

A Prospective study to postoperative recovery, immediate and late postoperative complications in patients treated with transvesical prostatectomy.

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ABSTRACT

Background: Benign prostatic hyperplasia (BPH) occurs in older men. The prostate often enlarges to the point where urination becomes difficult. Symptoms include need to urinate often (frequency) or taking a while to get started (hesitancy). If the prostate grows too large, it may constrict the urethra and impede the flow of urine, making urination difficult and painful and, in extreme cases, completely impossible.

Aims & Objectives: To study and evaluate postoperative recovery, immediate and late postoperative complications in patients treated with transvesical prostatectomy.

Methods: Study was conducted among 50 patients of Prostatic enlargement. Digital Rectal examination, PSA was done. Open prostatectomy, Freyers transvesical prostatectomy or Milins operative techniques were used for removal of prostate depending upon the indication.

Results: Most common early postoperative complications were wound infection and haemorrhage, followed by clot retention. Wound infection was found in 36% cases postoperatively and 10% patients had urinary incontinence. Suprapubic leak was seen in 8% patients postoperatively with other bladder pathologies like bladder calculi or cystitis. Epididymo-orchitis was found in 4% of patients post-operatively in our study.

Conclusion: Depending upon size of prostate, symptoms and availability of institutional resources, newer operative modalities should be tried to improve overall outcome.

Keywords: Benign prostatic hyperplasia, complications, Prostatectomy, Wound infection

Introduction

Benign Prostatic Hyperplasia (BPH) is one of the commonest causes of lower obstructive uropathy and usually presents with lower urinary tract symptoms.¹⁻³ Incidence of the most common benign tumor in men is age related. It is approximately 20 % in men aged 41-50 years, 50 % in men aged 51-60 years and >80 % in men aged over 80 years.⁴ Digital Rectal Examination is a relatively simple, inexpensive, noninvasive procedure that is not associated with any subsequent adverse effects. DRE establishes the approximate size of the prostate gland and its consistency.⁵ Most patients in the developed nations seek earlier care and are usual candidates for the less invasive transurethral resection of the prostate (TURP). However, in developing nations, the presentation is late often large prostate and associated complications of bladder outlet obstruction (diverticulae, stones, impaired renal function etc.) warranting open prostatectomy.⁶

The surgical treatment of BPH began in the late 19th century. In 1900, Peter Freyer reported the first prostatectomy with a 5% mortality rate. The operation was deemed successful and carried his name as the standard surgical treatment of BPH for 50 years. In 1951, Hryntschack described the transvesical open prostatectomy (OP).⁷ Then, after the development of TURP, it became the standard method for treating small and moderatesized prostate for many years. As resecting a large prostate adenoma with TURP is associated with a significant increase in the perioperative morbidity, this limits its role for larger glands.⁸ Thus in most of the current guidelines, OP is still an option when the prostate size limits a conventional TURP. Moreover, OP is described as the most effective and durable treatment option.⁹ Open prostatectomy offers the advantages of a lower re-treatment rate and more complete removal of the prostate adenoma under direct vision, while it avoids the risk of additional hyponatremia (TURP syndrome).¹⁰ Selection of open versus closed operation depends on the surgeon's preference and skill in different approaches, size of prostate and the associated anatomical features (such as hip immobility which may rule out lithotomy position) or secondary disease process (such as large diverticulae).

The aim of our study is to study and evaluate postoperative recovery, immediate and late postoperative complications in patients treated with transvesical prostatectomy

Materials & Methods

Patients who presented with symptoms of prostatic enlargement, in General Surgery Department of our hospital from June 2016 to June 2018.

Inclusion Criteria: a) Patient with obstructive symptoms. b) Failure of conservative management to relieve symptoms. Postvoid residual volume more than 100 ml. c) Presence of other bladder operative diseases: Bladder diverticuli, bladder calculus.

Exclusion Criteria: a) Malignancy of prostate with metastasis. Patient not willing/not fit for surgery. b) Patients with PSA > 20.

Open prostatectomy: Those with Prostatic hyperplasia only or along with following conditions: Patient with big bladder diverticulum, bladder calculi unfragmentable perurethrally, significantly limited bladder capacity, hip ankylosing preventing TUR.

Contraindications: Fibrous, malignance, calculus prostate, bladder malignancy implantation in wound or prostatic cavity.

