UroToday International Journal®

Management of Neobladder Vaginal Fistulae and Stress Incontinence Following Radical Cystectomy with Martius Flap Interposition and a Transobturator Sling

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Submitted October 27, 2013 - Accepted for Publication December 1, 2013

ABSTRACT

Objective: We report the case of the management of neobladder vaginal fistulae and stress incontinence following radical cystectomy with Martius flap interposition and a transobturator sling. We review the literature on the evaluation and treatment of these patients.

Methods: A 62-year-old patient required cystectomy and a Studer's neobladder, which presents a neobladder vaginal fistula and stress incontinence

Results: Those complications were successfully treated using a vaginal approach with the interposition of a Martius flap and a sling placed after the fistula was repaired.

Conclusions: A neobladder vaginal fistula is a devastating complication. In our experience, we believe that closure in 2 planes by a transvaginal approach with Martius flap interposition plays a crucial role in avoiding a therapeutic abdominal approach. The surgical treatment of stress incontinence in the neobladder has serious potential complications and requires the judicious use of slings, with obturator tape being important in this context.

INTRODUCTION

Orthotopic urinary tract reconstruction has revolutionized urinary diversion after radical cystectomy, and is an accepted treatment in appropriately selected women with bladder cancer [1]. Neobladder vaginal fistulae is a known, but relatively rare, complication of cystectomy and orthotopic diversion in women [2], and both its treatment and the stress urinary incontinence treatment of these patients are still under discussion. We report a case of neobladder vaginal fistulae and stress urinary incontinence, and review the literature on the evaluation and treatment of patients.

CASE REPORT

We report the case of a 62-year-old female patient. She was a former smoker with a history of hypertension, and had undergone surgery for radical cystectomy with Studer ileal neobladder reconstruction in November 2010 for extensive multifocal carcinoma in situ. Postoperatively, an early anastomotic dehiscence occurred, requiring a new urethra to neobladder anastomosis, and accidental traumatic Foley catheter avulsion also occurred. The patient reported continuous incontinence since cystectomy. Complete physical examination was performed, with negative urine culture result, a consultation on Incontinence Questionnaire-Urinary

KEYWORDS: Fistula, neobladder, incontinence, sling, Martius flap

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CITATION: *UroToday Int J*. 2013 December;6(6):art 69. http://dx.doi.org/10.3834/uij.1944-5784.2013.12.04

Figure 1. Neobladder vaginal fistulae following radical cystectomy.

