

# Complications of Open Transvesical Prostatectomy vs. TURP : A Comparative Study

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## ABSTRACT

**Objective:** To assess the outcome, complications and frequency of re-operation of BPH in Transvesical Prostatectomy and TURP, a ten years single centre study.

**Study Design:** A retrospective comparative study.

**Place and Duration of Study:** This Study was conducted at the Department of Surgery and Allied, SOM Fauji Foundation Hospital, Karachi, Pakistan from January 2001 to May 2010.

**Materials and Methods:** All cases which underwent Open Transvesical Prostatectomy or TURP from January 2001 to May 2010 were reviewed. Total of 360 cases were included, out of which 250 were done by open method and 110 by TURP. Outcome, complications and frequency of re-operation of both the techniques were noted. Data entered into SPSS v.15 and analyzed statistically.

**Results:** Age ranged from 48 to 77 years with a mean age of  $57 \pm 6$  years. Hospital stay and catheter removal times were longer in open surgery. Symptom score improvement of 6 points noted in TURP group while 10 points in open surgery group. Four point five percent cases of TURP while 2.8% cases of open surgery needed transfusion. TUR Syndrome was seen in 1.8% of TURP, while no case of open surgery. Stricture urethra developed in 3.6% cases of TURP, while in 0.4% case of open surgery. Urinary Incontinence was seen in 2.7% cases of TURP while nil in open surgery. Re-operation to relieve obstruction needed in 11.8% cases of TURP, while only 1.2% cases of open surgery needed re-operation.

**Conclusions:** There is no statistically significant difference in complications between TURP and open surgery methods, whereas outcome of operation in terms of symptom score improvement was better in open surgery group and no need of re-operation. Disadvantages of open surgery include longer hospital stay and catheter removal time and a scar.

**Key Words:** BPH, TURP, Prostatectomy, Complications of Prostatectomy.

## INTRODUCTION

Benign Prostatic hyperplasia (BPH) is the most common cause of bladder outlet obstruction and voiding symptoms in middle aged and elderly men<sup>1</sup>. The treatment options for bladder outlet obstruction caused by benign prostatic hyperplasia (BPH) have been expanded dramatically over the past two decades with the development of medical and minimally invasive therapies<sup>2</sup>. But surgery is still the gold standard. Surgery can be transurethral (TURP) or open. Open surgery can be transvesical (Freyers<sup>3</sup>), retropubic (Millin's<sup>4</sup>) or perineal prostatectomy (Young<sup>5</sup>). Perineal prostatectomy has now been abandoned.

TURP nowadays is the most commonly performed surgery for obstructing prostates. Open transvesical prostatectomy is still used for large prostates protruding into bladder of median lobe, associated vesical calculus, clinically significant bladder diverticulum and in obese patients<sup>6</sup>. Open treatment has advantages over TURP of lower re-treatment rate more complete removal of prostatic adenoma under direct vision, no risk of TURP syndrome which occurs in 2% of patients undergoing TURP<sup>7</sup>. Several other series have demonstrated more significant objective improvement

in urinary symptoms following open Freyer's prostatectomy<sup>8,9,10</sup>. Disadvantage over TURP is scar, comparatively longer stay in hospital, and more chance of per operative hemorrhage<sup>11</sup>.

TURP is done through urethra by excising periurethral and transitional part of gland with electric loop. Resectoscope is passed through urethra and loop connected to electric current by diathermy and periurethral and transitional parts of gland are excised. TURP is ideal operation for small prostates where patients stay in hospital is not more than two days. Early mobilization and early return to work are the advantages.

In this study we have compared the outcome and complications of open transvesical operation and TURP.

## MATERIALS AND METHODS

This is a retrospective comparative study. All the 360 consecutive case which underwent prostatectomies either by open transvesical method or by TURP were included in the study. Prostates of more than 70 g were done by open method while smaller prostates were operated by TURP. Age ranged from 48 -77 years with a mean age of  $60 \pm 7$  years. Out of 360 cases 250 were operated by open method and 110 by TURP. The case

documents of all the cases which were included in the study were reviewed thoroughly. History, physical examination, investigations, pre-operative assessment notes, operative notes, post-operative notes and follow up of all the cases were reviewed. Outcome of the operations and complications, if any, were noted and results compiled

**Exclusion criteria:**

- Old aged patients unfit for Surgery.
- Patients with high PSA with suspicion of Carcinoma of Prostate.
- Patients under 30 years of age.
- Patients with prostate of less than 40 grams.
- Patients with proven Prostate malignancy.

