

Successful Use of Modified Suprapubic Catheter to Rescue Prostatorectal Fistula

Yi-Chun Chiu^{1,4}, Shyh-Chyi Chang^{2,4*}, Kuang-Kuo Chen^{3,4}, Luke S. Chang³

¹Division of Urology, Department of Surgery, Taipei City Hospital, Zhongxiao Branch, ²Division of Urology, Department of Surgery, Lotung Poh-Ai Hospital, Lotung, I-lan, ³Division of Urology, Department of Surgery, Taipei Veterans General Hospital, and ⁴Department of Urology, National Yang-Ming University School of Medicine, Taipei, Taiwan, R.O.C.

Prostatorectal fistula is a complication following radiotherapy. It remains a clinical challenge to treat because most patients experience a poor quality of life. This case report discusses a modified suprapubic catheter for use in a patient with a prostatorectal fistula that developed after radiotherapy for localized prostate cancer. It is an inexpensive, easily available, and more patient-tolerable catheter that improves quality of life. Herein, we describe the development of this catheter. [*J Chin Med Assoc* 2008;71(6):321–324]

Key Words: prostate cancer, prostatorectal fistula, radiotherapy, suprapubic catheter

Introduction

Prostatorectal fistulae are rare complications following radiotherapy as a curative or palliative therapy for prostate cancer. Although fecal and urinary diversions are appropriate considerations for conservative treatment, the catheter applied for suprapubic cystostomy may induce intractable perianal or bladder pain with poor drainage in some patients. Therefore, we developed a modified suprapubic catheter for patients with prostatorectal fistula and intractable catheter-associated pain.

Case Report

A 70-year-old patient with stage cT1cN0M0 prostate cancer and Gleason grade 3+3 received 3-dimensional conformation external beam radiotherapy (72 Gy) as curative therapy in June 2000. The early post-therapy course was smooth, and serum prostate-specific antigen (PSA) level decreased from 5.62 ng/mL to 0.02 ng/mL within 6 months after radiotherapy. Unfortunately, pneumaturia, fecaluria and urine passage through the

rectum was noted 14 months after radiotherapy. A prostatorectal fistula, with a diameter of about 2 cm over the prostate urethra, was discovered by urethrocytostomy. Due to the patient's advanced age and medical history of coronary artery disease with recent myocardial infarction, conservative treatments such as suprapubic cystostomy and loop colostomy for urinary and fecal diversion were performed. However, pain in the anus after insertion of the suprapubic 26-Fr urethral catheter developed. In addition, the patient suffered from severe gross hematuria and intractable perineal pain due to post-radiotherapy inflammatory changes in the urinary bladder and rubbing of the bladder mucosa by the tip of the urethral catheter. Massive bloody urine extravasation from bladder to anus and colostomy through the fistula was also noted.

We modified the urethral catheter by cutting the catheter tip and trimming the cut margin smoothly with inflation of 25 mL normal saline as a balloon to prevent direct contact and rubbing of the catheter tip with the bladder mucosa. After modification, gross hematuria and perineal pain improved. However, massive urine extravasation from bladder to anus and colostomy



*Correspondence to: Dr Shyh-Chyi Chang, Division of Urology, Department of Surgery, Lotung Poh-Ai Hospital, 83, Nan-Cheng Street, Lotung, I-Lan 265, Taiwan, R.O.C.
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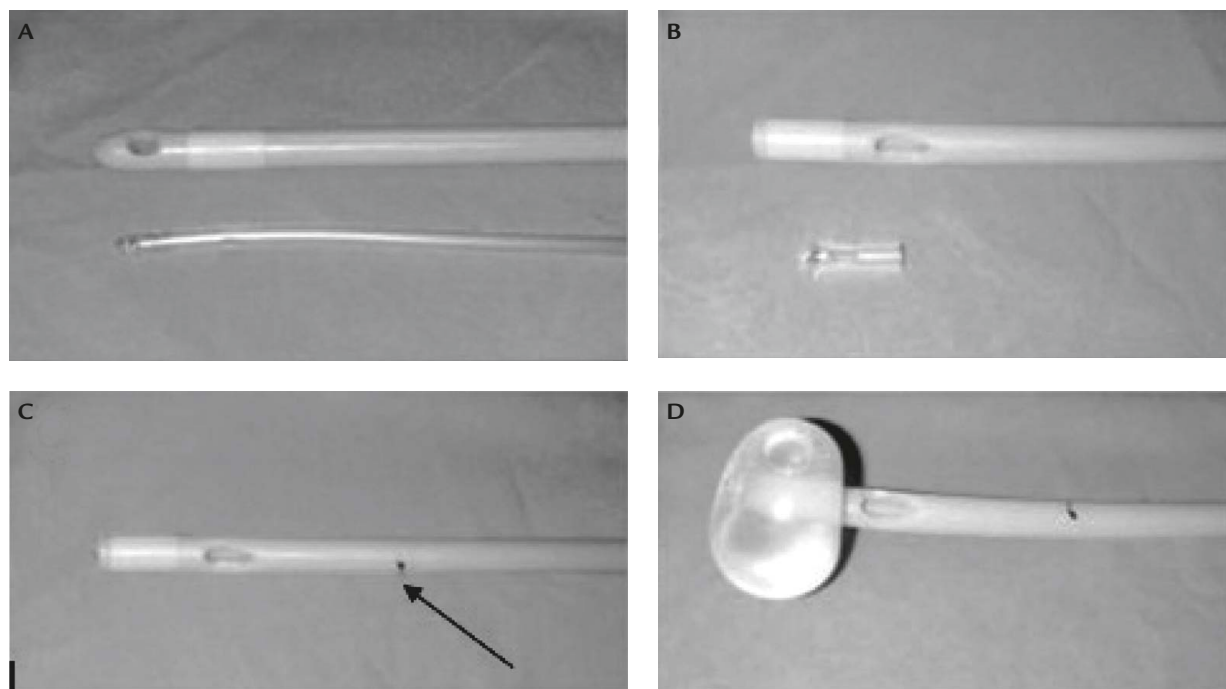


