

# Combined Transurethral Prostatectomy And Inguinal Hernioplasty

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## Abstract

**Aim:** Evaluation of combined TURP and inguinal hernia repair with Vypro II mesh in comparison with patients undergoing TURP and hernioplasty sequentially. **Methods:** Thirty patients were randomly categorized into 2 groups through computer randomization program. Group I included 15 patients operated by TURP and inguinal hernioplasty in the same session. Group II included 15 patients operated by TURP followed by inguinal hernioplasty in separate sessions. **Results:** Mean operative time was  $84.6 \pm 23.4$  minutes in group I versus  $95.5 \pm 15.3$  minutes in group II. Mean hospitalization time was  $3.07 \pm 0.46$  days in group I and  $4.07 \pm 0.59$  days in group II. No significant increase in the complication rate was seen when TURP and inguinal hernioplasty were performed together. Hernia recurrence did not occur in either group. Hospitalization cost was reduced by 26% by doing the two operations in the same session. Numerical patient satisfaction score 3 months after surgery was  $8.87 \pm 0.99$  for Group I patients versus  $7.80 \pm 0.94$  for Group II patients. **Conclusion:** Combined TURP and inguinal hernioplasty is a practical, safe and effective operative procedure that can reduce hospitalization cost. It allows patients to undergo only one anesthetic procedure, hospital admission and convalescence.

## INTRODUCTION

The prevalence of inguinal hernia and BOO caused by prostatic disease in adult men increases with age [12]. The incidence of inguinal hernia in men undergoing prostatic surgery for BOO is 15-25% [34]; furthermore, 11-30% of patients undergoing hernia repair have symptoms of BOO which can precipitate postoperative retention requiring urological intervention [3]. Uncorrected BOO may contribute to recurrence [6].

Although the current trend of the treatment options for BPH is toward minimally invasive therapies, TURP has become the 'gold standard' in the last half century. Lichtenstein's mesh repair for the treatment of inguinal hernia is a well-documented technique with extremely low recurrence and complication rates [78].

The results of simultaneous open surgery for prostatic disease and inguinal hernia repair are well documented [34,59,10]. However, despite the not infrequent practice of combining TURP with hernioplasty, there are few published results of the outcome.

The aim of this prospective randomized trial is to evaluate

combined TURP and inguinal hernia repair with Vypro II mesh in order to assess its safety, reliability and effectiveness in comparison with the patients undergoing TURP and hernioplasty in separate sessions during the same period.

## PATIENTS AND METHODS

This study was performed in Ghodran General Hospital, Kingdom of Saudi Arabia during the period from October 2005 to June 2008 on 30 patients with BPH and inguinal hernia. Patients with bilateral or recurrent hernias were excluded from the study. Full explanation of procedures; possible complications and patient consent were assured before inclusion in the research. The study protocol was approved by the Ethics Committee of Ghodran General Hospital, Kingdom of Saudi Arabia.

Patients were randomly categorized into 2 groups through computer randomization program ([www.randomization.com](http://www.randomization.com)). Group I included 15 patients operated by TURP and inguinal hernioplasty in the same session. This group was compared to 15 patients undergoing TURP alone followed by inguinal hernioplasty in a separate session (Group II).

All patients underwent detailed medical history, clinical examination, urine analysis with urine culture and sensitivity, in addition to routine hematological and biochemical investigations for the diagnosis of BPH. Abdomino-pelvic ultrasound was done to evaluate the upper urinary tract and to measure prostate size and post-voiding residual urine volume. An appropriate course of antibiotics was given to patients with urinary tract infection. Urine cultures of all patients were sterile before surgery. The demographic characteristics of patients studied were summarized in table 1.

Patients were hospitalized at the day of surgery. All procedures were performed under general or spinal anesthesia. Patients in group I underwent inguinal hernioplasty first using Lichtenstein’s mesh repair technique [7] applying Vypro II mesh (Ethicon, Edinburgh, UK) in supine position. After that, TURP was performed using a 26F continuous-flow resectoscope in lithotomy position in the same session. The urethral catheter was removed 2-4 days (mean:  $3.07 \pm 1.75$  days) post-operatively.

