Other studies suggest a wait of 8-12 weeks before repair [3]. In the present case the patient was referred 12 weeks after injury, so early repair was not an option.

Preoperative cystoscopy should be used to evaluate the anatomic relationship of the fistula. Also urodynamic study is always preoperatively necessary as there is a high incidence of abnormal lower urinary tract function in patients with urogenital fistulae [4]. Patients with UVF have high incidence of both genuine stress incontinence and detrusor instability. Many of these abnormalities appear to resolve after successful repair of the fistula, although detrusor instability may persist and require further treatment in some women. On the other hand, surgical repair of urogenital fistulae may lead to SUI. These data are relevant to the counseling of patients before repair and may be of medico-legal significance. In the present case, urodynamic study was performed before the first transvaginal reconstructive surgery, as well as before Burch colposuspension. Both studies confirmed the diagnosis of urodynamic stress incontinence.

Transvaginal repair is the preferred method to avoid the morbidity of laparotomy and to provide a more rapid recovery of the patient. On the other hand, suprapubic or combined surgical procedures should be reserved for situations in which access to the fistula is limited. Generally, a vaginal approach is recommended at the primary reconstruction of UVF, whereas a combined suprapubic and vaginal approach is recommended in vesicovaginal fistulae as well as in recurrent UVF fistulae [5].

Martius interposition of the omentum, muscle, peritoneum or labial fat has better results in recurrent or complicated fistulae. These grafts are appropriate to eliminate tissue tension, to fill a defect in the vagina, and to establish neovascularity. In the present case, the use of a Martius flap in the second surgery led to a successful result. The increased degree of fibrosis in the suburethral region after the previous transvaginal surgical procedures led to Burch colposuspension instead of placing a suburethral tension-free tape for the final management of urodynamic stress incontinence, in order to avoid postoperative erosion. This procedure was decided after identification of normal bladder neck mobility. Urethral drainage for at least 21 days seems to be necessary and the delay before resuming sexual activity must be individualized for each case.

Conclusions

The principles of fistula surgery are well-established: visualization of the tract, a tension-free watertight closure, assurance of adequate vascular supply to the repair, and appropriate bladder drainage.

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Address reprint requests to:
C. GRIGORIADIS, M.D.
Kavafi 44
14576 Dionysos, Athens (Greece)
e-mail: xarisgrigoriadis@yahoo.gr