Freyer's operative technique: Freyer's prostatectomy is preferred to Millin's in Bladder pathology e.g. stone, diverticulum, lower ureterocele or ureteric calculus, obliterated retropubic space following bony deformity of symphysis pubis, extensive vascular malformation of capsule

Postoperative management:

- Bladder wash till it becomes clear. Traction on catheter.
- Blood Transfusion if required.
- For spinal anaesthesia or epidural anaesthesia foot end is elevated. Nil by mouth till 4 hours.
- For general anaesthesia: NBM till 6 hours if patient complains of nausea and vomiting.
- Monitoring for urine output, free and continuous drainage, haemorrhage and clot retention.
- Retropubic drain removed usually after 4-5 days.
- Suprapubic catheter was removed when haematuria clears up after clamping and checking free perurethral drainage.
- Perurethral catheter is removed usually after 12-15 days if there is no suprapubic leak.

RESULTS

The study was conducted 50 cases of benign enlargement of prostate admitted to our hospital during the period of 2 years. They were classified, investigated and managed surgically to study postoperative recovery and complications. Among 50, 21 (42%) were in the 8th decade, 17 (34%) were in the 7th decade, 9 (18%) were in the 6th decade and 3(6%) patients were having age more than 80 years.(Table 1)

Table 1: Age wise distribution of patients

Age (years)	No.of cases	Percentage
50-59	09	18%
60-69	17	34%
70-79	21	42%
>80	3	06%
Total	50	100

Digital rectal examination was performed in OPD and was a first step in examination. In this study, almost 72% of patients had moderately enlarged prostate on digital rectal examination. Only 8% had severely enlarged prostate. Only one patient had tender prostatic enlargement mainly due to urinary tract infection rather than abscess or malignancy. Nodularity was not observed in any patient studied.

Table 2: Digital Rectal Examination

DRE	No. of cases	Percentage
Mild	10	20%
Moderate	36	72%
Gross	4	08%
Tender	1	2
Firm	49	98%
Hard	1	2%

About 80% of cases had PSA level between 0-4 ng/ml. Rest 20% had high PSA level above 4 ng/ml.

Table 3: PSA LEVELS

Serum PSA level	No. of patients	Percentage
0-4 ng/ml	40	80%

4-10 ng/ml	07	14%
>10ng/ml	03	06%

In our study, Suprapubic drain was kept for average 3.38 days. Routinely, it is kept for 3 days. In patients with postoperative haemorrhage, the drain had to be kept for more than 4 days. Retropubic drain was kept for average 5 days and late removal of it was mainly associated with late removal of suprapubic drain. rethral catheter was removed on 15th postoperative day in most of the patients. It was kept for 16-18 days in 3 patients. It had to be kept for more than 18 days in 9 patients due to associated complications like suprapubic leak or wound infection

Table 4: Postoperative drains and catheter in days

Drain/ catheter	No. of days	No. of patients	%
Suprapubic drain	Upto 4 days	41	82%
	>4	9	18%
Retropubic drain	Upto 5 days	38	76%
	>5	12	24%
Urethral catheter	Upto 15 days	38	76%
	16-18 days	3	6%
	>18 days	9	18%

Most common early postoperative complications were wound infection and haemorrhage, followed by clot retention. Wound infection was found in 36% cases postoperatively. About 10% patients had urinary incontinence. It might be due to damaged sphincter while surgery. Suprapubic leak was seen in 8% patients postoperatively with other bladder pathologies like bladder calculi or cystitis. Epididymo-orchitis was found in 4% of patients post-operatively in our study. It might be due to spread of UTI and was managed by antibiotic like injectable mikacin, linezolid according to urine culture and sensitivity.

