Radical Prostatectomy After Previous Prostate Surgery: Clinical and Functional Outcomes

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Purpose: Radical prostatectomy has progressively become an elective treatment for primary localized prostate cancer as well as for incidental or subsequent prostatic cancer after previous surgery for obstructive benign disease. This increased acceptance opens concerns about oncological and functional outcomes.

Materials and Methods: Between July 1999 and August 2003, 109 patients underwent radical retropubic prostatectomy for prostate cancer as a second line approach after surgery for primary bladder outlet obstruction. Of these patients 88 had undergone previous transurethral resection of the prostate and 21 had undergone open prostatectomy. Incidental and delayed prostate cancer was detected in 71 and 38 cases, respectively. Perioperative and postoperative morbidity was evaluated in all patients, while postoperative functional outcomes were assessed by a subjective questionnaire in 43.

Results: As a second surgery, radical retropubic prostatectomy was generally more complex technically and it resulted in longer operative time compared to radical surgery in naïve patients. In contrast, early and delayed postoperative morbidity increased moderately. Complete urinary continence was documented in 32 (74%) and 37 patients (86%) at the 6 and 12-month followups, respectively. In this patient cohort adequate erectile function was reported by 12%.

Conclusions: Radical retropubic prostatectomy can be performed safely after previous prostate surgery for bladder outlet obstruction. However, a consistent surgical background in prostate surgery is needed to manage frequently unexpected difficulties. Candidates for second line prostate surgery should be informed that functional results are less predictable and satisfactory than those achieved after the same surgical approach in naïve patients.

Key Words: prostate, bladder neck obstruction, prostatectomy, impotence, urinary incontinence

Technical procedures for RP were recently improved and progressively updated to ensure oncological control and satisfactory postoperative functional outcomes.[1–3] These improvements have been of crucial importance, particularly in challenging patients, such as those with PC who have previously been treated with hormonal blockage, brachytherapy or radiotherapy and patients who have undergone previous prostate surgery for benign disease.[4,5] There is no general agreement in Europe about the practice of performing delayed RP after previous surgery aimed at solving BOO because of the reportedly consistent rate of severe intraoperative and postoperative morbidity coupled with decreased functional outcomes, namely UI and erectile dysfunction.[6,7] Therefore, in this retrospective study we evaluated the impact of previous prostate surgery performed for BOO, mainly in terms of overall perioperative and postoperative morbidity, and early functional outcome in patients who underwent RRP.

MATERIALS AND METHODS

Between July 1999 and August 2003, 1,198 consecutive patients with PC underwent RRP at our institution. Of these patients 109 (9%) (group 1) underwent RRP after a previous surgical approach for BOO. This group of patients was subdivided into group 1a with incidental PC and group 1b in whom PC was discovered during subsequent followup.

The 71 group 1a patients had previously undergone TURP or transvesical OP for BPH with a positive incidental histological finding of PC. Patients in this group underwent RP an average of 3.72 months (range 1 to 12) after the detection of incidental PC. In contrast, the 38 group 1b patients were diagnosed with PC after biopsy findings for a suspicious increase in serum PSA and they underwent RP an average of 26.7 months (range 8 to 48) after primary surgery for BOO, ie standard TURP or OP. TURP was always performed using a standard resectoscope. It extended from bladder neck to verumontanum with complete removal of the prostate stroma according to the general attitude at our department. Open prostatectomy was always accomplished according to the transvesical technique.

A retrospective cross-sectional evaluation of surgical and functional outcomes was done to compare group 1 with 120 surgery naïve patients (group 2) who underwent RRP as the first and only prostatic surgery. These patients were matched to those in group 1 according to certain parameters. 1) RRP was performed during the same period, ie between July 1999 and August 2003, and by the same experienced surgeons (RC, PR and FM). 2) Patients were comparable in age, total serum PSA and clinical stage. In addition, no patient in either group received preoperative hormonal therapy or radiotherapy.

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TABLE 1. *Patient characteristics before RP*

	Group 1	Group 2	p Value
No. pts	109*	120	
Mean age ± SD	62.9 ± 6.2	62.29 ± 5.7	0.9
Total PSA ± SD (ng/ml)	6.5 ± 3	6.9 ± 2.9	0.63
No. previous surgery:		0	
TURP	83		
OP	26		
No. PC:			
Incidental	71	0	
Delayed	38		
No. naïve pts		120	

No patients received hormonal therapy preoperatively.

