

Urinary Diversion in Patients with Muscle-Invasive Bladder Cancer and Severe Ureteral Stricture: A Case Report of a New Surgical Technique

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Abstract

The use of an ileal segment has been previously described in the treatment of long-segment ureteral strictures. The aim of this study was to describe the use of a skin and muscle flap tube as an alternative procedure to perform ureterocutaneostomy in patients who are not eligible for the use of bowel segments in the urinary diversion or when the patients are at high risk of morbidity and mortality. We describe the case of a 74-year-old male patient. The technique was performed without complications and complete recovery of the patient. No anastomotic leaks and stenosis were reported at a follow-up of 36 months. The use of a skin and muscle flap tube can be a feasible and safe procedure in case of huge loss of tissue (long-segment ureteral strictures), in patients who underwent radical cystectomy with UCS, in particular when the patients are not eligible for the use of bowel segments in the urinary diversion or when the patients are at high risk of morbidity and mortality.

Keywords: Bladder cancer, skin flap, stoma, ureteral stricture, ureterocutaneostomy

INTRODUCTION

According to most recent guidelines, radical cystectomy should be proposed to patients with a muscle-invasive bladder cancer or a nonmuscle-invasive bladder cancer who are at highest risk of progression.^[1,2] The ureterocutaneostomy (UCN) is the preferred diversion in patients with several comorbidities, or in patients who have tumor in the urethra or at the level of urethral dissection.^[3]

The most common technique of UCN includes the transureteroureterocutaneostomy in which one ureter, to which the other shorter one is attached

end to side, is connected to the skin or unilateral or bilateral side-by-side UCN in which the ureters are directly anastomosed to the skin. The use of an ileal segment has been previously described in the treatment of severe ureteral strictures.^[4] Despite this, in patients that underwent a ureteroileal anastomosis,

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ureteral stricture developed in 5.7% of the patients, according to a recent meta-analysis.^[5] The placement of a double-J stent through a percutaneous approach^[6] or the placement of a Bracci ureteral catheter is a viable option in the management of ureterointestinal strictures. In 1957, the use of a cutaneous pedicle tube into which the exteriorized ureter is drawn was described in order to avoid the use of a ureteral catheter. A conical skin tube has been constructed round the outer end of the ureter.^[7]

We report a new surgical technique in the management of patients with muscle-invasive bladder cancer and long-segment ureteral stricture who underwent radical cystectomy with UCN. Written informed consent was obtained.

CASE REPORT AND SURGICAL PROCEDURE

A 74-year-old male patient with muscle-invasive bladder cancer and severe monolateral ureteral stricture underwent radical cystectomy and bilateral UCN. The patient had previously undergone unilateral nephrostomy for emergency treatment of obstructive uropathy [Figure 1].

The patient was not eligible for the use of bowel segments in the urinary diversion. The body mass index (BMI) was 28.6.

Open transperitoneal radical cystectomy and bilateral pelvic lymphadenectomy was performed with a midline incision extending from the supraumbilical region to the symphysis pubis. On the side of ureteral stenosis, a horizontal double-parallel incision was



Figure 1: Antegrade pyelography that shows ureteral stenosis

performed from the midline to the area of the UCN, creating a musculocutaneous flap [Figures 2a and 3a]. The flap was passed through the anterior abdominal wall [Figures 2b and 3b] and tubularized. The flap was finally anastomosed to the ureter using a Bracci ureteral splint and six interrupted 4-0 Vicryl sutures, Vicryl™ (Ethicon Inc., Sommerville, NJ, USA) [Figures 2c and 3c]. The horizontal double-parallel incision was closed with silk sutures [Figures 2d and 3d].

The operative time was 150 min. No intraoperative and postoperative complications according to the Clavien–Dindo classification^[8] were reported. The patient was discharged on the 6th postoperative day. No anastomotic leaks and stenosis were reported at a follow-up of 36 months, and the Bracci ureteral splints were changed every 4 weeks. Figure 4 shows the UCN at 4 weeks after surgery.