Table 5: Postoperative complaints

Complications		No. of patients	Percentage
Early	Haemorrhage	14	28%
	Urinary tract infection	5	10%

	Urinary incontinence	5	10%
	Suprapubic leak	4	8%
	Wound infection	18	36%
	Epididymo-orchitis	2	4%
	Clot Retention	5	10%
Late	Retrograde ejaculation	0	0%
	Bladder neck contracture	1	2%
Delayed	Urethral stricture	4	8%
No Complications		18	36%

Discussion

Comparison of postoperative complications between different studies

Complications		Nasser Simforoosh ¹¹	Oranusi CK ¹²	Joeb Rampurwala ¹³	Sagarkumar Gupta ¹⁴	Our study (%)
Early	Haemorrhage	-	18%	-	22%	28%
	Urinary tractinfection	4%	-	-	16%	10%
	Urinary incontinence	-	-	5%	8%	10%
	Suprapubicleak	6%	-	-	16%	8%
	Woundinfection	-	6.9%	30%	28%	36%
	Epididymo-orchitis	-	8%	5%	00%	4%
	Clot retention		1.4%		12%	10%
Late	Retrogradeejaculat ion	34%	-	-	00%	00%
	Bladder neck contracture	-	-	-	-	2%
Delayed	Urethralstricture	00%	-	-	4%	8%

We had compared our postoperative complications with different studies. In our study, 72% patients had moderately enlarged prostate on digital rectalexamination and following ultrasonography. 80% patients had serum PSA level <4 ng/ml. A good correlation was found between serum PSA level and prostate volume. We couldn't establish significant correlation among AUA score, age and sonography-

prostate volume. In patients with high serum PSA, trans-rectal needle biopsy can greatly add value to diagnosis. Serum PSA level may increase in conditions other than malignancy e.g. increasing age, prostatitis, catheterization, repeated DRE, BPH and urinary tract infection. Histopathological examination following surgery was suggestive of BPH in all patients in our study. As etiology, clinical findings and investigations are not so significantly correlated, combination of different tests and procedures like DRE, PSA, sonography and biopsy along with symptomatic analysis is more accurate than diagnosis based on single test.

Suprapubic drain was placed for up to 4 days in 82% of patients. Retropubic drain was kept for up to 5 days in 76% of patients, while per urethral catheter for up to 15 days in 76% cases. These drains and catheter had to be kept for longer duration in cases with postoperative complications.

Wound infection was seen in 36% patients, while hemorrhage, the other most common early postoperative complication, was observed in 28% of patients. Other postoperative complications were urinary tract infection (10%), clot retention (10%), urinary incontinence (10%) and suprapubic leak (8%). Proper dressing, antibiotic coverage according to culture and sensitivity, catheter traction and irrigation should be areas of focus to reduce such complications. Urethral stricture, a delayed complication, was seen in 8% of cases. It was managed by cystoscopy and dilatations.

A study by Mebust WK et al.¹⁵ on the mortality rate for transurethral prostatectomy was 0.2 per cent in 3,885 patients reviewed retrospectively. The immediate postoperative morbidity rate was 18 per cent. Increased morbidity was found in patients with a resection time of more than 90 minutes, gland size of more than 45 gm., acute urinary retention and patient age greater than 80 years, and in the black population. Of the patients 77 per cent had significant pre-existing medical problems. Operative mortality, significant morbidity and hospital stay were reduced in comparison to studies done 15 and 30 years ago.

Another study by Ioannis Varkarakis et al.¹⁶ on Long-term results of open transvesical prostatectomy from a contemporary series of patients., During a 5-year period, 232 patients with large (greater than 75 g) prostates underwent open transvesical prostatectomy for symptomatic benign prostatic hyperplasia. Patient charts were retrospectively reviewed for preoperative and postoperative International Prostate Symptom Scores, postvoid residual urine volumes, maximal flow rates, early and late postoperative complications, and the need for reoperation. Complete data evaluation was possible for 151 patients, with a mean follow-

up of 41.8 ± 15.6 months. Improvement in International Prostate Symptom Score, postvoid residual urine volume, and maximal flow rate was statistically significant ($P < 0.001$) at 8 to 12 months and remained statistically significant at the last follow-up visit. Long-term complications included bladder neck contraction in 5 (3.3%) occurring at a mean of 10 months (range 5 to 17), urethral strictures in 1 (0.6%), and meatal stenosis in 2 (1.3%) of 151 patients. Re-operation was required in 6 patients (3.9%).

In a study by Ibrahim Ahmed Gadam et al.¹⁷ a total of 253 patients were studied. Their mean age was 69.11 ± 10.9 years (range 50–98). The most common symptoms at presentation included frequency 229 (90.5%) and poor stream 225 (88.9%). The most common complications at presentation were stones in 41 (16.2%) and bleeding in 37 (14.6%). The most common comorbid conditions were hypertension and diabetes found in 72 (28.5%) and 23 (9.1%), respectively. Transvesical prostatectomy was done for most of the patients, 126 (49.8%). Clot retention and wound infection were the commonest postoperative complications accounting for 19 (7.5%) each. Transient incontinence occurred in 17 (6.7%) patients. There was 1 (0.4%) mortality. Open prostatectomy still has a prime place in the operative treatment of BPH with acceptable postoperative morbidity and very low mortality in the developing world with no facilities for TURP.

