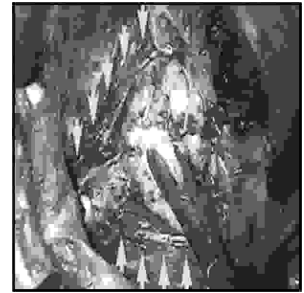


ORIGINAL

PROF-1020

# OPEN PROSTATECTOMY



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**ABSTRACT ...** [swah@fsd.paknet.com.pk](mailto:swah@fsd.paknet.com.pk) **Objectives:** To study the morbidity of open prostatectomy. To assess the frequency of complications after open prostatectomy. **Study design:** Descriptive cross sectional. **Setting:** Surgical Unit-IV, DHQ Hospital, Faisalabad. **Duration:** 01-01-2003 to 31-12-2003 (One Year). **Subjects:** Patients of bladder outlet obstruction due to benign prostatic hyperplasia (PBH) were operated by open surgery (Transvesical or retropubic prostatectomy). **Results:** Open prostatectomy was performed in 54 cases. In 38 cases, suprapubic transvesical prostatectomy was performed, while in 6 cases, retropubic prostatectomy was done. Our youngest patient was 42 years old and oldest 90 years. Mean age was 62 years. In our study, the most common complications were wound associated seen in 7(12.96%) cases. They included cellulites in 3(5.56%) cases, stitch abscess in 1(1.85%) cases, seroma in 1(1.85%) cases, and abscess in 2(3.70%) cases. Other complications were bleeding in the form of reactionary haemorrhage/clot retention in 2(3.70%) cases and secondary haemorrhage in 3(5.56%) cases. Urinary fistula was seen in 5(9.26%) cases while retrograde ejaculation in 6(11.11%) cases, stricture urethra in 3(5.56%) cases, urinary incontinence in 4(7.41%) cases and urinary tract infection in 5(9.26%) cases. Epididymo-orchitis, deep vein thrombosis and osteitis pubis were not seen in our study. The average duration of hospital stay was 6 days. Most cases were discharged within five days of operation, while stitches were removed on the eighth postoperative day. **Conclusions:** The morbidity of open prostatectomy is higher than transurethral resection (TURP), as TURP is better procedure due to lower complication rate, short hospital stay, cost effectiveness and better tolerated by old and unfit patients, presenting with small fibrotic prostate. Open prostatectomy is still a good option for BPH where TURP facilities are not available.

**Key Words:** Benign prostatic hyperplasia, open prostatectomy, complications.

## INTRODUCTION

Senile enlargement of the prostate gland is a very common disorder and its history is as old as the origin of

man. Symptomatic prostatic hyperplasia (PH) is a common condition in the older men and has significant impact on their daily lives.

Prostatic hyperplasia (PH) is not an uncommon disease in this part of Pakistan. It is the most common cause of bladder outlet obstruction and voiding symptoms in elderly men<sup>1</sup>.

Circulating androgens and aging are the important factors in the development of PH<sup>5</sup>. Histologically, the process is characterized by increase of both glandular and stromal elements, the glandular element usually predominating. These changes take place mainly in the tissue around the urethra called transition zone. As this portion enlarges, it compresses the urethra centripetally and rest of prostate centrifugally. Eventually there is severe compression of the urethra. Commonly the patients present with acute retention of urine or chronic retention of urine, occasionally with Hematuria or infection<sup>1,2</sup>.

In the management of the patients, PH, active monitoring or watchful waiting is recommended for mild symptoms (IPSS 0-7). Pharmacotherapy or minimal invasive therapy is advised for moderate symptoms (IPSS 8-19) and small to medium sized prostate<sup>1,2,5</sup>. Pharmacotherapy includes phytotherapy, 5- $\alpha$  reductase inhibitors and  $\alpha$ -blocking agents.

