Functional results of continent cutaneous diversion and bladder replacement after cystectomy for bladder/urethral cancer: a long-term single-center retrospective study

El Khoury Michael-Abdo-Jefferson [1], Chartier-Kastler Emmanuel[1,2], Parra Jérome[1], Vaessen Christophe [1], Roupret Morgan[1,2], Seisen Thomas[1,2], Lenfant Louis[1]

1 Hôpital universitaire Pitié Salpétrière, AP-HP, Paris, F
2 Sorbonne Université, Hôpital universitaire Pitié Salpétrière, AP-HP, Paris, F

Introduction

Cystectomy is the standard treatment for infiltrating bladder tumors (1). In more than 80% of cases, a non-continuous urinary diversion (UD) is recommended (2). However, when suitable, bladder replacement and a continent urinary diversion (CCUD) may be preferred based on patient's preference, gender and tumor extension. The preferred option for UD is orthotopic neobladder replacement (ON) since it helps maintain body image and quality of life (3).

In certain situations, such as urethral invasion, patient preference for non-continuous derivation or a high risk of urinary incontinence, a continent skin stoma along with a heterotopic neobladder (HN) may be considered. However, this type of derivation is rarely proposed during cystectomy for cancer (4), and there are limited data available on its medium-term results. The aim of our study was to present the medium-term oncological and functional results of Mitrofanoff-type or equivalent CCUD at time of bladder reconstruction after cystectomy for cancer.

Methods

We studied the perioperative and follow-up data of patients who underwent cystectomy for cancer associated with heterotopic replacement enteroplasty and CCUD (Mitrofanoff, Monti or Casale). In this study, all patients underwent surgery for cancer treatment, with complete excision performed either through subombilical laparotomy or full laparoscopic robot-assisted surgery.

We retrospectively analyzed complications occurring in the early (less than 30 days) and late (more than 30 days) periods after surgery.

We evaluated oncological outcomes and quality of life was assessed by using the Bladder Cancer Index (BCI) questionnaire. Results are given on an intention-to-treat (ITT) basis.

Results

Academic Pitié Salpêtrière Hospital
01/2001 – 05/2022
n=24

• Male/Female	5/19
• Age, years (Median, IQR)	59 (52-66)
• BMI kg/m^2 (Median, IQR)	22.5 (20.7-24.7)
• Preoperative GFR (median in mL/min, IQR)	70 (60-79)

Histological type (n)	
Urethral Adenocarcinoma	3
Urothelial carcinoma	19
Melanoma	1
Squamous cell carcinoma	1

Preoperative TNM stage (n)	
Ta	**4**
T1	**3**
T2	**12**
T3	**1**
T4	**1**
Carcinoma in situ	**5**
Unspecified	**3**

Type of CCUD performed at time of bladder replacement:
11 Mitrofanoff tube
11 Yang-Monti tube
2 Casale tube

All patients performed between 5 and 6 intermittent self-catheterization (ISC) per day

A total of 24 patients were included in this study (between January 2001 and May 2022), with a median follow-up of 62.5 months.

Oncological outcomes:

The series demonstrated a *highly favorable survival rate of 87.5%,* which can be attributed to the stringent oncological patient selection for CCUD.

We observed three deaths in our study, with two of them linked to aggressive forms of cancer (eg. Melanoma).

Complications:

Eleven patients (46%) had early postoperative complications:

Among these, 9 complications were considered minor (Clavien I or II), while 2 complications required surgical revision under general anesthesia (Clavien IIIb).

- The need for surgical revision occurred due to the necessity to repair the cystostomy tube: one patient was unable to perform self-catheterization on day 28, and another patient developed a fistula around the cystostomy tube on day 1.
- Overall, the medium-term complication rate was 83%, with 27 complications in 17 patients.
- The revision rate was 62% involving 26 re-operations in 15 patients.
- There were 8 stomal cutaneous stenosis (33%) and 3 uretero-ileal stenosis (12.5%).
- Revision of the incontinence setup for a CCUD defective anti-reflux valves was performed in 4 patients (17%), and 2 patients (8%) underwent surgery for bowel occlusion issues.

Functional outcomes:

- 16 patients answered to the BCI questionnaire

- Overall satisfaction averaged 9.2/10
- Overall health was assessed as good, very good, or excellent : 13 patients (81%)
- Body image was unchanged or slightly altered in 10 patients (62.5%), and 12 patients (75%) had little or no complexes about their physical appearance

- 10 patients (62.5%), six women and four men, rated their sexual function as poor or very poor

- 12 patients (75%) reported total daytime and nocturnal continence
- In the 4 patients with leaks, the impact on activities of daily living was nil to minimal and these patients underwent revision surgery for a defective anti-reflux valve

Conclusions

A continent cutaneous diversion after cystectomy for Bladder/urethral cancer preserves the patient's body image and quality of life while preserving the upper urinary tract. Drawing upon the expertise derived from CCUD in neurourology at Academic Pitié Salpêtrière Hospital, we extend the offer of this technique to our patients. It can be proposed as an alternative to Bricker diversion in cases of urethral invasion or a high risk of neobladder incontinence, in selected patients. However, prospective and comparative studies are needed to confirm these observations.

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