Is Radical Prostatectomy after Transurethral Resection of Prostate (TUR-P) Feasible?

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ABSTRACT

Objective: Radical prostatectomy (RP) is usually difficult after TUR-P. We assessed the possibility and studied the outcomes of RP in patients who had previously received TUR-P.

Methods: From August 2001 to April 2005, we performed 11 cases (group 2) of RP in localized cancer patients who had previously received TUR-P. The patients' operative data and outcomes of the operation were compared to another 47 cases (group 1) of RP without earlier TUR-P. The operation was performed by one surgeon using the bladder-neck sparing technique.

Results: The patients in group 2 had median operative time of 180 minutes, which was 30 minutes longer than that of group 1. Median operative blood losses were 1,100 ml and 1,000 ml in group 1 and 2, respectively. Median catheterization time was 14 days in both groups. Using Mann Whitney U-test, there were no differences among the two groups in terms of operative time, blood loss, catheterization time, hospital stay and serum PSA after the operation. The likelihood of bladder neck involvement and anastomosis stricture rate were higher in the patients who had received TUR-P with odd ratios of 3.06 and 3.15 respectively; nevertheless, these had no statistically significant difference.

Conclusion: Radical prostatectomy after TUR-P is therefore feasible; however, meticulous surgical technique is needed to prevent complication.

Keywords: Radical prostatectomy; Transurethral resection; Prostate; Bladder neck sparing

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The incidence of early prostate cancer in Thailand is increasing every year. At Siriraj Hospital, prostate cancer is the 2nd leading cause of cancer registered in the male.[1] The early stage of prostate cancer usually gives no symptom. Before PSA (Prostate-Specific Antigen) era, early prostate cancer was accidentally found in TUR chips of prostatic tissue (T1a and T1b). During the past decade, the pathological T1a and T1b cancer found in patients of lower urinary tract symptoms (LUTS) continued to decrease.[2] This is due to PSA test during pre-operative visit before TUR-P operation. Moreover, TUR-detected cancer may not be clinically significant, as the cancer may do not harm to the patient if it is left untouched.[3] However, in recent studies radical prostatectomy has been found effective in decreasing disease-specific mortality, local and distant recurrences.[4,5] Radical prostatectomy is one of the standard treatments for localized prostate cancer. Surgeons performing the operation need to inform their patients of operative complications such as heavy blood loss, impotency and incontinence. Radical prostatectomy could be more difficult in patients who had received TUR-P than in patients without earlier TUR-P. We studied the feasibility and reported the results of radical prostatectomy in prostate cancer patients with TUR-P.

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MATERIALS AND METHODS

From August 2001 to April 2005, we performed 58 cases of radical prostatectomy in patients with localized prostate cancer. The patients were divided into two groups including 47 patients of biopsy-diagnosed cancer (group 1) and 11 patients of cancer found from TUR-P chips (group 2). The operation was performed exclusively by one surgeon using the same surgical technique.

The patients were usually admitted one day prior to the operation. On night before the operation, they had enema; and, intravenous antibiotic was given after anesthetic induction. Surgical technique was adapted as recommended by Soloway.[6] The patients underwent general anesthesia on supine position. The operating table was flexed 30 degree at the umbilical level to increase the operation space. Lower midline incision was used, starting from the pubic symphysis to 2 cm below the umbilicus. Having entered the space of Retzius, we performed bilateral pelvic lymphadenectomy. The endopelvic fascia was bilaterally incised, followed by the puboprostatic ligaments. Then the dorsal venous complex was controlled with 1-0 vicryl suturing twice. Having divided the dorsal venous complex, we proceeded with apical dissection, leaving a long urethral length. The urethra was then divided and the recto-urethralis muscle was dissected off the prostate gland. Having cut the Denonvilliers' fascia, we dissected the seminal vesicles off the rectum and the bladder. The prostatic pedicles were ligated and

TABLE 1. Patients' data, operative data, and follow up.

	Group 1 Biopsy (n=47)	Group 2 Post TUR (n=11)	P value
Age (year)	69 [53-81]	65 [49-75]	0.158
PSA (ng/ml) before operation	15.25 [4-242]	3.5 [0.5-77]	0.002
Operative time (minutes)	150 [72-225]	180 [130-220]	0.539
Blood loss (mls.)	1,100 [400-4,000]	1,000 [700-2,700]	0.419
Catheter time (days)	14 [7-30]	14 [7-30]	0.486
Hospital stay (days)	7 [3-23]	9 [7-14]	0.148
Gleason score	7 [4-10]	7 [6-9]	0.203
PSA (ng/ml) 3 months post operation	0.05 [0-1.13]	0.0 [0-0.0]	0.09
Median follow up time (weeks)	75 [16-237]	101 [16-208]	0.585

Note : Compare two groups by Mann Whitney U-test, Numbers states in Median [Min-Max]

TABLE 2. Results of radical prostatectomy in biopsy group and TUR-P group.