Minimal invasive therapy includes less invasive procedures, such as Visual Laser Ablation of the Prostate (VLAP), Electro Vaporization of the Prostate (EVP), Transurethral Incision of Prostate (TUIP), Trans Urethral Microwave Thermotherapy, (TUMT), high intensity focused ultrasound, intraurethral stents and transurethral balloon dilation of prostate. Surgery (TURP of Open Prostatectomy) is advised for severe symptoms (IPSS 20-35) with acute urinary retention, persistent or recurrent UTI, gross hematuria and renal insufficiency from enlarged prostate.

Although transurethral resection of prostate (TURP) is the common surgical procedure practiced in the western countries (95% cases) and described as the gold standard treatment for BPH<sup>1</sup>, open surgery is still popular in developing countries due to lack of facilities and associated complications e.g. vesical calculus and

diverticulum, besides large size of the prostate, as patients come late.

Open prostatectomy can be performed with either suprapubic or retropubic approach<sup>2,3</sup>. Perineal prostatectomy (young) has now been abandoned for the treatment of PH<sup>4</sup>. After a low midline or transverse (Pfannestiel incision), a simple suprapubic prostatectomy (transvesical prostatectomy) is performed transvesically and is the operation of choice in dealing with concomitant bladder pathology.

After the bladder is opened, a semicircular incision is made in the bladder mucosa distal to trigone. The dissection plane is initiated sharply and then blunt dissection with the finger is performed to remove the adenoma. The apical dissection should be done sharply to avoid injury to distal sphincteric mechanism. After the adenoma is removed, hemostasis is attained with suture ligatures, both a urethral catheter and suprapubic drain are inserted before closure<sup>2,6,7</sup>.

In simple retropubic prostatectomy, the bladder is not entered. Rather a transverse incision is made in the surgical capsule of the prostate and the adenoma is enucleated. Urethral catheterization is needed at the end of procedure.

The morbidity and mortality of open prostatectomy are higher than TURP as TURP is better procedure due to lower complication rate, short hospital stay, cost effectiveness and better tolerated by old and unfit patients presenting with small fibrotic prostate<sup>1,3,8,13</sup>.

Open prostatectomy is satisfactory alternative for PH in situations where TURP facilities are not available<sup>12,14</sup>. As it provides good option for symptom relief, effects are apparent within days, a permanent solution, avoids long terms medication and follow up. Also it provides material for histological examination.

## PATIENTS AND METHODS

All the patients received in the emergency and OPD with BOO due to BPH, who were fit for open prostatectomy

were included in the study.

Consisted of proforma comprising history, physical examination and related investigations.

**Study Design:** Descriptive cross sectional study

**Setting:** Surgical Unit IV, DHQ Hospital, Faisalabad

**Period:** One year starting in January, 2003 and ending in December, 2003.

### Sample Size

54 Patients

### Sampling Technique

Non-probability convenience

### INCLUSION CRITERIA

All patients of bladder outflow obstruction (BOO) due to BPH with IPSS > 20-35.

Patients of PH with complication of vesical calculi and diverticula.

Patient presented with acute urinary retention, persistent or recurrent UTI, Hematuria and renal insufficiency secondary to PH.

Patients of PH with co-existing inguinal hernia.

Patients of PH with marked ankylosis of hips that prevents lithotomy position for TURP.

### EXCLUSION CRITERIA

Suspected case of CA prostate.

Small fibrotic prostate.

Patients not willing for open prostatectomy.

Patients not fit for open surgery.

Previous prostatectomy.

Previous pelvic surgery preventing access to the prostate gland.

### DATA COLLECTION PROCEDURE

All the patients received in the emergency and OPD with BOO due to PH will be included in the study. All the

patients were operated by consultant surgeons and registrars/post-graduate students (under supervision) through a suprapubic or retropubic approach. The data with special emphasis to post-operative complications recorded in the protocol Performa. The post-operative complications are assessed by history, clinical examination and related investigations.

Reactionary Haemorrhage is a major risk after prostatectomy and is evident if there is bleeding from the drain or catheter or the bladder is not adequately draining because of the clot blocking the eye of catheter. In case of severe haemorrhage patients may be in hypovolumic shock. Clot retention is evident as the patient is complaining of pain because of urinary retention. Urinary bladder is distended as clot is blocking the drain and catheter. Regarding wound complications, the patient may have fever with rigors, increased pain, tenderness and pus discharge and wound dehiscence. In epididymo-orchitis, there is fever, pain, swelling, tenderness and redness of scrotum. Supra pubic urinary fistula is evident from leaking of urine after removal of catheter.