Transvesical prostatectomy was done through pfinsleal incision. Bladder was opened and care taken to make prostate relatively avascular by ligating the lateral pedicles of prostate. While enucleating prostate, only anterior commissure broken and plane developed between prostate lateral lobe and median lobes. Each lobe is pulled by Ellis forceps and adenoma separated by blunt and sharp dissection. Apex is incised under direct vision, very near to prostate using a curved mayo's scissors to save external sphincter and leaving bladder neck intact reducing the chance of post-op

incontinence. Golden test whether bladder neck needs to be incised or not, depends upon passing the urethral catheter. If catheter went in to bladder without obstruction at bladder neck, no need to incise the neck reducing the chances of incontinence. While TURP was done keeping away from verrumontanum and removing the lateral lobes till capsule of the prostate is visible.

## RESULTS

A total of 360 patients underwent prostatectomies from January 2001 to May 2010. Two hundred and fifty patients were operated by open method and 110 by TURP method. Average time for surgery was  $57 \pm 4$  minutes (Range between 45 to 70 minutes). Age ranged between 40 to 77 years (Mean age was  $60 \pm 7$  years). Complications of both groups of surgeries were noted. Total no of complications was 57 (15.8%). Total cases of TURP method were 110 and complications noted in this group were 36 (32.7%), while total case in open method were 250 and complications noted were 25 (10%). Complications were divided into immediate (within 24 hours), early (with 7 days) and late (after 7 days). Complications of both the groups are shown in table 1. Variables noted are shown in Table 2.

**Table No.1: Complications**

Complications		TURP	Open Prostatectomy
Immediate	Bleeding needing transfusion	5 (4.5%)	07 (2.8%)
	Clot retention needing evacuation or fast irrigation	Nil	01 (0.4%)
	Perforation of bladder	01 (0.9%)	Nil
	TURP Syndrome	02 (1.8%)	Nil
	Anesthesia related complications	Nil	Nil
Early	Wound infection	Nil	02 (0.8%)
	Voiding dysfunction	03 (2.7%)	Nil
	U.T.I.	02 (1.8%)	05 (2%)
	Urinary incontinence (Temporary)	03 (2.7%)	Nil
Late	Retention of Urine	06 (5.4%) (Needed Re-TURP)	Nil
	Permanent Incontinence	Nil	Nil
	Retrograde ejaculation	10 (9%)	05 (2%)
	Urethral Stricture	04 (3.6%)	01 (0.4%)
	Incisional Hernia	Nil	04 (1.6%)

**Table No.2. Variables**

Variables	TURP	Open Prostatectomy
Average Hospital stay	02 days	04 days
Average Catheter removal time	02 days	04 days
Average Duration of surgery	40 to 60 min	40 to 60 min
Average Improvement in flow rate	15 ml per sec	17-20 ml per sec
Average Residual urine on post op u/sound	Less than 50 ml	Less than 20 ml
Average Decrease in night frequency after 6 weeks	Twice a night	Once a night
Erectile dysfunction	05 (4.5%)	10 (4%)
Average Symptom score improvement on existing score	6 points	10 points

## DISCUSSION

Enlarged prostates producing urinary problems are the main cause of morbidity in middle aged and elderly

people. Treatment of enlarged prostate has changed dramatically over the last two decade from medical to minimally invasive (laser and thermal evaporation). But time tested procedures i.e. surgery including TURP and

open prostatectomy are still very successful. Transvesical open prostatectomy was popularized by Irish surgeon from Galway Mr Peter Freyer. He described the procedure in 1900 and then published his series of 1000 cases in 1912<sup>3</sup>. Major advantages of this approach are direct access to bladder neck and prostate, removal of adenoma under direct vision and controlling bleeding. Another Irish surgeon Terrence Millin popularized the other approach of open prostatectomy popularly known as Millin or retro-public prostatectomy. He described retro-public prostatectomy and published his series of 25 cases in LANCET in 1945<sup>4</sup>. Advantages of Millin's over Freyer's approach are that no need to open bladder, dorsal venous complex is controlled first and then apical adenoma is removed under direct vision so chances of incontinence are less. But its disadvantages are that intra-vesical protruding median lobe, vesical calculus and clinically significant diverticulum cannot be dealt with. Other open prostatectomy method i.e perineal prostatectomy has been abandoned now.