Figure 1. Modification process of the suprapubic catheter. (A) Original 26-Fr 2-lumen Foley catheter and 14-Fr single catheterization tube. (B) Foley catheter tip cut and cut margin trimmed; side hole created, about 0.5 cm from balloon and 1 cm in length, on opposite side of inflated lumen; tip of 14-Fr single catheterization tube cut. (C) Cut tip of 14-Fr single catheterization tube inserted into distal central lumen of 26-Fr Foley catheter; 4-0 nylon suture marker placed about 3 cm from created side hole (arrow indicates the created side hole). (D) Modified catheter with inflation of 25 mL normal saline in balloon.

persisted. Because the side hole along with the original catheter tip was cut, poor drainage function of the catheter was observed due to obstruction of the central lumen. Therefore, we created another side hole about 1 cm in length and 0.5 cm proximal to the balloon edge on the opposite aspect of the balloon inflated lumen to avoid injury of the inflated lumen and further balloon leakage. To avoid urine leakage from the central lumen of the cut Foley catheter tip, we occluded the central lumen by insertion of a cut tip of another 14-Fr single-urethral catheter. In this way, urine could be drained from the created side hole without leakage through the distal central lumen of the Foley catheter with the cut tip. The modified catheter was inserted into the bladder with inflation of the balloon with 25 mL normal saline and followed with a little forward insertion to meet resistance. The inflated balloon was attached to the bladder neck to avoid urine leakage through the bladder neck to the fistula. To check the depth of the inserted Foley catheter, a marker consisting of a 4-0 nylon suture was made about 3 cm from the side hole (Figure 1). In addition, because the catheter was not fixed on the abdominal wall by the catheter balloon, as is common with a suprapubic urethral catheter, the catheter was able to move outside or inside. The catheter was kept in place by tape. After insertion of the

modified suprapubic catheter, only mild gross hematuria and retrograde urine extravasation from bladder to the colostomy was noted, with only a slight effect on the patient's daily activities.

No tumor recurrence or symptomatic urinary tract infection were noted during the follow-up period of 52 months. In follow-up imaging studies such as magnetic resonance imaging, the modified catheter was properly indwelled, with the balloon placed just above the bladder neck, occluding the urine-stream leakage through the fistula (Figure 2). After the above modifications, the drainage function of the suprapubic catheter (Figure 3) improved and the perineal pain and low abdominal discomfort subsided. The patient's quality of life improved with only minimal pain medication required.

Discussion

Rectourethral fistulae are a rare complication of treatment for urinary or rectal malignancy or trauma.¹ For localized prostate cancer, radiotherapy is a known effective curative therapy. However, complications associated with irradiation have been reported, and prostatic-rectal fistulae were noted as one of the most troublesome