Secondary haemorrhage is usually associated with infection. Classically it occurs on the tenth to twelfth day. It may be as early as third day and as late as sixth week. There is haematuria, dysuria or even clot retention of urine.

Retrograde ejaculation is inevitable consequence of severance of internal sphincter. There is clear cut complain of it by the patients. deep vein thrombosis is evident by swelling, pain, redness, and dilated superficial veins of the legs, calf tenderness and low grade fever. Test of choice is duplex ultrasonography. Urinary tract infection is evident by dysuria, pyuria and little haematuria. Urine complete examination and culture and sensitivity is done.

Stricture urethra present as decreased flow weeks, months or years after surgery. There may be dysuria, increased urinary frequency, incomplete bladder emptying or even retention of urine. Urethrography or

urethroscopy is advised for further evaluation. Urinary incontinence is evident after removal of catheter. Minor incontinence due to temporary external sphincter dysfunction rapidly subsides. Urgency and urge incontinence due to unstable bladder contractions may take weeks or months to settle. Long term incontinence due to surgical damage to sphincter is rare complication. Osteitis pubis is rare complication.

### DATA ANALYSIS

All calculations are done by SPSS V.10.0. Since this is a descriptive study, therefore no inferential statistics and 'p' value is required.

### RESULTS

Open prostatectomy was performed in 54 cases in Surgical Unit-IV, DHQ Hospital, Faisalabad during the period of one year (2003). These patients were operated for prostatic enlargement. In 48 cases, suprapubic transvesical prostatectomy was done, while in 6 cases, retropubic prostatectomy was done (Table-I). Postoperative complications were observed to study the morbidity of open prostatectomy in the ward (early complications) and after discharge from the hospital in follow up period of 3 months (late complications).

Our youngest patients was of 42 years of age and the oldest 90 ears of age. Mean age was 62 years. Maximum number of patients belonged to age group of 50 to 70 years.

Surgical approach	No of patients
Transvesical prostatectomy	48
Retropubic prostatectomy	6
Total	54

In the early complications, the most common complications were wound related, seen in 7 (12.96%) cases and are mentioned in table-III

Early post-operative complications of open

prostatectomy are mentioned in table-II. The late complications are shown in Table-IV.

Complications	No of pts	%age
Primary haemorrhage	-	-
Reactionary haemorrhage /clotretention	2	3.7%
Urinary extravasation	-	-
Sepsis	-	-
Secondary haemorrhage	3	5.56%
Wound complications	7	12.96%
Epididymo orchitis	-	-
Deep vein thrombosis	-	-
Urinary incontinence	4	7.41%
Urinary tract infection	5	9.26%
Suprapubic urinary fistula/leakage	5	9.26%
Mortality	-	-

Type	No of patients	%age
Seroma	1	1.85%
Stitch abscess	1	1.85%
Abscess	2	3.70%
Haematoma	-	-
Cellulites	3	5.56%
Wound dehiscence	-	-

All complications were seen in transvesical prostatectomy and no complication was seen in retropubic prostatectomy, although the number of patients operated by retropubic prostatectomy was only 6 and our objective of study was not to compare the retropubic and transvesical prostatectomy.

The average duration of hospital stay was 6 days. Most cases were discharged within 5 days of operation, while stitches were removed on the eighth postoperative day.