Trans-urethral resection of prostate (TURP) was started in USA in 1920. But it really picked up in 1976 when fibreoptic light system and Hopkin's rod telescopes with wide angle were developed which improved the visibility. It resulted in most of the cases being done by TURP. Nowadays more than 90% of prostatectomies are done by TURP method. Formal care guide lines developed for BPH may have positive effect on the outcome of surgery<sup>12</sup>. Studies on urinary peak flow rates and invasive pressure flow have demonstrated the superiority of TURP over minimally invasive therapies.<sup>13</sup> Complications of TURP include: Failure to void, haemorrhage requiring transfusion, clot retention, infection, bladder neck contracture, urethral stricture, transurethral resection syndrome and rarely incontinence.

Suprapubic prostatectomy or transvesical prostatectomy consists of the enucleation of the hyperplastic prostatic adenoma through an extraperitoneal incision of the lower anterior bladder wall. In retropubic prostatectomy, the enucleation of the hyperplastic prostatic adenoma is achieved through a direct incision of the anterior prostatic capsule. The advantages of this procedure over the suprapubic approach are (1) excellent anatomic exposure of the prostate, (2) direct visualization of the prostatic adenoma during enucleation to ensure complete removal, (3) precise transection of the urethra distally to preserve urinary continence (4) clear and immediate visualization of the prostatic fossa after enucleation to control bleeding, and (5) minimal to no surgical trauma to the urinary bladder. The disadvantage of the retropubic approach, compared with the suprapubic prostatectomy, is that direct access to the bladder is not achieved. This may be important when one considers excising a

concomitant bladder diverticulum or removing bladder calculi.

The disadvantage of suprapubic compared with the retropubic approach is that direct visualization of the apical prostatic adenoma is reduced. As a result, the apical enucleation is less precise, and this factor may affect postoperative urinary continence. Furthermore, hemostasis may be more difficult because of inadequate visualization of the entire prostatic fossa after enucleation.

In the Sicilian-Calabrian Society of Urology's retrospective studies of 1997 and 1998 open prostatectomy accounted for 32% of all surgical treatments.<sup>14</sup> Open prostatectomy is a satisfactory alternative treatment for BPH in situations where TURP facilities are not available because it does not require any special equipment and expensive disposables<sup>15</sup> or where TURP was not possible because of technical reasons. In TURP there is a risk of reoperation in 15% of patients after 8-10 years<sup>16</sup>. We had to re-operate 7 cases in TURP group and none in open transvesical group. Harvard and Nanninga & OConnor used suprapubic catheter and closed the bladder<sup>17</sup>. We used no suprapubic catheters and only 24 FG 3-way hematuria catheter was used with excellent results. Five patients in TURP group and 7 cases in transvesical group needed blood transfusion. Gerald et al has reported 6ml per gram blood loss in TURP cases and 5ml per gram in open cases<sup>18</sup>. In our series 3.6% patients developed strictures in TURP group and 0.4% in open group. Howe et al reported less than 2% stricture, bladder neck contracture in 2.6% in TURP and 5.3% in open prostatectomy. Open prostatectomy certainly improves symptoms upto 10 points above the existing score on AUA Symptom Score Index<sup>19</sup>. Incidence of retrograde ejaculations after open prostatectomy has been reported as 6.5%<sup>16</sup> while in our series retrograde ejaculation occurred in 2% cases of open prostatectomy and 9% cases of TURP as special attention was given not to destroy bladder neck unless cause of obstruction was median lobe or bladder neck contracture. Erectile dysfunction occurred in 4.5% cases in TURP group and 4% in open prostatectomy. Roethborn has reported sexual dysfunction in 13.5% of cases operated by TURP but research studies show that these peoples are old and could have sexual dysfunction before surgery<sup>20</sup> and there is increase in dysfunction as they further grow in age after prostate surgery. Wound infection was seen in 0.8% cases of open prostatectomy due to strict aseptic measures while Campbell has mentioned 5% incidence of wound infection<sup>21</sup> and AUA guideline on the management of BPH<sup>19</sup> has mentioned 3-7% infection in open prostatectomy. In our series 1.6% patients developed incisional hernia while Fuller et al<sup>22</sup> has reported 4.6% incidence of incisional hernia in a series of 250 cases of open radical robot – assisted prostatectomies. However data of open

prostatectomy for BPH could not be found in national or international data.

## CONCLUSION

This study proves that open Transvesical prostatectomy is still very useful procedure with minimal complications and excellent result. It is still more superior to TURP in regards 1) less chance of reoperation 2)less urethral stricture 3) more improvement in symptoms score 4) less post residual urine 5)greater flow rate per seconds. Although hospital stay was slightly longer than TURP, but considering all other advantages this procedure should be practiced more and should be taught to residents properly.

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