	Group 1 Biopsy	Group 2 Post TUR-P	Odds Ratio (95% CI, P value)
Pathological Results			
Extra prostatic disease	n=46	n=11	
Yes	18 (39.1%)	5 (45.5%)	P=0.74*
No	28 (60.9%)	6 (54.5%)	
Surgical margin	n=47	n=11	
Positive	25 (53.2%)	5 (45.5%)	P=0.89*
Negative	22 (46.8%)	6 (54.5%)	
Bladder neck involvement	n=42	n=11	3.06**
Yes	9 (21.4%)	5 (45.5%)	(0.58-15.12)
No	33 (78.6%)	6 (54.5%)	P=0.13
Anastomotic stricture	n=47	n=11	3.15**
Yes	5 (10.6%)	3 (27.3%)	(0.40-19.95)
No	42 (89.4%)	8 (72.7%)	P=0.17

** Fisher's Exact Test, ** 2-Side Fisher's Exact Test*

TABLE 3. Stricture at anastomotic site, time of stricture development and treatment.

Case No.	Presentation (months)	Time after surgery	Treatment
2	Post TUR-P	12	Dilate 1 time
5	Post TUR-P	2	TUR
6	Post TUR-P	3	Dilate 1 time
7	Biopsy	2	Dilate 1 time
8	Biopsy	2	Dilate 1 time
24	Biopsy	10	Dilate 3 times
27	Biopsy	3	Dilate 1 time
42	Biopsy	3	Dilate 1 time

divided. The prostate gland was then dissected off the bladder using the bladder neck sparing technique. Having removed the prostate gland, we performed urethro-vesical anastomosis using six interrupted stiches with 2-0 monocryl. An 18 Fr Foley catheter was left for splinting and urinary drainage. We usually irrigated the catheter with 200 ml with normal saline solution to remove the clots and check anastomotic patency.

Patients' data, operating records, pathological reports and post-operating complication were analyzed and compared between the two groups. Mann Whitney U-test, Chi-Square test and Fisher exact test were used as statistical tool. P value < 0.05 is considered of statistically significant difference. We reported the result with odd ratio and 95% confidence interval.

RESULTS

Median patients' ages were not different between the two groups (69 years in group 1 and 65 years in group 2). Their median PSA values were 15.25 ng/ml and 3.5 ng/ml in group 1 and 2, respectively. The operating time in group 2 was 30 minutes longer than that of group 1, and it showed no significant difference. Operative blood loss, catheter time, hospital stay, median follow-up time and PSA 3 months after the operation revealed no difference between the two groups (Table 1).

Pathological reports showed no significant difference between the two groups in terms of extra-prostatic disease and surgical margin positive rate. Interestingly, bladder neck involvement by cancer and anastomotic stricture were higher in post TUR-P group. The likelihood of getting bladder neck involvement and stricture at the anastomotic site were 3.06 and 3.15 times more common in patients with TUR-P, although this was not of statistically significant difference (Table 2).

Of 58 patients, eight patients were found to have stricture at the anastomotic site. The required time for a stricture to develop varied from 2 to 12 months after the radical prostatectomy. Most of them were cured by only one dilatation. One patient needed dilatation three times. One patient needed transurethral resection at the stricture site, pathological report of which revealed a recurrent tumor (Table 3).

DISCUSSION

TUR-P is the most common operation performed by urologists for benign prostatic enlargement. A small number of patients have been found to have cancer in their prostatic chips. Some of these patients may benefit from radical prostatectomy. However, radical prostatectomy after TUR-P could be difficult because of the anatomical change and adhesion around the prostate gland and the rectum. Furthermore, wide-opened bladder neck or bladder neck contracture after TUR-P could make radical prostatectomy even more complicated. In recent publications, however, it was shown that radical prostatectomy after TUR-P has not increased operative risk, and TUR-P has not been recognized as a contra-indication of radical prostatectomy.[7,8] In the present study we did not experience any marked adhesion between the rectum and the prostate. However, longer operation time was needed as the patient required meticulous dissection to prevent serious complication such as rectal injury.

In our study, stricture at the anastomotic site was found more common in the patients who had undergone TUR-P before the radical prostatectomy (odd ratio 3.15). This finding has been confirmed by the previous studies.[6,9] Fibrosis and reducing blood supply at the bladder neck area may contribute to the stricture at the anastomotic site. This could be more severe in the

patients who had undergone TUR-P. We also found tumor involving at the bladder neck area more common in the TUR-P group. This was probably due to the bladder neck sparing technique. The technique was done with a dissection as close as possible to the prostatic site. We, therefore, do not recommend this technique in the patients who had TUR-P done before radical prostatectomy. We, however, recommend a wide excision at the bladder neck area to get healthy tissue and performing bladder neck reconstruction with racket handle fashion. The principle of the wide excision at the bladder neck area has been found to be effective in preventing anastomotic stricture in the patients who received radical prostatectomy with TUR-P.[10] A wide excision at the bladder neck area could possibly lead to ureteric orifices injury both during the excision and the reconstruction. We prefer to identify the orifices every time we perform the operation. Sometime putting a ureteric stent could alleviate the problem.

