CASE REPORT
รายงานผู้ป่วย

Radical Cysto-urethrectomy with Continent Ileo-colonic Pouchyy (Mitrofanoff Principle)

*Kriangsak Prasopsanti**
*W.B. Peeling***

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Carcinoma of the urinary bladder accounts for a large part of the workload of a urological unit. In some patients with superficial transitional cell carcinoma, a single endoscopic treatment may suffice to eradicate the neoplasm, whereas in others the disease may progress rapidly and lead to a fatal outcome. In cases where prompt radical surgery is needed, the surgical approach that minimizes the morbidity should be performed.

We report one case of radical cysto-urethrectomy and urinary diversion that avoided external urinary appliances and improve the cosmetic results.

Index: Mitrofanoff, Radial cysto-urethrectomy

* *Department of Surgery, Faculty of Medicine, Chulalongkorn Hospital, Bangkok, Thailand.*
** *Department of Urology, St. woolos Hospital, New port Gwent United Kingdom.*

Case Report

A 38-year-old woman was presented in 1978 with symptoms of painless hematuria. Upper tract studies were normal. A papillary transitional cell carcinoma of the urinary bladder was found via cystoscopy and until 1984 multiple cystoscopies and cystodiaythermies were performed for the recurrent tumors. After that, she was lost to follow-up for 6 years.

In March 1989, microscopic hematuria were noticed during her medical check-up. A cystoscopy at that time showed papillomata of the bladder and a transurethral resection was performed. The next two follow-up cystoscopies in 1989-1990 both showed recurrent superficial transitional cell carcinoma which were treated by transurethral resection. Six weekly doses of intravesical Epodyl were commenced in 1990. A cystoscopy in June 1991 showed several red patchy areas on the posterior wall of the bladder. Biopsy revealed severe dysplasia and carcinoma-in-situ but no evidence of invasion. She was then referred to St.Woolos Hospital, Newport, United Kingdom in July 1991.

The patient, when first seen in St.Woolos Hospital, was rather asymptomatic besides mild dysurea and suprapubic discomfort. Physical examination showed no detectable abnormality. An excretory urogram (IVP) and voiding cystourethrogram were normal. The urine cytology revealed occasional abnormal cells that were suspicious but not diagnosed of malignancy. Computerized tomography (CT) showed no definite evidence of any bladder abnormality. Cystoscopy showed multiple flat/ papillary tumours in the urinary bladder and the biopsies revealed a moderate differentiated locally infiltrating transitional cell carcinoma without involvement of included muscle (G2 T1B), as well as multiple areas of severe dysplasia.

Radicalcystourethrectomy and urinary diversion appeared to be the best choice of treatment in this situation. Accepting to the patient's reluctance to have a draining urinary stoma, the continent ileo-colonic pouch with Mitrofanoff appendiceal skin stoma (for clean intermittent self-catheterization) was proposed and was accepted by the patient.

At operation, a general exploratory laparotomy through a low midline incision showed no abnormality. A routine total hysterectomy and bilateral salpingo-oophorectomy were performed.The urinary bladder was removed with the whole urethra but the posterior 3/4 of the vagina was preserved. The continent pouch was created from terminal ileum and right-side colon (up to the mid-transverse colon). The colon was detubularized and formed into the pouch *(diagram 1)*. The appendix was isolated with the appendiceal mesentery intacted and was reversed before being inserted into a pouch by anti-reflux procedure *(diagram 2)*. The ureters were then re-implanted into the distal ileum with stents *(diagram 3)*. One suprapubic catheter was inserted into the pouch via an appenticial stump.The other end of the appendix was brought to the skin and created as a skin stoma. A No.14 French silastic Foley catheter was inserted via the appendiceal conduit into the pouch and one pelvic Robinson drain was Implanted before the abdominal wall was closed as usual.

The operative time was about 6 hours and postoperatively, she recovered very well. The patient started eating and the intravenous fluid was stopped at one week post-operation. At 12 day after the operation the ureteral stents were removed and she was discharged from the hospital on fifteenth day with a draining suprapubic catheter and appendiceal stoma catheter in-situ.

The patient was re-admitted 5 weeks post-operative for removal of the appendiceal stoma catheter, and clean intermittent catheterization was commenced. Two days later the suprapubic catheter was clamped and a contrast pouchogram was performed which showed a good capacity pouch without any reflux or leakage. Then suprapubic catheter was removed and the patient was discharged one day later.