DISCUSSION

Radical cystectomy is considered one of the most extensive urological procedures. The overall

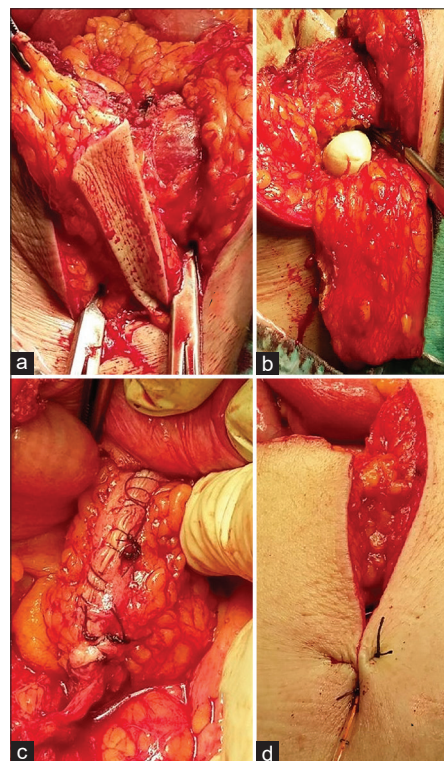


Figure 2: An horizontal double-parallel incision was performed creating a skin and muscle flap (a). The flap was passed through the anterior abdominal wall and tubularized (b). The flap was anastomosed to the ureter (c) and the horizontal double-parallel incision was closed (d)

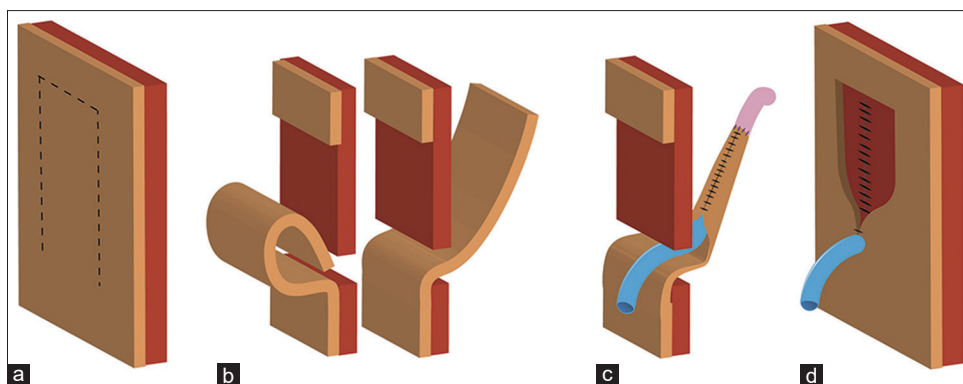


Figure 3: A graphic representation of the surgical procedure. An horizontal double-parallel incision was performed creating a skin and muscle flap (a). The flap was passed through the anterior abdominal wall and tubularized (b). The flap was anastomosed to the ureter (c) and the horizontal double-parallel incision was closed (d)



Figure 4: The ureterocutaneostomy at 4 weeks after surgery

postoperative mortality rate is 0.3%–7.9%. The age and the comorbidity profile of the patient seem to be independent preoperative predictors for 90-day mortality.^[9] Severe complications and the mortality rate are usually lower in the patients who undergo an UCN diversion compared to patients receiving bowel for urinary diversion.^[10] The use of a skin and muscle flap tube can be a feasible and safe procedure in case of long-segment and severe ureteral strictures in patients who undergo radical cystectomy with UCN, in particular when the patients are not eligible for the use of bowel segments in the urinary diversion or when the patients are at high risk of morbidity and mortality. The functional role of a skin and muscle flap tube can be valued, especially in patients whose ureters are not enough long to realize an UCN. This technique can be a feasible way to solve the loss of tissue, avoiding the placement of a permanent nephrostomy tube. Moreover, the technique can

avoid the high risk of recurrent ureteroileal stenoses in patients who have previously experienced a ureteral or an ureteroileal stenosis. The alternative for patients with ureteral stenosis is the placement of a permanent nephrostomy tube,^[11] but literature data show that patients prefer UCS than other external urinary diversions.^[12]

CONCLUSIONS

The use of a skin and muscle flap tube can be a feasible and safe procedure in case of big loss of tissue (long-segment ureteral strictures), in patients who underwent radical cystectomy with UCS, in particular when the patients are not eligible for the use of bowel segments in the urinary diversion or when the patients are at high risk of morbidity and mortality.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given his consent for his images and other clinical information to be reported in the journal. The patient understands that his name and initials will not be published, and due efforts will be made to conceal identity, but anonymity cannot be guaranteed.

Authors' contributions

All authors were involved in the clinical management and preparation of the manuscript. They all approved its final version.

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Nil.

Conflicts of interest

There are no conflicts of interest.

Compliance with ethical principles

No prior ethical approval is required for single case reports. However, the patient provided consent for publication.

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