CASE REPORT

Monti reconstruction in patients with complex vesicovaginal fistula

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Complex vesicovaginal fistula (VVF) can result in severe destruction of urinary and anal sphincters. We present two cases of patients who underwent retubularized ileal stoma (Monti reconstruction) applied to an augmented bladder for continent urinary diversion. This reconstruction provides another option for a diversion technique in patients with irreparable urethra and bladder damage and a severely damaged anal sphincter. To the best of our knowledge, there have been no published studies of Monti reconstruction in patients with complex VVF.

Key Words: Monti reconstruction, urethral sphincter, anal sphincter, mobile phone, vesicovaginal fistula

Introduction

In most cases, vesicovaginal fistula (VVF) occurs in the context of an intact urethral sphincter and is amenable to primary closure with restoration of urinary continence. Rarely, when VVF occurs during childbirth, the obstetrical trauma destroys the urethral sphincter tissue, which results in a type of complex VVF,[1] in which restoration of normal urinary continence is often not possible. Even rarer are cases in which rectal sphincter damage precludes rectal continence. Management of cases of VVF with urethral sphincter destruction can be difficult, and treatments have ranged from no active treatment to performing different types of urinary diversion.[2] In many medical facilities in Africa and many developing countries, ureterosigmoidostomy is frequently performed for patients with complex VVF.[3] Hodges has reported on attempts to create a continent catheterizable reconstruction like the Mitrofanoff diversion, on patients in Uganda.[4] Each of these methods of urinary diversion has its advantages and disadvantages. Infrequently, the extent of the patient's injury or other associated medical conditions precludes providing generally accepted published options of urinary diversion for complex VVF.

We present two cases of patients with complex VVF with destruction of the urinary sphincter mechanism and associated rectovaginal fistula (RVF) with severe anal sphincter damage. Severe damage of the anal sphincter in both patients excluded any consideration of ureterosigmoidostomy. The absence of an appendix in one of the patients (due to a prior appendectomy) and the small size of the appendix in the other patient ruled out the possibility of performing a Mitrofanoff diversion with the appendix. To form a continent urinary diversion, we formed the urinary reservoir from the ileal segment that was augmented to the remnant bladder and used the procedure described by Monti et al[5,6] to form the channel for self catheterization.

We report our experience with Monti reconstruction in the management of complex VVF, and we briefly explain the technique. To our knowledge, there are no prior published reports of performing the Monti procedure for complex VVF to obtain continent urinary diversion.

Case reports

Two patients with VVF and RVF secondary to obstructed labor presented to the Banso Baptist Hospital in Kumbo, Cameroon. One patient presented in July 2005 and one presented in June 2006. These patients underwent urinary diversion due to complete destruction of the urinary sphincter mechanism and a very small remnant bladder.

Operative technique

We performed ileocystoplasty as previously described.[7,8] For the Monti procedure, a 2.5 cm segment of ileum is isolated on its mesentery. This segment of ileum is opened longitudinally along its axis, but then it

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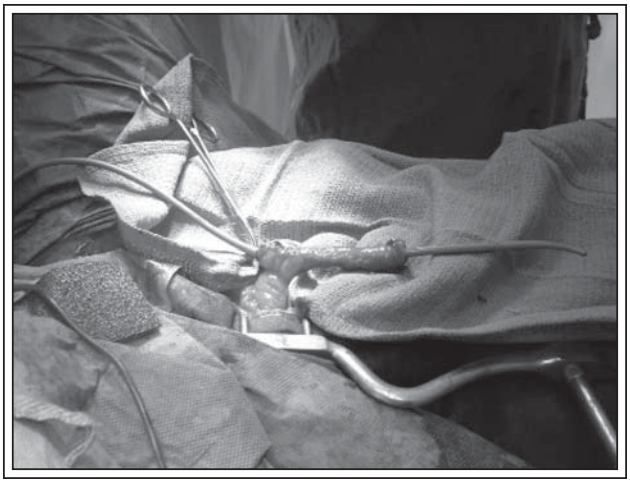

Figure 1. The completed Monti channel.

is closed transversely over a size 10 to size 12 Foley catheter, thereby converting the 2.5 cm segment of ileum into an approximately 7 cm tube, Figure 1, which is then anastomosed to the augmentation. The stomal catheter was maintained for 21 days, and the neobladder was drained with a suprapubic tube. After removal of the stomal catheter, the patient was taught how to do self catheterization and instructed to perform this self catheterization every 3 to 4 hours.

Case 1

The patient was a 16-year-old female with a very large VVF and RVF secondary to prolonged, obstructed labor. The urethral sphincter mechanism and the anal sphincter mechanism were both severely damaged. The vaginal introitus was severely scarred and in continuity with the distal rectal lumen down to the remnant posterior of the anus, looking very much like a cloaca. The patient had a left colostomy for fecal diversion and later had an ileal conduit for urinary diversion. This patient was satisfied with this treatment and initially did very well managing both stomas. However, after a short period, three problems emerged. First, the patient felt an increasing financial burden due to the need to travel long distances for urostomy and colostomy supplies. Second, the patient had an erratic supply of well-fitting urostomy bags. Last, managing two stomas became a more tedious task than anticipated. At this point, the patient requested treatment that would eliminate the stomas. We suggested a continent urinary diversion and explained the possible risks involved.