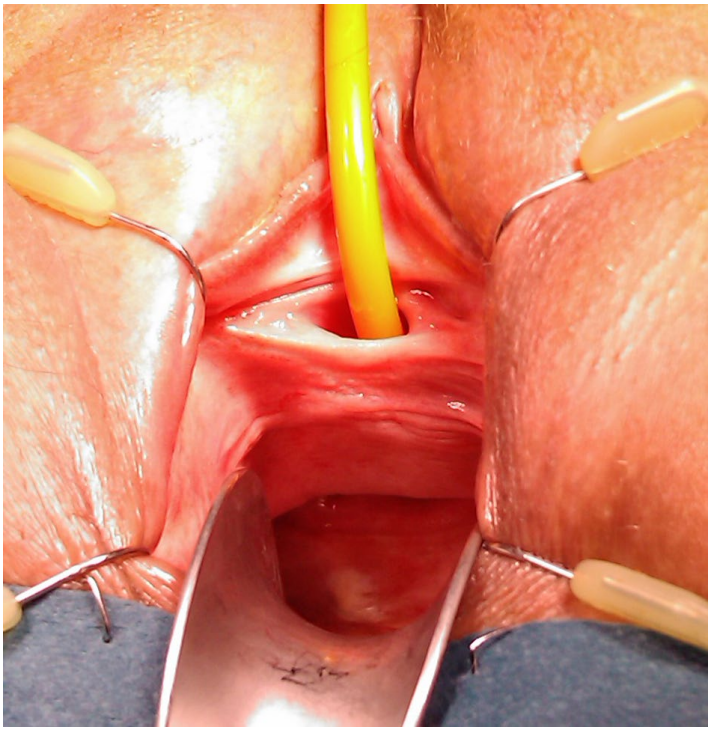
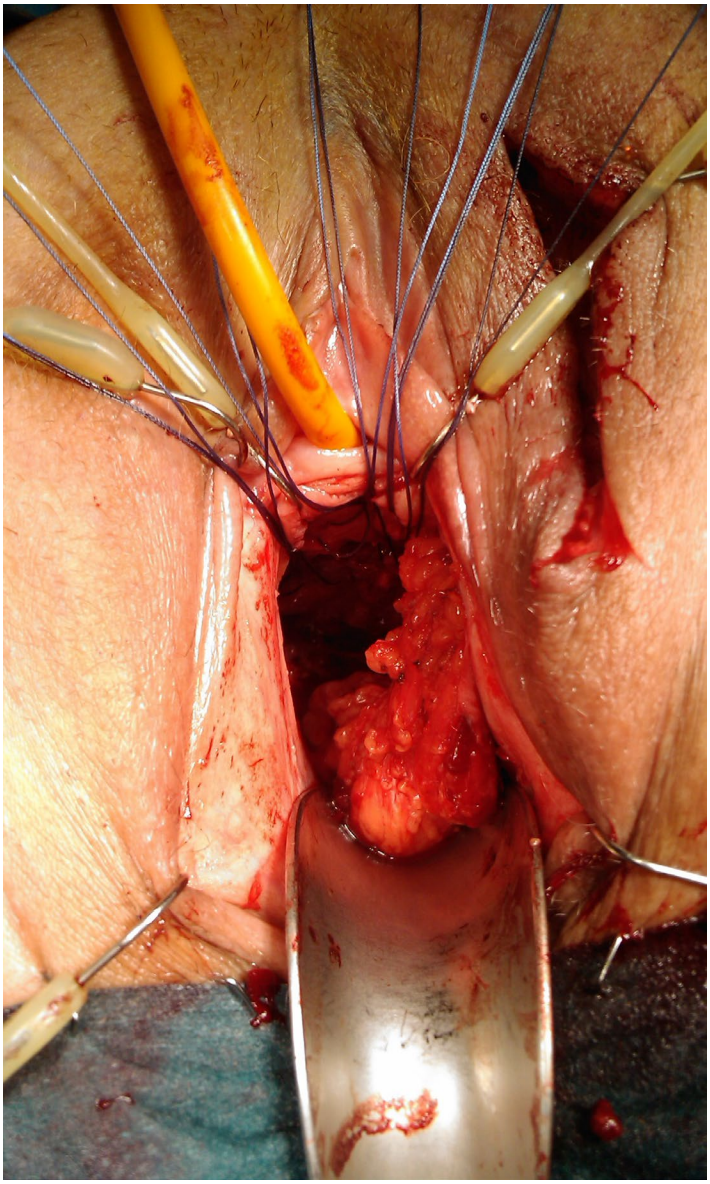


Figure 2. Management of neobladder vaginal fistula with Martius flap interposition.



Incontinence Short Form (ICIQ-UI SF) was performed showing continuous urinary incontinence with severe impairment in quality of life with a punctuation of 21 points. Computed tomography revealed no abnormalities. The physical examination confirmed a 4 centimeter neobladder vaginal fistula (Figure 1), and the cystoscopic study showed urethral integrity. The fistula was treated by Martius flap interposition in January 2011 (Figure 2); however, we observed total incontinence due to the loss of urethral tone and a traumatic increase in urethral diameter, which was treated with the transobturator sling Monarc® in April 2011 (Figure 3), improving the stress urinary incontinence with a follow-up of 2 years. During follow-up, physical examination and cystoscopy did not show recurrence of the fistulae at 2 years, with an improvement in quality of life and urinary incontinence in ICIQ-UI SF, with a score of 6 points. Pressure flow study showed minimal stress incontinence. Computed tomography did not show abnormalities.

DISCUSSION

Urinary diversion with an orthotopic neobladder after radical cystectomy has proven to be a viable option in women undergoing radical cystectomy. Despite excellent clinical results, in most women undergoing neobladder reconstruction, complications include functional neobladder urinary retention, requiring catheterization, stone formation, and persistent urinary incontinence, after radical cystectomy [3].

