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ORIGINAL ARTICLE

Prostate-sparing cystectomy: Potential functional advantages and objective oncological risks; a case series and review

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KEYWORDS

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Continence;
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ABBREVIATIONS

PSC, prostate-sparing cystectomy; RC, radical cystectomy; IIEF, International Index of Erectile Function; MVAC, methotrexate, vinblastine, adriamycin and cisplatin; CIC, clean intermittent catheterisation; PDE5, phosphodiesterase-5

Abstract *Objectives:* Prostate-sparing cystectomy (PSC) has been debated over the last decade; our aim was to assess the functional results and to evaluate the oncological outcome after PSC, to judge the value of this technique.

Patients and methods: Twenty-six men (median age 62 years) who were candidates for radical cystectomy were operated between 2004 and 2009 in the urology departments of Foch Hospital, Suresnes, France, and Theodor Bilharz Research Institute, Giza, Egypt. They all underwent a PSC with orthotopic bladder substitution. The functional results were assessed at 1, 3 and 6 months, with the final results evaluated at 1 year. Incontinence was classified according to pads used per day, and erectile function after PSC was assessed using the International Index of Erectile Function questionnaire. There was a strict follow-up for oncological failure, with special attention given to the remnant of the prostate and prostatic urethra.

Results: The final functional results were assessed at 1 year, with daytime continence achieved in 22 patients (95%) and nocturnal leak in four (13%). At 1 year, 18 patients (83%) reported having erections on sexual stimulation. The median follow-up was 43 months, with an overall incidence of recurrence of 30% and a median time to metastasis of 30 months. At 36 months, the overall survival rate was 81%, with a tumour-free survival rate of 70%.

Conclusion: PSC was no better than standard radical cystectomy, and should only be offered to patients who prefer preservation of their sexual function and continence over appropriate tumour control.

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Introduction

Radical cystectomy (RC) with pelvic lymph-node dissection is the treatment of choice for managing muscle-invasive bladder cancer, and high grade BCG-refractory nonmuscle-invasive TCC [1], with an overall 5-year disease-free survival rate of 60–70% [1,2]. Erectile dysfunction is almost always present in patients after RC; even with nerve-sparing protocols, potency does not exceed 60% [3,4]. Similarly, improved continence after orthotopic bladder substitution has been reported in patients undergoing attempted nerve-sparing procedures [5], with age being the main prognostic factor.

As the issue of quality of life is becoming increasingly important in oncology [6], and RC, with preservation of the prostate, vasa deferentia, seminal vesicles and neurovascular bundles, with orthotopic urinary diversion, has been studied as an alternative surgical treatment for carcinoma of the bladder [7]. The preservation of these structures, together with avoidance of pelvic dissection, has led to better potency and continence after surgery [8]. However, this might increase the oncological risk, as associated cancer of the prostate was described in up to half of RC specimens, and the prostatic urethral remnants can increase the risk of local recurrence.

The prostate-sparing cystectomy (PSC) technique has been the subject of heated debate, with experts judging it as a step in the wrong direction, and others countering that the procedure offers excellent functional results with no added oncological risks [9]. We aimed to evaluate the functional and early oncological results of PSC to evaluate the safety of this treatment option, to determine if it fulfils the goal of obtaining the best functional results without jeopardising adequate oncological control, the main objective of oncological surgery.

Patients and methods

This study included 26 patients with a median (range) age of 62 (42–79) years, operated on in the urology departments of the Foch Hospital, France, and Theodor Bilharz Research Institute, Giza, Egypt, between 2004 and 2009. Patients included had either pathologically confirmed invasive bladder cancer (clinically T2N0Mx/o), or nonmuscle-invasive TCC recurrent after at least one course of BCG (Table 1). All patients had a standard preoperative evaluation for bladder cancer. Screening for an associated carcinoma of the prostate was done using a DRE and PSA determination, using a PSA threshold of 4 ng/mL. Two patients had TRUS-guided biopsies, which were negative for malignancy.

We used a PSC as described by Botto et al. [10], with ablation of the prostatic urethra either a few weeks before the PSC or at the same surgery, except in two patients in whom TURP was delayed until the postoperative determination of pouch-emptying function.

The follow-up protocol consisted of a visit at 30 days after PSC to evaluate the final pathology of the disease and the need for any adjuvant treatment. Pouch function was assessed in terms of continence and capacity. Instructions were given to the patients for timed voiding, and to wake up once at night for pouch evacuation for the first few weeks, until adequate pouch capacity developed. In the absence of any complication, all patients were followed every 3 months for 2 years, twice yearly for another 2 years and then yearly thereafter. Follow-

up protocols consisted of a complete physical examination, together with a urine cytology, blood chemistry and serum electrolytes. Ultrasonography of the urinary tract was done to assess pouch volume and residual volume. Special attention was given to the remnant of the prostate and prostatic urethra, with serial PSA determination and check cystoscopy. In the present study, the assessment of functional results in terms of continence and erectile function began at 3 months after PSC, with the final results determined at 12 months. We considered patients continent when they were completely dry during the day and night and used no pads. Potency was defined as the ability to obtain and maintain an erection sufficient for adequate sexual intercourse. The International Index of Erectile Function (IIEF) questionnaire was completed by all patients before PSC, but only patients with adequate erectile function could complete the questionnaire after PSC.

Results

Of the 26 patients included in the study, 17 had a TURP as a separate procedure up to 6 weeks before PSC, while six had the TURP at the time of PSC. TURP was also scheduled after PSC for two patients, but one of them did not need a further procedure for the remnant of his prostate as he emptied the pouch well, with no significant residual urine. Finally, one patient had a Millin's adenomectomy at the time of PSC.

The median (range) operative duration was 335 (310–450) min, including the time for TURP. The median (range) operative blood loss was estimated at 700 (300–2500) mL. Seven of the 26 patients received a blood transfusion.

Early complications occurred in six patients (23%); one died on the first day after PSC from a massive pulmonary embolism. Late complications developed in four patients (15%); two developed recurrent UTI, one had a bulbar urethral stricture, treated endoscopically, and one developed a ureteroileal stricture that was managed by open surgical revision.

The final pathological staging is shown in Table 1; two patients had positive lymph nodes on final pathological staging, even though the results were negative on frozen-section examination. Both patients had pT3 tumours. The first patient was given adjuvant chemotherapy in the form of six courses of methotrexate, vinblastine, adriamycin and cisplatin (MVAC), but adjuvant treatment was withheld for the second patient due to rapid deterioration of his general condition.

Table 1 The characteristics of the 26 patients.

Variable	n (%)
<i>Tumour type</i>	
TCC	22 (85)
Nonmuscle-invasive	18 (80)
muscle-invasive	4 (20)
Squamous cell carcinoma	3 (12)
Adenocarcinoma	1 (3)
<i>Definitive pathological stage</i>	
pT0/T1/Cis	8 (30)
pT2	13 (50)
pT3	5 (20)
N+	2 (7)
Associated prostate cancer	2 (7)

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