

Bladder Neck Preservation During Radical Retropubic Prostatectomy and Postoperative Urinary Continence

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Introduction: Bladder neck-sparing modification of radical retropubic prostatectomy has been reported to lower the risk of urinary incontinence after prostatectomy. We reviewed the outcomes in men with prostate cancer who had undergone prostatectomy with either bladder neck preservation or bladder neck reconstruction.

Materials and Methods: In this retrospective study, a total of 103 patients who had undergone radical retropubic prostatectomy were assessed. The patients were divided into two groups of bladder neck preservation (51 patients) and bladder neck reconstruction (52 patients). We compared frequency of biochemical failure, bladder neck stricture, and urinary incontinence between these two groups. Biochemical failure was defined as a serum prostate-specific antigen level higher than 0.2 ng/mL and its rising trend in at least 2 postoperative subsequent measurements. Continence was defined as no need to use sanitary pads or diapers.

Results: The two groups were comparable in terms of age, serum prostate-specific antigen level, Gleason score, and prostate volume. After a mean follow-up period of 32.5 months, all patients with bladder neck preservation and 46 (88.5%) with bladder neck reconstruction were continent ($P = .03$). There were no significant differences in the frequency of biochemical failure and bladder neck stricture that required dilation between the two groups of the patients.

Conclusion: Bladder neck preservation during radical retropubic prostatectomy may improve long-term results of urinary continence and be effective in eradicating prostate cancer without increasing the recurrence rate.

Keywords: radical prostatectomy
methods, postoperative
complications, urinary incontinence

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INTRODUCTION

Since the initial report of anatomic radical prostatectomy, refinements in the surgical technique have been made. Researchers have proposed that preservation of as much of the bladder neck as possible at the time of removal of the prostate can speed up the return of urinary

control after radical retropubic prostatectomy.⁽¹⁻⁹⁾ Klein was the first to suggest that modification of the bladder neck resection and reconstruction at the time of radical retropubic prostatectomy might influence urinary control.⁽¹⁾ The majority of the studies indicate that there is little difference in the

positive margin rates (bladder neck only) with this modification.

Nonrandomized controlled trials suggest that there may be small differences in the early (3 to 6 months) return of urinary control with little or no difference in long-term (1-year) urinary control using this method.^(4,5,9) However, a high rate of positive margins in some studies makes this modification questionable.⁽⁸⁾ In this study, we tried to determine whether the bladder neck-sparing modification of radical retropubic prostatectomy alters the likelihood of urinary incontinence after radical retropubic prostatectomy.

MATERIALS AND METHODS

A retrospective analysis was performed on the clinical, pathologic, and follow-up findings in 103 patients who had undergone radical retropubic prostatectomy between 1999 and 2006. All surgical operations had been done by one surgeon at Shariati Hospital in Tehran, Iran. The patients were divided into 2 groups of bladder neck preservation (group 1) and bladder neck reconstruction (group 2). Bladder neck reconstruction in group 2 had been done according to the classic tennis racket closure technique and spared within the first modified one. Recurrence was defined as biochemical failure documented with a serum prostate-specific antigen (PSA) level higher than 0.2 ng/mL and its rising trend in at least 2 postoperative subsequent measurements. Continence was defined as no

need to use sanitary pads or diapers. The Student *t* test was used to compare continuous variables and the chi-square test or Fisher exact test to compare categorical variables between the two groups. A *P* value less than .05 was considered significant.

RESULTS

The mean age of the patients was 64.9 ± 7.0 years (range, 35 to 78 years). Their mean serum PSA was 21.1 ± 20.9 ng/mL (range, 1.2 ng/mL to 100 ng/mL) preoperatively. The mean Gleason score and prostate weight were 6.1 ± 1.3 (range, 3 to 9) and 52.6 ± 22.8 g (range, 20 g to 130 g), respectively. Of the patients, 51 had undergone radical retropubic prostatectomy with bladder neck preservation (group 1) and 52 had undergone the same operation with bladder neck reconstruction (group 2). There were no differences in characteristics of the patients between the two groups (Table 1).

After a mean follow-up period of 32.5 months (range, 6 to 84 months), the frequency of biochemical failure was not different between the two groups (Table 2). All patients in group 1 and 46 (88.5%) in group 2 were continent (*P* = .03). The overall urinary incontinence frequency was 5.8% (6 patients). Stricture of the bladder neck at the anastomosis site requiring transurethral dilation occurred in 3 (5.9%) and 4 (7.7%) patients in groups 1 and 2, respectively.

Table 1. Characteristics of Patients With Radical Retropubic Prostatectomy and Bladder Neck Preservation or Reconstruction

Outcome	Patients with Prostatectomy		<i>P</i>
	Bladder Neck Preservation	Bladder Neck Reconstruction	
Age, y	64.8 ± 5.9	65.0 ± 7.5	.80
PSA, ng/mL	16.8 ± 15.4	23.3 ± 23.0	.10
Gleason score	6.2 ± 1.2	6.0 ± 1.4	.30
Prostate weight, g	52.1 ± 24.5	52.8 ± 22.1	.90

Table 2. Outcome of Radical Retropubic Prostatectomy With Bladder Neck Preservation or Reconstruction*

Outcome	Patients with Prostatectomy		<i>P</i>
	Bladder Neck Preservation	Bladder Neck Reconstruction	
Urinary continence	51 (100)	46 (88.5)	.03
Biochemical failure	6 (11.8)	14 (26.9)	.05
Bladder neck stricture	3 (5.9)	4 (7.7)	.51

*Numbers in parentheses are percents.