Table 1 shows patient characteristics in the 2 groups before RP. Table 2 lists baseline patient urinary continence and erectile function characteristics. Preoperatively in each group data were obtained on erectile function, as measured by the IIEF-5, total serum PSA and prostate volume, as detected by transrectal US. Until March 2002 all 81 and 87 RRPs in groups 1 and 2, respectively, were usually performed with general anesthesia. In contrast, after April 2002 spinal anesthesia was adopted as the standard anesthesiology procedure for RRP.[8] In 68 patients RRP with pelvic lymph nodes dissection was performed according to the surgical technique described by Walsh[9] with minor modifications.[10]

Surgery type, total operative time, calculated bleeding, major complications, perioperative morbidity, catheterization time and hospital stay were comprehensively detailed in all patients. The 12-month followup postoperative functional outcome related to UI and ED was retrospectively evaluated by a booklet that was mailed to each patient in the 2 groups. The booklet included a semistructured, nonvalidated, reader friendly questionnaire for evaluating the rate of urinary continence at the 6 and 12-month followups. The former questionnaire allowed patients to accurately record the average daily number of pads and the weight of each pad. On that basis complete urinary continence was considered when patient did not need any pad during the day and night. On the other hand, we arbitrarily segregated postoperative UI into mild UI—2 or fewer pads or less than 200 gm urine loss daily, severe UI—3 to 4 pads or 200 to 500 gm urine loss daily or complete UI.

Moreover, patients in each group completed the International Prostate Symptom Score and IIEF-5, and total serum PSA was recorded at the 12-month followup. When interpreting postoperative functional results, no correlation with HRQOL was defined. Therefore, we performed a retrospective, cross-sectional evaluation of surgical and functional outcomes by comparing patients in groups 1 and 2. Data are presented as the mean ± SD. The 2-tailed Student t test for paired and unpaired data was used for direct comparisons. For all statistical comparisons significance was considered as $p < 0.05$.

RESULTS

Group 1

Surgical aspects concerning radical prostatectomy. Data were obtained by examining the personal files of all 109 patients. The overall technical difficulties that we noted did not vary in relation to the kind of previous prostate surgery. However, technical variants were often adopted among cases. In 29 cases (27%) antegrade RP was performed, while in 12 (11%) a mixed antegrade and retrograde technique was performed, mainly when an NS procedure was attempted. Isolation and preservation of the functional urethral tract and the neurovascular bundles were described by surgeons as the most difficult steps of this surgery regardless of the technique used. Of the 64 patients (59%) in whom the NS procedure had been planned preoperatively this approach could be completed in only 39 (38%) because the neurovascular bundles were not easily recognizable or not dissociable from the prostatic capsule.

Intraoperative and perioperative morbidity. Table 3 shows comprehensive intraoperative and perioperative data on the 2 groups. In 28 patients (26%) the prostate capsule could not be removed en bloc because of periprostatic inflammatory reaction and 2 or more fragments were sent to the pathologist. In 1 patient the ureter was sectioned incidentally and, as a consequence, ureteral reimplantation was done immediately. In 18 patients (17%) ureteral stents were inserted during the operation to protect the ureter. They were generally left indwelling up to postoperative day 5.

Early postoperative morbidity. In 89 patients (81%) we removed the transurethral catheter on postoperative day 11. Transient urinary leakage was documented by cystogram in 27 patients (25%). However, only 1 patient underwent reoperation to repair the vesicourethral anastomosis after catheter removal. Percutaneous renal drainage was positioned in the early postoperative period in 1 patient for transient ureteral obstruction. A pelvic asymptomatic lymphocele was documented by US within 1 month postoperatively and left untreated without consequences in 8 patients. Conversely in 1 patient a lymphocele caused venous iliac compressive syndrome, requiring US guided percutaneous drainage. Incision of the urethrovesical anastomosis was required in 10 pa-

TABLE 2. *Functional outcomes at baseline and 6 and 12-month followup*

	Group 1 (43 pts)			Group 2 (120 pts)		
	Baseline	6 Mos	12 Mos	Baseline	6 Mos	12 Mos
No. complete continence (%):	100	32 (74)	37 (86)	0	110 (92)	114 (95)
No. incontinence (%):						
Mild (%)	0	16 (37)	4 (9)	0	5 (4)	5 (4)
Severe	0	10 (23)	3 (7)	0	3 (2.5)	0
Mean International Prostate Symptom Score ± SD	4.9 ± 4.2	—	5.2 ± 4.5	3.9 ± 3.6	—	5.0 ± 3.8
No. preserved erectile function after NSRRP/total No. (%)	—	5/18 (28)	—	—	47/71 (67)	—
Mean IIEF-5 ± SD	23 ± 2.0	—	11.0 ± 6.0	24.0 ± 3.0	—	19.0 ± 6.0

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