In the present study, the number of the TUR-P group (T1a-T1b) is smaller. This is due to more patients getting prostatic biopsy before TUR-P operation. As PSA test has been widely used, we will get fewer and fewer cases of clinically localized (T1a-T1b) disease. The smaller the number we get, the higher the chance we encounter type 2 error. In this study, we found no statically significant difference, as we believe the number of the cases was too small. Therefore, more patients are needed.

CONCLUSION

Radical prostatectomy in an early prostate cancer provides a good long-term outcome. In the present study we have demonstrated that TUR-P is not a contraindication of radical prostatectomy. The operation may, however, be more complicated in TUR-P-diagnosed cancer. This is due to the anatomical change after TUR-P. A wide excision at the bladder neck is required to prevent anastomotic stricture and cancer-involved bladder neck. Therefore, radical prostatectomy in the patients with previous TUR-P should be performed by experienced surgeons.

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บทคัดย่อ

การผ่าตัด Radical Prostatectomy ในผู้ป่วยที่ได้รับการผ่าตัด Transurethral Resection of Prostate (TUR-P) มาก่อน เหมาะสมหรือไม่ ?

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วัตถุประสงค์: การรักษามะเร็งต่อมลูกหมากโดยการผ่าตัด radical prostatectomy ในผู้ป่วยที่ได้รับการผ่าตัดส่องกล้องเพื่อรักษาโรคต่อมลูกหมากโต transurethral resection of prostate (TUR-P) มาก่อน เทคนิคการผ่าตัดจะยากขึ้นกว่าผู้ป่วยที่ไม่เคยได้รับการผ่าตัดใด ๆ มาก่อน ผู้เขียนได้ศึกษาและรายงานถึงความเหมาะสมและผลของการผ่าตัด Radical Prostatectomy ในผู้ป่วยที่ได้รับการผ่าตัด TUR-P มาก่อน

วิธีการ: การศึกษาแบบย้อนหลัง ในผู้ป่วยจำนวน 58 ราย ที่ได้รับการผ่าตัด radical prostatectomy ระหว่างเดือนสิงหาคม 2544 - เดือนเมษายน 2548 โดยศัลยแพทย์ 1 คน และใช้วิธีการผ่าตัดแบบเดียวกันในผู้ป่วย 2 กลุ่ม คือ กลุ่มที่ 1 (ไม่ได้ทำ TUR-P) จำนวน 47 คน เปรียบเทียบกับกลุ่มที่ 2 (ทำ TUR-P มาก่อน) จำนวน 11 คน ศึกษาถึงผลของการผ่าตัดที่ได้รับในทั้ง 2 กลุ่ม เปรียบเทียบถึงความเหมาะสมของการผ่าตัดดังกล่าว

ผลการศึกษา: ผู้ป่วยในกลุ่มที่ 2 มีระยะเวลาที่ใช้ในการผ่าตัดนานกว่ากลุ่มที่ 1 อยู่ 30 นาที ค่ามัธยฐานของอัตราการเสียเลือดในกลุ่มที่ 1 มีค่า 1,100 mls และ 1,000 mls ในกลุ่มที่ 2 เมื่อใช้ Mann Whitney U-test พบว่าระยะเวลาผ่าตัด, การเสียเลือดระหว่างผ่าตัด, ระยะเวลาการใส่สายสวนปัสสาวะ, ระยะเวลาการอยู่โรงพยาบาล, ค่า PSA หลังผ่าตัด ไม่มีความแตกต่างกันระหว่าง 2 กลุ่ม อย่างไรก็ตามในกลุ่มที่ 2 ตรวจพบว่ามีเนื้องอกที่ bladder neck และ stricture at anastomotic site ภายหลังการผ่าตัดมากกว่ากลุ่มที่ 1 โดยมีอัตราความเสี่ยงมากขึ้นที่ 3.06 และ 3.15 เท่า ตามลำดับ แต่เมื่อใช้สถิติมาเปรียบเทียบพบว่าไม่ต่างกัน

สรุป: ดังนั้นการผ่าตัด radical prostatectomy ในผู้ป่วยที่ได้รับการผ่าตัด TUR-P มาก่อนนั้นสามารถทำได้ โดยเทคนิคการทำผ่าตัดและควรจะมีการระมัดระวังถึงผลแทรกซ้อนที่อาจจะเกิดขึ้น เช่น bladder neck involvement และ anastomotic stricture