**Table IV Late complications of open prostatectomy**

Complications	No of patients	%age
Stricture urethra	3	5.56%
Erectile dysfunction	-	-
Retrograde ejaculation	6	11.11%
Bladder neck stenosis	-	-
Stress incontinence (permanent)	-	-
Ostititis pubis	-	-

## DISCUSSION

Despite many new less invasive alternatives, prostatectomy is regarded as one of the most satisfactory procedure, giving excellent relief and symptomatic improvement of majority of patients with PH. Over the years, open prostatectomy dominated the picture. With the development of cystoscope and continuous flow resectoscope, transurethral prostatectomy (TURP) has become gradually popular. Now the Holmium laser prostatectomy is the emerging technique in the management of PH. Transurethral resection of prostate (TURP) is described as the 'gold standard treatment for PH patients today because of relatively higher morbidity and mortality of open prostatectomy. The most common procedure to treat PH in western countries is TURP. Because of prolonged resection time and resulting increase in complication rate, very large prostate glands (>80g) are treated by open prostatectomy. Moreover, if the BPH is associated with very large and hard vesical calculi or diverticula, the procedure of choice is still open prostatectomy.

Open prostatectomy is still popular in developing countries due to lack of facilities and above mentioned reasons. We started a study in prostatectomy because we have a large number of patients of PH and we don't have the facilities of TURP.

In our study, 54 patients were operated by open prostatectomy during the period of one year (2003), 48 were operated by transvesical prostatectomy and 6 were operated by retropubic prostatectomy, although we received a large number of patients. The patients who were unfit for open surgery or had small prostate or prostate with suspicion of malignancy were not operated and referred to Allied Hospital, where facilities for TURP are available.

The maximum number of PH patients were between 50-70 years of age, showing it a disease of old age, as reported by Baloch<sup>10</sup>, Memon<sup>11</sup>, Manzar.<sup>16</sup>

Majority of patients presented with acute retention of urine or already catheterized elsewhere after retention of urine (70%) and others presented with irritative symptoms, chronic retention and haematuria. This is comparable to Memon<sup>11</sup> and this is because, majority of the patients were undereducated, belong to rural areas and came to hospital very late.

In early complications, wound complications were the commonest after open prostatectomy (12.96%) in our study. This is less than Bloach<sup>10</sup> (22.32%) and more than Tan<sup>9</sup> (6.8%) and Memon<sup>11</sup> (10%). Besides many other factors responsible for wound complications as in any other surgery, the most important factor in open prostatectomy for causing wound complications is history of repeated catheterization<sup>11</sup> and presence of urinary tract infection at the time of surgery<sup>17</sup>. The incidence of wound complications is reduced by avoiding pre-operative catheterization for longer period of time, treating the urinary tract infection before surgery and preoperative and postoperative antibiotics<sup>18</sup>. Reactionary haemorrhage/clot retention occurred in our study is 3.70%. This is less than Baloch<sup>10</sup> (14.28%) and Memon<sup>11</sup> (11%). And is because of haemostatic suture used for control of haemorrhage during and after operation<sup>6,7</sup>.

Secondary haemorrhage was seen in 3 cases (5.56%) in our study. This results from urinary tract infection. This was managed by treating infection and intermittent bladder irrigation.

Suprapubic fistula is seen in 5 (9.26%) cases. This is more than Baloch (8.3%) and Memon (5%). This was more common in transvesical prostatectomy cases where suprapubic drains were inserted. Also, there was urinary tract infection. This was managed by treating urinary tract infection (after culture and sensitivity) and inserting catheter for a few days.

Urinary incontinence was seen in 7.41% patients in our study. The incidence is more than Baloch<sup>10</sup> (3.57%) and Memon<sup>11</sup> (3%) and Khan<sup>14</sup> (3.1%). In all these cases, the incontinence was transient and all managed by conservative treatment (physiotherapy).

Other complications such as pulmonary complications and deep vein thrombosis were not seen. Also there was no mortality in our study. This is because of patient selection i.e. fit patients underwent operation of open prostatectomy.

In late complications, stricture urethra was seen in 5.56% patients. This is comparable with Baloch<sup>10</sup> (5.35%). All the cases managed by intermittent dilatation under local anesthesia.

Regarding retrograde ejaculation, only 11.11% patient had complain of it. The number is higher than Baloch<sup>10</sup> (5.35%) but less than mentioned in literature because retrograde ejaculation is inevitable consequence of destruction of internal sphincter.

In our study, no patient was seen with bladder neck stenosis in postoperative period of three months. This may be due to technique of new trigonoplasty used in the operation. Also no patient was seen with stress incontinence (permanent). This may be due to sharp dissection near the apex of bladder (external sphincter) rather than avulsing it. The complications of erectile dysfunction and osteitis pubis were also not seen in our study.