At the 10-week post-operative follow-up the patient was doing well. She had no problem with the intermittent self-catheterization which she performed it every 4 hours. The urine volume drained at each time varied between 400-600 millilitres and there was some mucus that was not very thick and never caused an obstruction. She had occasional minor experiences of leakage from the appendiceal stoma, especially when the pouch was full. Her bowel function was normal. The blood chemistry showed normal complete blood count (CBC), blood electrolytes and urea/creatinine levels. Her urine culture revealed growth of coliform bacteria but at insignificant level.

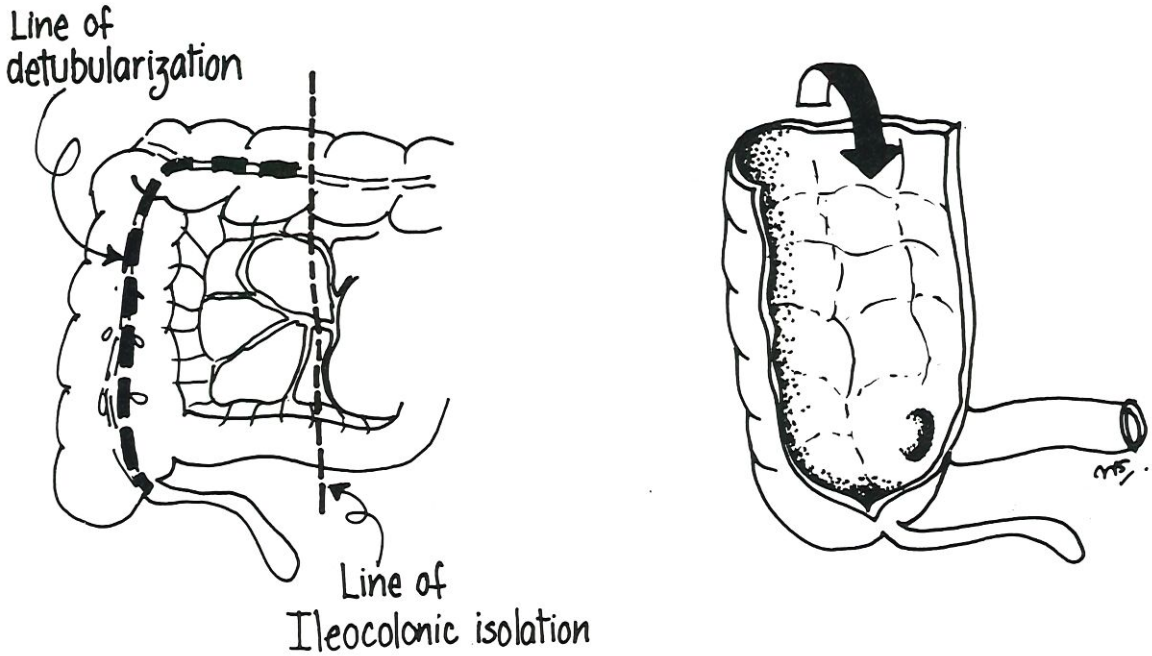

Diagram 1 Colon was detubularized and form into pouch

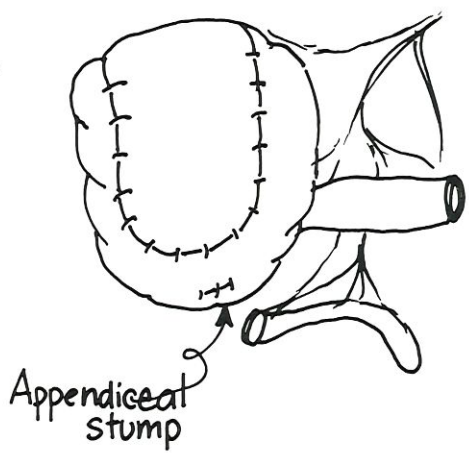

Diagram 2 The appendix was isolated

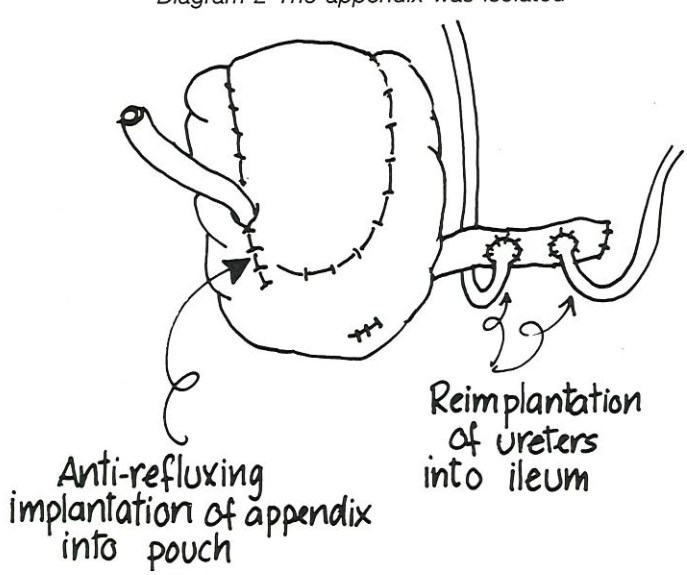

Diagram 3 The ureters and appendix were reimplanted

Discussion

Overall, 30-40% of superficial bladder cancer patients will have no further tumors following resection of their original tumor [1,2]. Recurrence after the first treatment will depend on the number of tumors, tumor size, histological grade, lamina propia invasion, urine cytology results and the presence of dysplasia or carcinoma in situ[3].

Bladder control can become increasingly difficult with time. Conventional policy has been to start these on intravesical chemotherapy. A study of Epodyl intravesical therapy for superficial bladder cancer showed that the best indicator for long-term success is the initial response to 12 weekly instillations of the drug [4]. Continuing therapy in the failure group elicited satisfactory short-term response in only some patients. Furthermore, there is no conclusive evidence that intravesical chemotherapy helps to reduce the incidence of progression. In a large series when chemotherapy was used frequently, the incidence of progression was similar to that expected from historical data [2].

Regarding radiotherapy, two recent series have suggested a benefit in grade 3, superficial disease [5,6] but the evidence is inconclusive. The series by Riddle et al showed that radiotherapy failed to control CIS of the bladder. Wolf[7] further showed that patients with G_3 T_1 disease who progressed after radiotherapy were often those with coexistent CIS.