Conclusion:

Most common early postoperative complications were wound infection and haemorrhage, followed by clot retention. Depending upon size of prostate, symptoms and availability of institutional resources, newer operative modalities should be tried to improve overall outcome.

REFERENCES

1. Ali L, Orakzai N, Ali M. Transvesical Prostatectomy in elderly patients: an experience at Saidu Teaching Hospital Swat. *Ann Pak Inst Med Sci* 2008;4(3)148-51.
2. Khattak, S., Kamal, A. and Khattak, A.M. Surgical Treatment of Benign Prostatic Hyperplasia. *Biomedica*2004;20:123-6.
3. Ibrahim AG, Aliyu S, Ali N. Open Prostatectomy for Huge Prostates: Our Experience in a Developing Country. *Trop Med Surgery* 2013 Jul 27.
4. Bostwick DG “The Pathology of Benign Prostatic Hyperplasia” In: Kirby R, McConnell J, Fitzpatrick J, Roehrborn C, Boyle P, editors. *Textbook of Benign Prostatic Hyperplasia*. Oxford Isis Med Media LTD 1996; 119-23 5.
5. Harris Gardiner “U.S. Panel says No to Prostate Screening for Healthy Men.” *New York times*, Oct 6, 2011.
6. Yunusa B, Cassell A, Konneh S, Sheriff S, Ikpi E. The Outcome of Transvesical Prostatectomy—A Multicenter Retrospective Study. *Open J Urol* 2019 May 31;9(05)85.
7. Tubaro A, de Nunzio C. The current role of open surgery in BPH. *EAU-EBU Updat Ser* 2006;4191–201.
8. Reich O, Gratzke C, Bachmann A, Seitz M, Schlenker B, Hermanek P, et al. Morbidity, mortality and early outcome of transurethral resection of the prostate: a prospective multicenter evaluation of 10,654 patients. *J Urol* 2008;180246–9.
9. Oelke AB, Descazeaud A, Emberton M, Gravas S, Michel MC, N’Dow J, et al. Guidelines on the Management of Male Lower Urinary Tract Symptoms (LUTS), including Benign Prostatic Obstruction (BPO). *Eur Assoc Urol* 2013.
10. Moslemi, M.K. and Zadeh, M.A. Simple Suprapubic Prostatectomy. *Urol Journal*2010;751-55.
11. Nasser Simforoosh, Hamidreza Abdi, Amir Hossein Kashi, et al. Open Prostatectomy Versus Transurethral Resection of the Prostate, Where Are We Standing in the New

- Era? A Randomized Control Trial Urol J 2010; 7(4)262-9.
12. Oranusi CK, Nwofor AM, Oranusi IO. Complication rates of open transvesical prostatectomy according to the Clavien–Dindo classification system. Niger J Clin Pract 2012;15(1)34-7.
 13. Joeb Rampurwala benign enlargement of prostate a comparative study between TURP and freyers Gujarat Uni. April 1987.
 14. Sagarkumar Gupta, Mehul I Solanki and Honeypalsinh H Maharaul. A Comparative Study of Postoperative Complications of Open Prostatectomy (Fryer's) Versus Trans Urethral Resection of Prostate. Int J Biomed Res 2015; 6(09) 712-717.
 15. Mebust WK, Holtgrewe HL, Cockett AT, Peters PC. Transurethral prostatectomy: immediate and postoperative complications. A cooperative study of 13 participating institutions evaluating 3,885 patients. J Urol 1989 Feb;141(2)243-7.
 16. Varkarakis I, Kyriakakis Z, Delis A, Protogerou V, Deliveliotis C. Long-term results of open transvesical prostatectomy from a contemporary series of patients. Urol 2004 Aug 1;64(2)306-10.
 17. Ahmed Gadam I, Nuhu A, Aliyu S. Ten-Year Experience with Open Prostatectomy in Maiduguri",. Int Sch Res Not 4 pages, 2012.