

THE IMPACT OF RADICAL PROSTATECTOMY ON LOWER URINARY TRACT SYMPTOMS: PREDICTIVE VALUE OF PRESSURE FLOW STUDY

Hypothesis / aims of study

Radical prostatectomy (RP) is a standard operative treatment for patients with localized prostate cancer. The lower urinary tract anatomy after RP resembles that in women and RP may cause a significant change in lower urinary tract symptoms (LUTS). It is well known that bladder outlet obstruction, detrusor contractility and detrusor overactivity influence the improvement of LUTS after prostatectomy for benign prostatic hyperplasia. However, there are little data about the predictive value of pressure flow study (PFS) for LUTS after RP. The aim of this study is to correlate preoperative PFS findings and changes in LUTS after RP.

Study design, materials and methods

Thirty patients who underwent retropubic RP for clinically localized prostate cancer between July 2006 and March 2008 were prospectively analyzed in this study. Before and 12 months after RP, International Prostate Symptom Score (I-PSS), I-PSS quality of life (QOL) index, maximum flow rate (Qmax), and postvoid residual (PVR) were evaluated in all patients. All patients underwent PFS prior to RP. We evaluated changes in I-PSS (total score, voiding symptom score, storage symptom score and individual score), QOL index, Qmax and PVR after RP. We then correlated preoperative PFS findings and changes in LUTS after RP.

Results

QOL index (from 3.6 ± 1.8 to 2.0 ± 1.4), I-PSS voiding symptom score (from 4.8 ± 5.0 to 2.6 ± 3.3), intermittency score (from 1.8 ± 2.1 to 0.6 ± 1.0) and weak stream score (from 2.2 ± 2.0 to 1.0 ± 1.4), and Qmax (from 14.5 ± 5.6 to 23.7 ± 10.2 mL/sec) were improved significantly 12 months after RP. In patients with severe LUTS preoperatively (defined by I-PSS ≥ 14 , or QOL index ≥ 4 , or voiding symptom score ≥ 6 , or either score for incomplete emptying, intermittency, weak stream or straining ≥ 2), each score decreased significantly. Adversely in patients with no severe LUTS, none of either score changed significantly. Interestingly, frequency score (from 0.4 ± 0.5 to 1.1 ± 1.3), nocturia score (from 0.7 ± 0.4 to 1.3 ± 0.5) and straining score (from 0.2 ± 0.4 to 1.0 ± 1.5) were significantly deteriorated after RP. If the patients were divided into obstructive (Schäfer nomogram grade II or more) and unobstructive patients, postoperative parameters were not significantly different between the 2 groups. Although postoperative parameters were not significantly different between patients with normal and weak detrusor contractility, voiding symptom score (1.1 ± 1.0 vs. 4.0 ± 4.3 , $p=0.08$), intermittency score (0.2 ± 0.4 vs. 1.1 ± 1.4 , $p=0.07$) and straining score (0.3 ± 0.5 vs. 1.5 ± 1.8 , $p=0.07$) tended to be higher in patients with weak detrusor contractility. If we defined postoperative Qmax >20 mL/sec and PVR <50 mL as excellent voiding (normal female counterpart), detrusor overactivity and weak detrusor contractility were more often noted in patients who did not fill the criteria (Table 1).

Interpretation of results

Both obstructive and unobstructive patients showed improvement of voiding condition after RP. Particularly, RP has great advantage for those patients with severe LUTS because of significant improvement of LUTS. The present study suggests that weak detrusor contractility may cause deterioration of voiding symptoms.

Concluding message

For patients with localized prostate cancer, severe LUTS can be one of the criteria for selecting RP. Patients should be reminded that weak detrusor contractility could adversely influence LUTS after RP.

Table 1

	Post Qmax \geq 20 and post PVR<50	Post Qmax<20 or post PVR \geq 50	
Detrusor overactivity			
present	0	3	
absent	17	10	$p<0.05$
Obstruction			
unobstructive	10	5	
obstructive	7	8	n.s.
Detrusor contractility			
normal	13	4	
weak	4	9	$p<0.05$

<i>Specify source of funding or grant</i>	none
<i>Is this a clinical trial?</i>	No
<i>What were the subjects in the study?</i>	HUMAN
<i>Was this study approved by an ethics committee?</i>	Yes
<i>Specify Name of Ethics Committee</i>	The ethical committee of Asahikawa Medical College
<i>Was the Declaration of Helsinki followed?</i>	Yes
<i>Was informed consent obtained from the patients?</i>	Yes