European Urology

European Urology 47 (2005) 780–784

Laparoscopic Assisted Radical Cystectomy: The Montsouris Experience after 84 Cases

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Accepted 4 April 2005

Available online 11 April 2005

Abstract

Purpose: Radical cystectomy is the gold standard treatment for transitional cell carcinoma of the bladder, and the laparoscopic approach is currently being evaluated worldwide. We report our preliminary results of this laparoscopic surgical approach.

Materials and methods: Between May 2001 and February 2005, we have performed a total of 84 laparoscopic assisted prostatocystectomies or cystectomies for transitional cell carcinoma of the bladder on 71 male and 13 female patients. The 2002 TNM staging for these tumors were: pTa-1: 13 cases; pT2: 59 cases; pT3: 11 cases; pT4: 1 case. Technical aspects are described and the initial results are reported.

Results: The median operating time was 280 min. The median blood loss was 550 cc with a transfusion rate of 5%. There has been no conversion to an open technique. Complications: No death, one pulmonary embolism, two urinary fistulas, three haematomas, one pyelonephritis.

Oncological results: The pathology reports confirmed that all the surgical margins were free of tumor invasion. After 18 months of follow up no trocar seeding was observed.

Conclusion: Laparoscopic assisted cystectomy is a feasible technique which results in decreased bleeding and less postoperative pain. Long term follow-up is needed to confirm the oncologic outcomes.

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Keywords: Bladder cancer; Cystectomy; Laparoscopy; Urinary diversion

1. Introduction

Radical cystectomy is the gold standard for high grade, invasive transitional cell carcinoma of the bladder because it provides excellent local cancer control [1].

Laparoscopic surgery in urologic oncology has progressed rapidly in prostate and kidney cancer. The reconstruction of the lower urinary tract, however, is technically more difficult and the progress in radical cystectomy has been slower. The first report of a laparoscopic simple cystectomy in the literature was by Parra in 1992 [2] and by Puppo [3]. In 2000, Gill completed the first two completely intracorporeal radical cystectomies with ileal conduits [4]. In the same year Turk presented a series of 5 cases [5]. Recently, there are reports proving the feasibility of laparoscopic radical cystectomy; with short-term oncological results, comparable to the open approach [6–10].

2. Materials and methods

Between May 2001 and February 2005, 84 patients with transitional cell carcinoma of the bladder underwent radical prostatocystectomy or cystectomy at our institution. This cohort included 71 male patients and 13 female patients, with a median age of 61 years (36 to 79 years). The patients were also stratified according to the ASA classification scale: class 1: 21 (25%), class 2: 49 (58%), class 3:10 (14%), class 4: 2 (3%). Furthermore, 32 patients (38%) had a significant history of open or laparoscopic abdominal/pelvic surgery. Fifty-nine patients had a primary infiltrating tumour, and 25 patients presented with recurrence after chemotherapy or intravesical immunotherapy. The median time for

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0302-2838/$ – see front matter © 2005 Elsevier B.V. All rights reserved.
doi:10.1016/j.eururo.2005.04.001

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recurrence after chemotherapy or intravesical immunotherapy was 4.3 months (1 to 12 months). The 2002 TNM staging for these tumours were: pTa-1: 13 cases; pT2: 59 cases; pT3: 11 cases; pT4: 1 case. Carcinoma *in situ* (CIS) was associated with 10 cases. Examination of tumour grade demonstrated: grade I: 1 case; grade II: 13 cases; grade III: 70 cases. 7 patients had positive lymph nodes.

3. Operative technique

All patients were operated on without any preoperative radiotherapy nor neoadjuvant chemotherapy. All of them received preoperative anticoagulation with low-molecular weight heparin the night before surgery. The surgery was done under general anaesthesia without bowel preparation.

3.1. Cystectomy

3.1.1. Laparoscopic radical cystoprostatectomy

The patient is placed in the Trendelenburg position, and a pneumoperitoneum is created by placing the Verres needle in the left flank, with a pressure setting of 12 mmHg. The bladder is approached transperitoneally using 6 trocars in the following figuration (Fig. 1). The telemanipulator Aesop 3000 TM is used with a 0° optical lens (Intuitive Surgical View USA). A description of the operative technique follows:

(1) A bilateral obturator and iliac lymphadenectomy is performed.