A neobladder vaginal fistula is a rare complication in these patients. Hari et al. conducted a review in 2004 collecting a total of 11 cases of neobladder vaginal fistula described in the literature [4].

Compared to the native bladder, the wall of the neobladder is much thinner, which may render it vulnerable to fistulization.

A vaginal wall lesion during dissection is the most important factor for the formation of a fistula [5]. All precautions should be taken to prevent injury in the vagina at the bladder-vaginal dissection plane, where the risk of damage to the vagina is greatest during the distal dissection of the bladder-vaginal plane at the urethra. Rapp et al. [5] minimized the risk, with blunt dissection near the bladder neck and posterior urethra. Possible risk factors for fistula formation are the proximity of the suture line between the vagina and the bladder neck, abnormal tissue between the posterior bladder neck and vagina leading to procedures for removal, and possible tissue vascularization due to surgical dissection [6], the poor vascularization of tissue after radiotherapy [7], and local recurrence [5].

Multiple techniques have been proposed to minimize this complication. Preservation of the anterior vaginal wall during cystectomy significantly decreases the risk of neobladder vaginal fistulae and improves functional outcomes [1]. Studies have shown that the preservation of the reproductive organs in radical cystectomy is possible without compromising the oncologic basis of the operation [8]. Ali El-Dein et al. promoted establishing an omental pedicle flap between the vaginal stump and urothelial anastomosis, providing a back up for the ileal pouch, and preventing posterior displacement and angulation of the urothelial union [2], although the effectiveness of these maneuvers has not been clearly demonstrated.

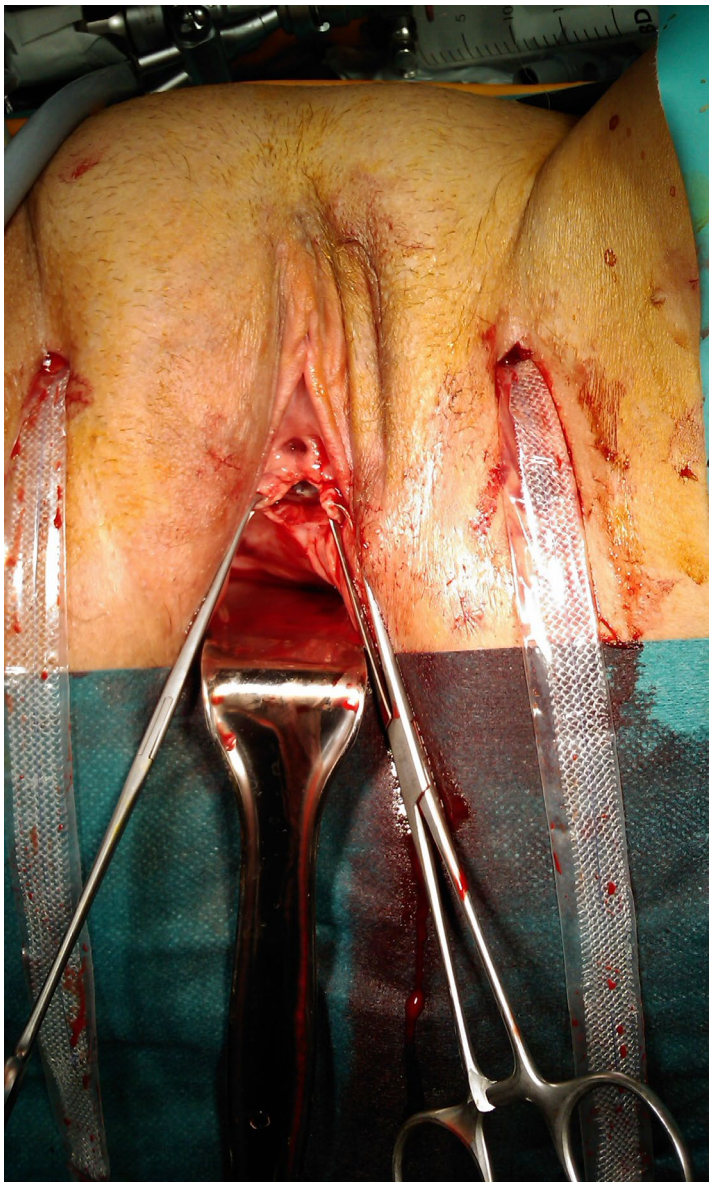
The Martius flap interposition is useful in protecting the fistula repair. Quek et al. [3] and Pruthi et al. [6] reported positive results after Martius flap interposition between a repaired neobladder vaginal fistula and the anterior vaginal wall.

