



Stapled orthotopic ileal neobladder after radical cystectomy for bladder cancer: Functional results and complications over a 20-year period

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Abstract

Aims: To present the long term-results and complications of a large series of stapled ileal orthotopic neobladders.

Materials and methods: From 1992 to 2012 we performed 606 radical cystectomies with stapled orthotopic neobladder substitution in male patients. The median patient age was 65 years (interquartile range [IQR]: 58–71).

Results: Median operative time was 205 min (IQR: 180–225). The overall survival rates at 5, 10, 15, and 20 yr were 68% (336 of 494), 55% (207 of 376), 38% (98 of 259), and 23% (14 of 62), respectively, and the disease specific survival rates were 75% (371 of 494), 59% (222 of 376), 50% (130 of 259), and 35% (22 of 62), respectively. After a median follow-up of 81 months (IQR: 30–144), a total of 147 early (less than 90 days) complications (38 diversion related, 109 diversion unrelated) occurred in 144 patients (24%); 163 late complications (141 diversion related, 22 diversion unrelated) affected 141 patients (23%). At 60 months, daytime and nighttime continence was complete in 96% and 72% of cases, respectively. Urodynamic studies showed that maximum capacity, residual volume, maximum flow rate, pressure at maximum capacity, and maximum outlet closure pressure were not statistically different at 12 and 60 months postoperatively.

Conclusions: The use of a stapler when performing orthotopic neobladders significantly reduces the operating time, and offers good functional results with acceptable complication rates. Our results could encourage the use of a stapler when performing an ileal neobladder during laparoscopic and robotic radical cystectomies.

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Keywords: Neobladder; Cystectomy; Surgical stapler; Complications

Introduction

During the last 2 decades, greater attention to quality of life has led to a wider use of orthotopic neobladders (ONBs) in patients undergoing radical cystectomy (RC) for bladder cancer (BCa). Many different kinds of ONBs have been described with the aim of improving the functional results and, consequently, the quality of life. The

ideal ONB should guarantee both good continence and adequate voiding, preserve the upper urinary tract, and avoid metabolic disorders. It should also be as easy to perform as possible. On our opinion the use of staples to build the ONB may simplify the technique by avoiding hand sutures and consequently reduce the operative time.

We report our 20-year experience with stapled ileal ONBs, focusing attention on the functional results and complications.

Materials and methods

From April 1992 to November 2012, 606 male patients with BCa underwent RC and stapled ileal ONB according

Abbreviations: BCa, bladder cancer; CT, computed tomography; IQR, interquartile range; ISC, intermittent self-catheterization; ONB, orthotopic neobladder; RC, radical cystectomy.

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to the Camey II technique, a procedure first published in 1984,¹ that is not currently performed in high volume centers for RC. Median patient age was 65 years (interquartile range [IQR]: 58–71). Clinical and pathological stages were evaluated for all patients according to the TNM 2010 staging system. All patients were evaluated preoperatively with a physical examination, thoraco-abdominal computed tomography (CT) scan, and routine serum chemistry.

Inclusion criteria were recurrent (after intravesical chemotherapy and/or immunoprophylaxis) non muscle-invasive BCa (Ta-T1-Tis), or invasive (T2–T3) BCa, patient's motivation to ONB, good performance status (Eastern Cooperative Oncology Group – ECOG score 0–1), normal renal and hepatic function, and preoperative urinary continence.

Exclusion criteria were metastatic disease, extended prostatic urethra involvement by BC in male patients, and bladder neck involvement in female patients, impaired renal and/or hepatic function, significant comorbidity, previous radiotherapy on the pelvic organs, unwillingness or