With a prior history of appendectomy, the patient elected to undergo a urinary diversion with a Monti channel. The ileal conduit was converted to an ileal pouch, augmenting it to the small remnant bladder, and a Monti channel was formed for self catheterization. In the early postoperative period, this patient developed a pelvic abscess that was drained through a culdotomy, with good results.

Case 2

The patient was a 28-year-old female with a large VVF and RVF secondary to obstructed labor (4 days in labor with intrauterine fetal demise). Both the urethral sphincter mechanism and the anal sphincter mechanism were severely damaged. This patient underwent fecal diversion with a left colostomy. Due to complete destruction of the urethral sphincter, this patient elected to undergo continent urinary diversion. Intraoperatively, the small remaining bladder was mobilized and augmented with a segment of the ileum to form a urinary pouch. The Monti tube was formed and anastomosed to the augmentation to create a self catheterization channel. In the early postoperative period, the patient developed a superficial wound infection that healed with dressing changes. On one occasion this patient experienced difficulty with self catheterization and we placed a catheter for 3 days before the patient resumed self catheterization with no further problems.

Follow up

Both patients quickly learned how to perform self catheterization and were continent. The patients adhered strictly to the recommended postoperative follow up. They were seen every 3 months for the first year and every 4 months after that. The patients were also strictly cautioned to immediately report to the hospital if they were unable to catheterize their pouches or if they had any other problem. To maintain effective communication with our two patients, we provided them with the mobile phone numbers of the resident surgeon and of people who worked in the operating room, and we obtained the mobile phone numbers of the patients' close relatives and neighbors, as our patients did not have their own mobile phones. We encouraged the patients to call at the physician's expense for fever, difficulty with catheterization, or any other problem. We taught our patients how to irrigate their pouches, and they were instructed to do this at least once a month. For the irrigation fluid we recommended the use of boiled water. Each patient was given two catheters and a 60 cc syringe. They were told to wash the catheter with soap before and after each use.

One patient has been followed for 44 months from the time of ileal conduit and the other patient has been followed for 33 months from the time of a Monti procedure, and both patients have had good outcomes. Their blood electrolyte levels have remained normal to date.

Discussion

Management of patients with complex VVF where the urinary sphincter mechanism has been destroyed can be extremely challenging in many African and other developing countries. In these countries, despite disadvantages, ureterosigmoidostomy can provide an acceptable treatment option since it eliminates the difficulties of finding reliable ostomy supplies and the cost of these supplies. Even where ostomy supplies are available, most patients in developing countries cannot afford these products. Like many African patients with VVF, our patients were abandoned by their husbands and unemployed, making the ongoing cost of ostomy supplies extremely burdensome. Prior to undergoing continent urinary diversion, one of our patients spent the equivalent of $36US -- or half the monthly income of many residents in this rural region -- on transportation and ostomy supplies for each hospital visit. Both patients had a severely damaged anal sphincter mechanism, precluding ureterosigmoidostomy with good continence.

There have been reports of the successful use of the Mitrofanoff diversion principle for the management of complex VVF.[4] Generally, the appendix is the most common channel used for the Mitrofanoff procedure in patients needing urinary diversion, and it is the channel with the most proven results.[9] Several authors have reported that the Monti procedure is an excellent and reliable alternative when the patient's appendix is not available.[10,11] Our first patient had undergone an appendectomy, making the Monti reconstruction a reasonable option. Our second patients had a small appendix with a tenuous blood supply, also making the Monti reconstruction a reasonable alternative. Our limited experience with these two patients who had a relatively long follow up suggests that the Monti tube is a reliable option in continent urinary diversion for patients with complex VVF.

Continent urinary diversion has potential risks, especially the possibility of rupture.[12,13] This can be disastrous especially if the patient lives far from a major healthcare facility or other center that can provide good follow up care. Therefore, caution should be taken when considering offering this procedure to patients with complex VVF. Should a patient be unable to self catheterize and unable to travel to a major hospital in a large city, healthcare practitioners in a rural center could insert a needle directly into the patient's urinary reservoir to provide immediate reservoir drainage and prevent rupture.

A reliable channel of communication between the physician and the patient must be established and maintained. Recently, throughout Africa, mobile phones have tremendously changed the communication sector,[14,15] and this should be exploited for medical care. Blake[14] noted that mobile phone subscriber numbers in Africa increased by over 1000 per cent between 1998 and 2003 to reach 51.8 million. There are many private business facilities called "Call Box" spread across most areas of Africa where people can make calls at a reasonable price using mobile phones. We were able to maintain contact with our patients by using mobile phones.

Our cases illustrate that Monti reconstruction can be a useful option for patients with complex VVF and severe destruction of urinary and rectal sphincters. □

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