Our patient underwent a transvaginal approach with Martius flap interposition because the treatment has been successfully used in complex bladder-vaginal fistulae, and avoids an abdominal approach in a previously operated abdomen. The interposition of the labia-major adipose tissue allows increased surface epithelization supplemented with lymphatic vascularization and better drainage, also avoiding the interposition of stitches [10].

Meticulous surgical technique is essential to preserve the function of the pelvic floor and urethra. The fibers of the inferior hypogastric plexus support the urethra and vagina. The preservation of these nerve fibers has been suggested to improve continence, and the preservation of an intact vagina is important for the functional integrity of the female striated urethral sphincter and the urethra-vaginal sphincter mechanism [9].

A pubo-vaginal sling should be used with caution for the treatment of stress urinary incontinence in patients with a neobladder because it may not be as effective and safe as in patients with a native bladder [6]. Hari et al. suggested that concomitant pubo-vaginal sling placement at the same time as the neobladder vaginal fistula is repaired cannot be completely safe [4], so the sling should be placed after the fistula is repaired, as in our case.

Figure 3. Management of stress incontinence with transobturator sling.



CONCLUSION

A neobladder vaginal fistula is a devastating complication that can be prevented by meticulous surgical technique and proper dissection. However, once it has developed, treatment

options are limited and may intensely affect the quality of life because of the need for a new reservoir. In our experience, we believe that closure in 2 planes by a transvaginal approach with Martius flap interposition plays a crucial role in avoiding a therapeutic abdominal approach. The surgical treatment of stress incontinence in the neobladder has serious potential complications and requires the judicious use of slings, with obturator tape being important in this context.

REFERENCES

1. Chang, S. S., et al. (2002). "Preservation of the anterior vaginal wall during female radical cystectomy with orthotopic urinary diversion: technique and results." *J Urol* 168(4 Pt 1): 1442-1445. PubMed | CrossRef

2. Ali-el-Dein, B., et al. (1999). "Orthotopic bladder substitution in women: functional evaluation." *J Urol* 161(6): 1875-1880. PubMed

3. Quek, M. L., et al. (2004). "Pubovaginal slings for stress urinary incontinence following radical cystectomy and orthotopic neobladder reconstruction in women." *J Urol* 172(1): 219-221. PubMed | CrossRef

4. Tunuguntla, H. S., et al. (2005). "Management of neobladder-vaginal fistula and stress incontinence following radical cystectomy in women: a review." *World J Urol* 23(4): 231-235. PubMed | CrossRef

5. Rapp, D. E., et al. (2004). "Neobladder-vaginal fistula after cystectomy and orthotopic neobladder construction." *BJU Int* 94(7): 1092-1095; discussion 1095. PubMed | CrossRef

6. Pruthi, R. S., et al. (2000). "New onset vesicovaginal fistula after transurethral collagen injection in women who underwent cystectomy and orthotopic neobladder creation: presentation and definitive treatment." *J Urol* 164(5): 1638-1639. PubMed

7. Gschwend, J. E., et al. (1996). "High-dose pelvic irradiation followed by ileal neobladder urinary diversion: complications and long-term results." *Br J Urol* 77(5): 680-683. PubMed

8. Schoenberg, M., et al. (1999). "Anatomical anterior exenteration with urethral and vaginal preservation: illustrated surgical method." *J Urol* 161(2): 569-572. PubMed

9. Hautmann, R. E., et al. (1996). "The ileal neobladder in women: 9 years of experience with 18 patients." *J Urol* 155(1): 76-81. PubMed

10. Cohen, B. L. and A. E. Gousse (2007). "Current techniques for vesicovaginal fistula repair: surgical pearls to optimize cure rate." *Curr Urol Rep* 8(5): 413-418. PubMed