There are three factors associated with a risk of progression of over 50%. Even the occasional cystectomist would consider these as an indication for radical surgery [3]

- *Wide spread carcinoma in situ*
- *Superficial disease refractory to intravesical chemotherapy*
- *Early recurrence in high grade disease*

In cases where radical cystectomy is indicated, many physicians are still hesitant to recommend, and patients are reluclant to accept, such an onerous procedure. One reason is that the need for an abdominal stoma and external urinary appliance caused distressing alterations in body image. Today, the risk of operative death in radical cystectomy has diclined to 1 to 2 percent (8, 9) and there has recently been an explosion of interest in techniques for urinary tract reconstruction that obviate an external urinary appliance. Kock's creation of a continent ileal reservoir offered an improved quality of life to those patients [10]

Some investigators have turned to the use of colonic segments for bladder replacement to take advantage of the time-tested anti-refluxing ureterocolonic anastamosis. However, in the procedure using the "closed loop" segment, it turns out to be a high-pressure reservoir, resulting in incontinence and the necessity to empty the bladder frequently[11,12]Light1[3] reported in 1985 using a detubularized ileocolonic segment for bladder replacement and offering the possibility of urinary continence.

In 1980, Mitrofanoff reported the use of the isolated appendix implanted into the bladder as a catheter conduit to create a continent cystostomy, and had good results. Later , the Mitrofanoff principle was successfully applied to be used as the skin stoma for clean, intermittent catheterization to the reservoir.

The Mitrofanoff Principle may be summarized as follows[14]:

- *a narrow conduit (appendix or ureter) brought to the skin*
- *a large, leak proof urine storage reservoir (bladder, augmented bladder or colonic pouch)*
- *an antirefluxing connection to the reservoir to provide continence and*
- *an easy self-catheterizing maneuver to drain the system.*

The possible complications of the ileo-colonic pouch and Mitrofanoff appendiceal stoma comprise incontinence, difficult catheterization, ureteral reflux or obstruction, bacteriurea, mucus plug, and metabolic consequences [14,15,16]

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