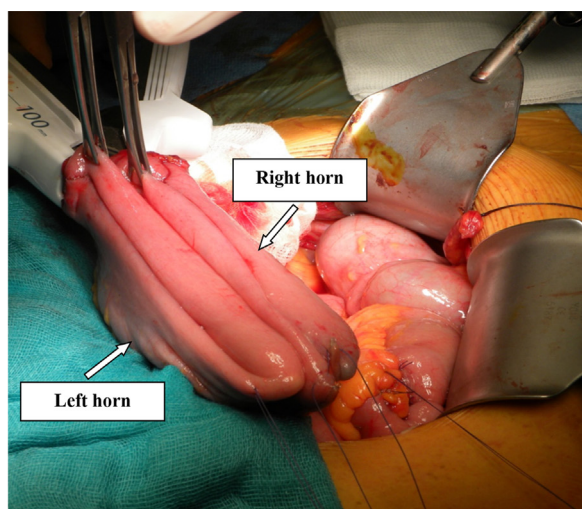
inability to comply with the voiding behavior required by the ONB, preoperative urinary incontinence. Also excluded were patients who chose another urinary diversion. All male patients underwent both deep biopsy of the distal prostatic urethra before RC, and for all patients a frozen section of the urethral margin was obtained at surgery. If they were negative, ONB was performed. All the surgical procedures were performed by the same surgeon (GM).

For the Camey II reservoir, after a standard RC, a 40-cm ileal segment is isolated with a stapler at about 15–20 cm from the ileocecal valve and arranged in a reverse C configuration. In the middle of the antimesenteric border of the 2 arms of the C a small double hole is created using a diathermy knife.¹ Through these double holes the ileal reservoir is detubularized with an 80–100 GIA titanium stapler, thus creating the orthotopic bladder pouch (Fig. 1A–B). No reconfiguration of the pouch is needed. The ileal hole is closed with interrupted 3/0 polyglactin sutures to adapt it to a 20–22 Ch catheter. The urethral stump is then anastomosed to the ileal hole using six interrupted 3/0 polyglactin sutures (3 anterior and 3 posterior) along a 20–22 ch silicone balloon catheter. The ureters are anastomosed to the ONB at the level of the 2 tips of the ileal segment using a Nesbit direct technique with 4/0 polyglactin sutures.² Then 6F–8F stents are passed up through each ureter, led out separately through the neobladder wall, and secured. Finally, the ONB is fixed to the psoas muscle on both sides by the 2 tips. The ureteric stents are removed 10–12 days later. After catheter removal (15 days postoperatively), all patients are taught to empty the ONB in a sitting position by relaxing the pelvic floor and increasing intra-abdominal pressure. Patients are instructed to void every 3 h during the day, and once or twice during the night.

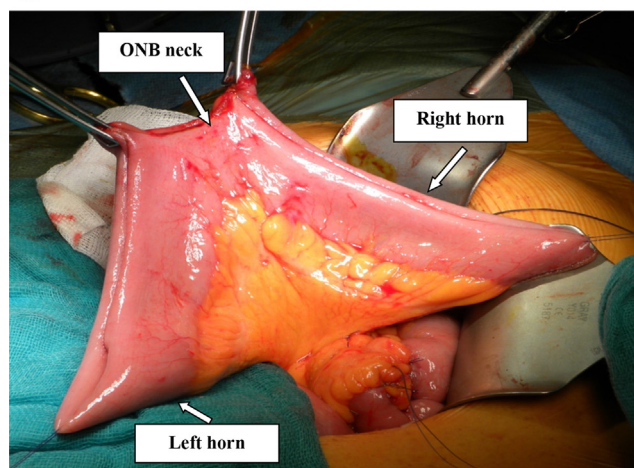
Patients were followed with physical examination and biochemical analysis at 1 month and 3 months after surgery and then twice yearly. An abdomino-pelvic ultrasound was done after 3 months to evaluate the kidneys and ONB status. A thoraco-abdominal CT scan was performed 6 months after surgery and yearly thereafter. Urodynamic assessments were performed 12 and 60 months postoperatively. Postoperative continence was evaluated subjectively and objectively with a voiding diary. Continence was defined as complete if the patient was completely dry without the need for any protection, satisfactory if no more than 1 pad was required, and unsatisfactory if the patient needed more than 1 pad during the day or night.

Postoperative complications were recorded and graded using the Clavien classification.³ We considered as early complications those that occurred up to 90 days after surgery and late complications those that occurred later than 90 days. Long-term complication rates were calculated using the Kaplan–Meier method.

Statistical analyses were performed using the Student *t* test and the chi-square test for continuous and categorical variables, respectively. The *P* value considered to be statistically significant was <0.05.



A



B

Figure 1. The ileal segment, arranged in a reverse C configuration is detubularized by staplers (1A), thus creating the reservoir (1B).

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