All these complications were seen in patients operated by transvesical prostatectomy and no complication was seen in retro pubic prostatectomy, showing it a better

procedure than transvesical prostatectomy.

Although, this was not the objective of our study and the number of patients operated by retro pubic approach were only six, however, retro pubic prostatectomy is an excellent procedure because of lower rate of complications (e.g. wound infection, suprapubic urinary leakage) and short duration of bladder irrigation and early removal of urethral catheter<sup>19,20</sup>.

Comparing open prostatectomy with TURP, the number of complications is higher in open prostatectomy as shown by different studies by Talpur<sup>12</sup>, Tabassum<sup>13</sup> and Rauf<sup>15</sup>. They all concluded TURP is the better procedure due to lower complication rate, short hospital stay, cost effectiveness and better toleration by old and unfit patients presenting even with small fibrotic prostate.

According to Jepsen and Bruskewitz<sup>21</sup>, open prostatectomy is almost efficient treatment of PH for relieving symptoms and improving urinary flow, but they also remarked it as the most invasive and morbid treatment for PH, so open prostatectomy has to lower preoperative morbidity and mortality than TURP.

According to Holtgrewe<sup>22</sup>, the outcome of open prostatectomy is marginally better than TURP in relation to symptomatic relief in selected patients. However, open prostatectomy suffers from lack of patients acceptance, increased postoperative discomfort and prolonged hospitalization.

Now if we compare complications of open prostatectomy in our study with international literature and different studies on TURP, we will see, with the exception of wound complications and supra-pubic urinary leakage, the other complications are comparable in both the open prostatectomy and TURP.

The wound complications and supra-pubic urinary leakage were seen only in open prostatectomy and are responsible for most of the morbidity of open prostatectomy. But these wound complications and urinary fistula were resulting from abdominal incision in

open prostatectomy. Therefore, complication rates for open prostatectomy are probably no higher than for TURP, but incisional morbidity makes TURP the preferred procedure if the size of the prostate does not preclude it<sup>23</sup>. So if we manage these complications e.g. by proper selection of patient (fitness), prior treatment of UTI and use of antibiotics preoperatively and postoperatively, we can reduce the morbidity of open prostatectomy.

Our discussion on morbidity of open prostatectomy will not be completed unless I compare open prostatectomy with Holmium Laser prostatectomy the emerging technique in the management of benign prostatic hyperplasia. This is a minimal invasive therapy even for larger glands (> 100g) that have traditionally been treated by open prostatectomy<sup>24, 25</sup>.

There is minimum or no blood loss<sup>26, 27</sup> as compared with our study in which all the patients were transfused blood. Catheterization time and hospital stay are also shorter, usually less than 24 hours as compared with our study in which it is on average 6 days. It can also be done high risk and unfit patients even on local anesthesia and sedation. Open prostatectomy can only be done under spinal or general anesthesia.

Therefore, Holmium laser enucleation is an effective safe procedure for large prostatic adenomas with significantly lower morbidity, catheterization time and hospital stay. It is a new procedure and as experience and expertise increase, it may become an attractive alternative to open prostatectomy for patients with large prostate adenomas. This is very expensive and is being done in very specialized centers.

## CONCLUSIONS

Although, the morbidity of open prostatectomy is higher than any other treatment modality for PH, yet we can reduce the complication rate with improved surgical technique and best preoperative and postoperative management. Our study ends in the following conclusions:

Open prostatectomy is the most invasive and morbid procedure among the various treatment modalities for the management of benign prostatic hyperplasia.

TURP is still the gold standard treatment for patients with benign prostatic hyperplasia.

Open prostatectomy is still a good option in fit patients having lower incidence of major complications and no mortality.

Open prostatectomy is a satisfactory alternative treatment for PH in situations where TURP facilities are not available because it does not require any special equipment and expensive disposables.

Retro pubic prostatectomy is better option than transvesical prostatectomy in selected patients due to lower rate of complications.

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