For group II patients, TURP was performed first and after a convalescence period hernioplasty was done (mean interval:  $33.4 \pm 4.14$  days). After TURP in group II; we followed the same protocol in group I and urethral catheter was removed 2-4 days (mean:  $2.97 \pm 0.98$  days) post-operatively. After hernioplasty in group II; most patients were discharged on the first postoperative day. All TURPs and hernioplasties were done by the same urologist and general surgeon.

Patients were followed in visits at one week interval for a month, then every 3 months. Patients were encouraged to visit the clinic at any time if they have any problem. The mean length of follow-up was  $30.2 \pm 14.3$  months in Group I patients and  $31.4 \pm 13$  months in Group II patients.

**STATISTICAL ANALYSIS**

Quantitative variables were expressed as mean  $\pm$ SD. Qualitative variables were expressed as frequency and percent. Quantitative parametric variables were compared between the two groups using the unpaired Student t-test, quantitative non-parametric variables were compared using Mann-Whitney test. Qualitative variables were compared using Chi-square test or Fisher exact test when the criteria for using Chi-square were not sufficient. The power used was 0.80 while the level of significance was 5%.

**Figure 1**

Table 1: Clinical characteristics of studied patients

	Group I (n=15)	Group II (n=15)	P value
A. Age (years)			
Mean $\pm$ S.D.	65.7 $\pm$ 6.95	65.8 $\pm$ 6.54	0.980*
B. Prostate volume (cc)			
Mean $\pm$ S.D.	45.4 $\pm$ 13.2	47.4 $\pm$ 12.7	0.680*
C. Hernia side:			
Right side	6 (40%)	10 (66.67%)	0.272*
Left side	9 (60%)	5 (33.33%)	
D. Hernia type:			
Direct	8 (53.33%)	4 (26.67%)	0.263*
Indirect	7 (46.67%)	11 (73.33%)	
E. Co-morbidities			
IHD	1 (6.67%)	0 (0.0%)	0.752*
HTN	2 (13.33%)	2 (13.33%)	
DM	2 (13.33%)	2 (13.33%)	
COPD	0 (0.0%)	1 (6.67%)	

\* = statistically insignificant (P > 0.05).

**RESULTS**

**OPERATION TIME**

In group I, operative time ranged from 50-116 minutes. The mean operative time was  $84.6 \pm 23.4$  minutes. In group II, collective operative time ranged from 70-120 minutes. The mean operative time was  $95.5 \pm 15.3$  minutes. The difference between the two groups was proved to be statistically non-significant (P = 0.14).

**HOSPITALIZATION TIME**

Hospitalization time ranged from 2-4 days in group I. The mean hospitalization time was  $3.07 \pm 0.46$  days. In group II, collective hospitalization time ranged from 3-5 days. The mean hospitalization time was  $4.07 \pm 0.59$  days. The difference between the two groups was proved to be statistically significant (P < 0.0001).

**COST**

Hospitalization cost ranged from 2040-3500 \$ per patient in group I. The mean cost was  $2988 \pm 348$  \$. In group II, the cost ranged from 3670 -4700 \$. The mean cost was  $4048 \pm 255$  \$. The decrease in cost was 26% on doing the two operations in the same session. The difference between the two groups was proved to be statistically significant (P < 0.0001). The mean operation time, length of hospital stay and cost are summarized in Table 2.

**Figure 2**

Table 2: Comparison of operation time, length of hospital stay and cost

	Group I (n=15)	Group II (n=15)	P value
Mean operative time (min.)	84.6 ± 23.4	95.5 ± 15.3	0.140*
Mean length of hospital stay (days)	3.07±0.46	4.07 ±0.59	0.0001**
Total cost per patient (\$)	2,988± 348	4,048 ±255	0.0001**

\* = statistically insignificant (P > 0.05).

\*\* = statistically significant (P < 0.05).

**COMPLICATIONS**

One patient in each group (6.67%) suffered from bleeding during TURP that required blood transfusion. One of these patients (the patient in group I) developed clot retention. He was managed conservatively. One patient (6.67%) in group I and 2 patients (13.33%) in group II developed UTI in the early post-operative period. They were managed by proper antibiotics according to culture and sensitivity result. Wound infection with delayed wound healing occurred in 1 patient (6.67%) in group I. The wound healed by secondary intention. Reoperation was needed in only 1 patient (6.67%) in group II who developed urethral stricture, 7 months post-operatively. He was managed endoscopically. Neither mesh infection nor hernia recurrence was seen in the 2 groups. There was no statistically significant difference between the two groups regarding complications. Post-operative complication rates are summarized in Table 3.