DISCUSSION

In the present study, we compared the outcome of bladder neck preservation with bladder neck reconstruction while retropubic prostatectomy and found that even after a mean 32.5-month follow-up period, urinary continence rate was significantly higher in the bladder neck preservation group. This is in contrast to other reports suggesting that there might be a small difference in the short-term (3 to 6 months) and little or no difference in the long-term likelihood of urinary control return.^(4,9)

Braslis and colleagues studied on a large nonrandomized series of 134 men who underwent radical retropubic prostatectomy with bladder neck preservation. Margin rates (36.6%) and presence of tumor at or near the bladder neck (7.5%) were investigated. The authors reported return of continence in only 36 of the 134 patients during a 3-month period. Their results indicated that 67% did not wear pads, 19% occasionally wore a pad, and 14% were incontinent.⁽³⁾ Lowe compared bladder neck preservation with bladder neck resection in a group of 200 men. Continence rates in the first and second groups were reported to be 23.3% and 11.2% at month 1, 44% and 62% at month 3, 70% and 82% at month 6, and the same at month 12 after the operation. Lowe concluded that bladder neck preservation hastened the return of urinary control, but did not improve the overall continence in long-term.⁽⁴⁾

Shelfo and colleagues reviewed the Miami cohort of 365 patients and reported a low rate of anastomosis stricture, no compromise of the surgical margins, and improved continence rate of 88% by 6 months after bladder neck preservation method of the surgery.⁽⁵⁾ Soloway and Neulander reported only 1% bladder neck stricture rate and 1% positive margins at the bladder neck site in their series of more than 600 men who had undergone bladder neck-sparing surgery. They suggested that extensive resection at the bladder neck did not add to the curative nature of the procedure yet did not elaborate in detail on the return of urinary control.⁽⁷⁾ However, Deliveliotis and coworkers could not find any difference in incontinence rates in the long-term (1 year) and

only found a significant difference in the short-term (3 to 6 months) with preservation of the bladder neck.⁽⁹⁾

In our study, biochemical failure rate of the bladder neck preservation group was slightly lower than the classic prostate resection group. All of the abovementioned studies appear to agree with the first goal of radical prostatectomy, namely cancer control. They also seem to agree that there is little difference in the positive margin rates (bladder neck only) with bladder neck preservation. However, the retrospective nature of our study is a considerable limitation, which mandate larger randomized prospective studies with longer follow-up periods in the future. Although the negative frozen-section pathology report of bladder neck margin during surgery was the major indicator of bladder neck preservation technique, we mostly performed this type of surgery in sequence of the traditional bladder neck reconstruction surgery, and therefore, this will be another limitation of our study.

CONCLUSION

We concluded that bladder neck preservation during radical retropubic prostatectomy may improve the long-term results of urinary continence, and it can be effective in eradicating prostate cancer without increased risk of recurrence. However, larger randomized prospective studies with longer follow-up periods are necessary for further elucidation of the role of bladder neck preservation during radical retropubic prostatectomy.

CONFLICT OF INTEREST

None declared.

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EDITORIAL COMMENT

In a study on the rate of continence after 2 surgical techniques for radical retropubic prostatectomy (RRP), Razi and his colleagues concluded that saving bladder neck results in a better continence rate; a short, practical, and logic conclusion. I have no doubt that the study comes from one of our country's few high-volume centers for RRP. As regards 100 RRP in a period of 7 to 8 years, we find out that they have 1 or 2 RRP in a month, and this is far more than the figures in many of our urology wards that have no or a limited experience in the field. So,

their great efforts should be really appreciated. However, this study has a number of limitations. The first and most important is a methodological one. This study is a retrospective case series, and automatically, its level of evidence is 3 and the grade of recommendation for such studies is C. It means that any conclusion from the study should be extrapolated very cautiously. The second limitation is a selection bias. Razi and colleagues had done 52 bladder neck reconstructing RRP and later on changed their technique to a bladder neck-saving RRP performing on 51 patients more. There was no randomization. The patients were operated sequentially and the experience of the surgeon has had deep influence on the superior continence rate of the patients undergoing bladder neck-saving RRP. Defining continence as complete dryness (not even leak of a drop of urine or wearing one protection pad a day, while we know that in the other studies, patients who use 1 pad a day are considered continent), and having all patients in bladder neck-saving group, continent without even a case of positive surgical margin is more than excellent result. And the last problem is with me not with the study; I hardly ever can convince myself to justify RRP of any modification in patients with a prostate volume more than 100 mL, aged older than 70 years, a prostate-specific antigen higher than 20 pg/mL, and a Gleason score of 8 or more.

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