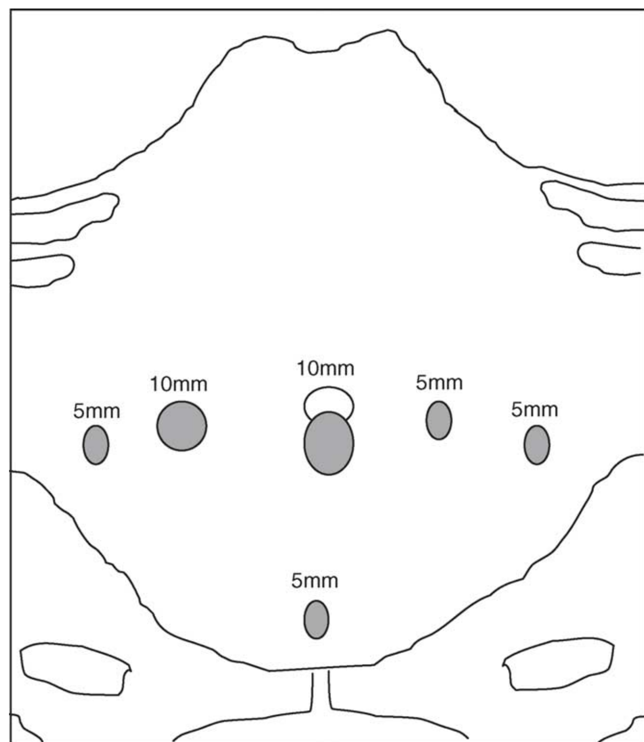

Fig. 1. Trocars placement.

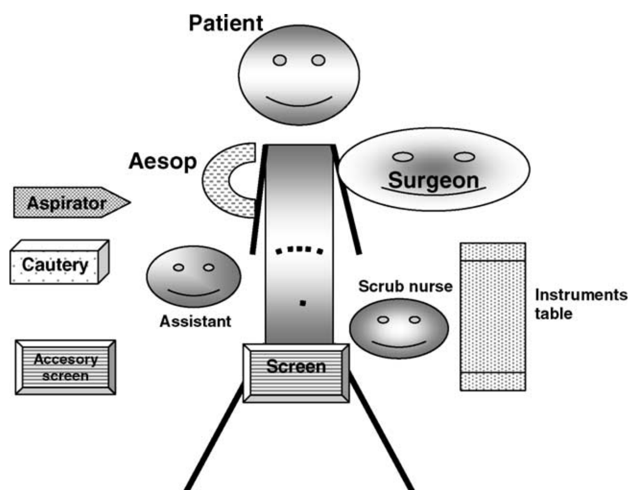

Fig. 2. The operating room distribution.

(2) The ureters are approached through a peritoneal incision at the level of the bifurcation of the iliac vessels. This incision is extended to the bladder, just above the seminal vesicles. The ureters are subsequently clipped and transected 2 cm above their insertion into the bladder (Fig. 2).
(3) The pouch of Douglas is subsequently incised to reveal the seminal vesicles and the vas deferens. These structures are dissected to reveal a prostato-rectal plane posteriorly, after Denonvillier's fascia is opened, as in a laparoscopic prostatectomy.
(4) The anterior peritoneum is opened to free the anterior surface of the bladder from its peritoneal attachments. On both sides of the bladder, this dissection is done systematically from the lateral wall of the bladder to the medial landmark of the pubic symphysis.
(5) The urachus is transected and the bladder is displaced inferiorly.
(6) The endopelvic fascia is incised bilaterally; and the lateral lobes of the prostate are dissected according to the technique used in laparoscopic radical prostatectomy [11]. Santorini's plexus is then controlled using a 2-0 Vicryl suture, and the apex is subsequently dissected from the urethra. The prostate is manipulated to facilitate dissection of the bladder neck using bipolar forceps and scissors.

3.1.2. Prostate-sparing laparoscopic cystectomy

Step 5 is identical as for laparoscopic cysto-prostatectomy. Step 6 is modified:

The anterior aspect of the base of the prostate is subsequently dissected free from the bladder neck. Once the bladder is freed from the prostate, it is closed using a Vicryl 3/0/26 to prevent contamination with cancer cells. The seminal vesicles are preserved. The posterior plane

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