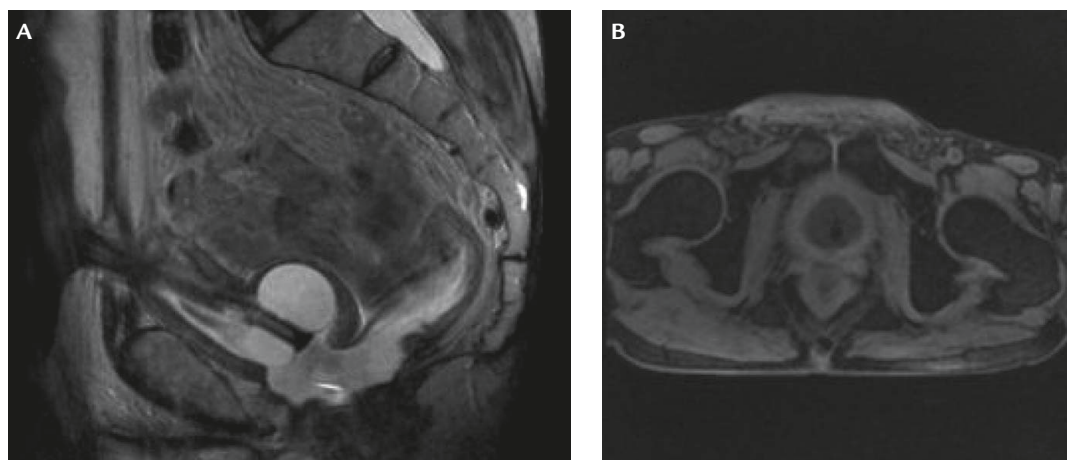


Figure 2. Magnetic resonance imaging (MRI) of the pelvis. (A) Modified catheter properly indwelled with balloon placed just above the bladder neck, occluding the bladder neck and preventing urine leakage through the fistula (sagittal section). (B) Relative position of the catheter balloon and prostatic fistula. The balloon occludes the bladder neck above the fistula (cross section).

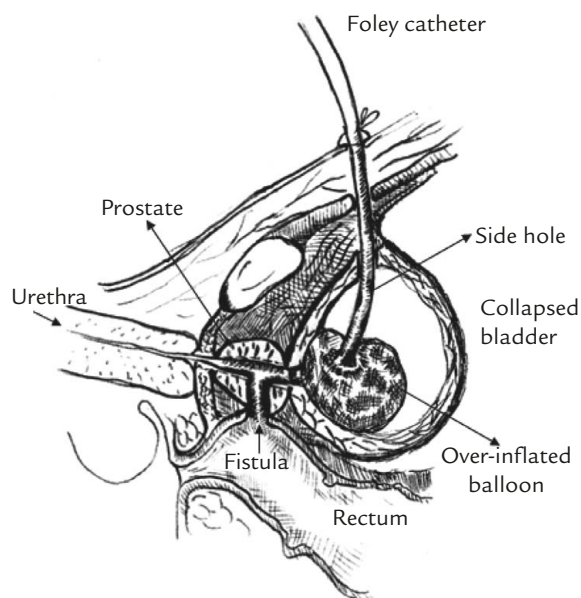


Figure 3. Illustration of the modified suprapubic catheter and associated anatomy.

sequelae.² Theodorescu et al reported incidence of prostatourethral-rectal fistula in 1% of patients who received brachytherapy for prostate cancer, 9–12 months after treatment.³ Initial conservative treatment, such as urinary and fecal diversion, is allowed for the possible spontaneous closure of fistulae in 3–6 months for these patients. In patients without spontaneous closure of fistulae, surgical treatment is indicated.⁴ However, due to the difficulty of accessing the fistula and a high rate of recurrence, surgery for rectourethral fistulae remains a challenge. For patients who are not eligible for surgical treatment, long-term suppressive antibiotics

are necessary to maintain asymptomatic status for years.⁵ For patients who have received suprapubic urinary diversion, the indwelling catheter may cause discomfort, pain and hematuria with urine leakage. The patient's quality of life is seriously impaired.⁶ Management of the discomfort should be individualized.^{7,8}

Our modified catheter provides less irritation to the bladder mucosa and prevents urine extravasation from the bladder to the prostatic fistula. Also, because the catheter is not fixed, patients can adjust the direction and depth of the catheter in the created side hole as needed to achieve comfort. Some specially designed urinary catheters have been commercially available for patients with irradiation complications such as radiation cystitis and long-term suprapubic urethral catheter indwelling, such as the 3-way 30 mL Bardex Lubricath Latex Foley Catheter (Naegeli Model). Due to the relatively high cost, however, such specially designed catheters are less commonly applied in clinical practice. Malecot tube has also been tried due to its low price, but it is hard to use in the ward. In our case, we modified the catheter using inexpensive and readily available materials for a low-cost, highly acceptable result. For patients with previous irradiation and prostatic fistulae with perineal or low abdominal pain, hematuria, and urine extravasation from bladder to anus and colostomy, our modified suprapubic catheter offers a better diversion effect and better quality of life.

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