**Figure 3**

Table 3: Perioperative complications

	Group I (n=15)	Group II (n=15)	P value
<i>Early:</i>			
Bleeding (required transfusion)	1 (6.67%)	1 (6.67%)	0.524*
Clot retention	1 (6.67%)	0 (0.0%)	
Urinary tract infection	1 (6.67%)	2 (13.33)	
Wound infection	1 (6.67%)	0 (0.0%)	
<i>Late:</i>			
Urethral stricture	0 (0.0%)	1 (6.67%)	

\* = statistically insignificant (P > 0.05).

**PATIENT SATISFACTION**

Patients were asked to express their satisfaction in a numerical score from 0 to 10. This was done twice, 3 months and 1 year after surgery. After 3 months; the mean patient satisfaction score for Group I patients was 8.87 ± 0.99 versus 7.80 ± 0.94 for Group II patients. The difference between the two groups was proved to be statistically significant (p = 0.005). After 1 year; the mean patient satisfaction score for Group I patients was 8.73 ± 1.22 versus 8.00 ± 1.07 for Group II patients. The difference between the two groups was proved to be statistically non-significant (p = 0.091).

**DISCUSSION**

The incidence of inguinal hernia is 15-25% in patients undergoing prostatectomy, in comparison to around 5% in the general population [11]. It has been suggested that the effort involved in micturation, which is accompanied by chronically increase of intraabdominal pressure, is the main reason for the more frequent occurrence of inguinal hernia. Weakness of the inguinal canal tissues with advanced age facilitates hernia formation [12]. Other authors consider their occurrence together as a chance co-existence rather than cause and effect [13].

There are some reports regarding combined inguinal hernioplasty and open or transurethral prostatectomy [31113]. Combined operative procedures under a single anesthetic session for concomitant pathologies have the advantages of greater patient satisfaction, quick convalescence, decreased hospitalization and cost effectiveness. However, increased early postoperative morbidity is a concern in such situations. Indeed, in the previous reports, it has been suggested that combined hernioplasty and open prostatectomy may increase the risk of infection as a result of combining clean and contaminated procedures. On the other hand, the infection rates have reduced dramatically by advancing TURP [14]. Gonzalez-Ojeda et al. [15] compared patients undergoing combined TURP and inguinal hernia repair and TURP or hernioplasty alone. They did not report any wound infections or recurrences in the combined procedure group.

Our study, being prospective and randomized in design, had some advantages over the previous studies. All operations were done by the same urologist and general surgeon. We used only one technique for hernia repair. Recurrent and bilateral hernias were excluded from the study.

In our study, no significant increase in the complication rates was seen when the TURP and inguinal hernioplasty were performed together. We did not encounter any mesh infection or hernia recurrence in both groups. Our results are in concordance with those of previous studies [1113141516].

Khiari et al. [17] studied inguinal wound infection and hernia recurrence after open suprapubic prostatectomy and transurethral prostatic resection. The incidence of wound infection was 5% and 4 %, respectively. The incidence of hernia recurrence was 6%. They concluded that simultaneous repair of inguinal hernias and surgery of prostatic disease is effective and technically feasible but their results compared favorably to herniorraphy and

prostatectomy performed separately.

Bawa et al. [13] reported the results of simultaneous TURP and mesh hernioplasty. They separated the genital and inguinal area using a sterile drape and performed the combined procedure simultaneously. They also did not encounter any wound or mesh infection during their follow-up.

In our study, TURP and hernioplasty were done sequentially in the same session. We did not prefer the simultaneous technique because, although this technique may shorten the operation time, the surgeons may disturb each other. The manipulations of hernia repair may blur the vision of the resectionist or the filling of bladder during the resection may restrict the area of hernioplasty.

One of the advantages of the combined procedures is cost effectiveness because of single hospital admission, anesthesia session and convalescence. The decrease in cost in our study was 26% (an average of 1060 \$) per patient on doing the two operations in the same session. Cimentepe et al. [16] calculated the economical advantage of combined procedures as an average of 700 \$ per patient.

We conclude that combined TURP and inguinal hernioplasty is a practical, safe and effective operative procedure that can reduce hospitalization cost. It allows patients to undergo only one anesthetic procedure, hospital admission and convalescence.

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