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Transurethral Resection of Prostate—Lessons Learnt

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Abstract: Introduction & Objective: TURP (transurethral resection of prostate) is the gold standard of treatment for patients with BPE (benign prostatic enlargement). But TURP is criticized due to its morbidity and mortality. We analyzed our two decade data and found that the morbidity can be reduced by taking simple precautions in the later decade. Methods**:** A total of 13,786 patients were studied in the past two decades (Jan. 1994-Dec. 2014) operated by single surgeon, grouped in A (Jan. 1994-Dec. 2004) and B (Jan. 2004-Dec. 2014). Patients with concomitant stricture urethra, vesical calculus/tumor and carcinoma prostate were excluded from the study. Patients were operated under good antibiotic cover. The demographic profile, operative findings, weight, biopsy and post op follow up for 6 months & the immediate and immediate six months post operative complications were recorded. All patients in group B had urethral dilatation up to 27 F, restricted resection time of 90 minutes, concomitant bilateral BNI (bladder neck incision) in small glands (< 30 gms.), catheter care twice a day with betadine lotion and neosporin ointment & long term antibiotic prophylaxis in biopsy proven BPH (Benign prostatic hyperplasia) with chronic prostatitis patients. Results: A total of 6,800 patients were enrolled in Group A and 6,986 in Group B. In the immediate postop period there was significant drop in TUR (Trans urethral resection) syndrome and clot evacuation ($p > 0.01$) in group B. In the Late complications there is significant drop in the incidence of meatitis, meatal stenosis, stricture urethra & bladder neck stenosis ($p > 0.001$) in group B. Conclusions: TURP is still the gold standard of treatment for BPE and its morbidity can be reduced by simple measures like restricting resection time to 90 minutes urethral dilatation before insertion of resectoscope, catheter care & concimitent concomitant BNI in glands of < 30 gms.

Key words: Transurethral, prostate, complications.

1. Introduction

Although the etiology of LUTS (lower urinary tract symptoms) is now considered multifactorial, many patients are found to have BPE (benign prostatic enlargement) refractory to first and second line medical treatment and are potential surgical candidates. (1) TURP (Transurethral resection of prostate) has been the gold standard treatment for BPE for over three decades. (2) The European guidelines also recommend monopolar TURP as the standard surgical treatment for prostate size of 30-80 mL. (3) But monopolar TRUP is criticized due to its morbidity and mortality in the earlier days. (4) This led to the need for improved medical therapies and advent of bipolar, laser and other surgical alternatives, yet monopolar TURP is still the gold standard treatment because of widespread use and long follow up of 4-5 decades. (5) Of late, there have been better results with few complications possibly because of improvement in electrosurgical units, resection techniques and several operator dependent factors which are not clearly defined. The need to identify such variable operator factors cannot be over looked.

1.1 Objective

To analyze the results of TURP in patients our initial decade results were compared with second decade and to identify the preventive factors which may contribute to minimize complications.

2. Methods

A total of 13,786 patients were studied in the past two decades (Jan. 1994 to Dec. 2004) as group A and (Jan. 2004 to Dec. 2014) as group B. These patients were operated by single surgeon at different Institutions.

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2.1 The Inclusion Criteria

(1) Patients with LUTS refractory to medical treatment
(2) All standard indications of prostatectomy

2.2 The Exclusion Criteria

(1) Stricture urethra
(2) Vesical calculus
(3) Vesical Tumor
(4) Proved carcinoma prostate

2.3 Neurogenic Bladder

All patients were investigated thoroughly and operated under suitable antibiotic cover. An urodynamic evaluation was done in selected patients. The demographic profile, comorbid diseases, operative time, surgical details, prostatic weight (wet) and biopsy were recorded.

In Group A, a straight urethral dilator was passed to dilate the meatus up to 27 F, whereas conventional metal bougie was passed in all patients of Group B. The operating time was limited to 90 minutes in Group B and there was regular use of 2% Xylocaine jelly and lubrication of sheath throughout the operative procedure, use of Ciprofloxacin/Neosporin eye ointment at the catheter tip after cleaning with betadine lotion twice a day. In smaller glands of less than 30 gms a concomitant bilateral BNI was done in Group B.

A four-weeks of antibiotics was given in both groups in the post operative period but in patients with histological evidence of chronic prostatitis, long term of suppressive prophylaxis for three months was given in Group B.

The intraoperative and immediate complications were recorded in both groups. The follow up was done at monthly interval for 6 months by routine urine examination and or Uroflowmetry in both groups, the complication was recorded and treated accordingly.

3. Results

A total of 6,800 patients were enrolled in Group A and 6,986 in Group B.

The comorbid conditions in both groups were comparable in both groups except a little higher incidence of diabetes, hypertension and renal insufficiency in Group B (Table 1).

The immediate postoperative morbidity and mortality are depicted in Table 2 which showed less percentage of patients with clot evacuation and TUR syndrome in the later decade (Group B).

Table 1 Comorbid conditions in patients undergoing TURP.

Comorbid conditions	Group A (6800)	Group B (6986)
Diabetes	816 (12%)	984 (14.08%)
HTN	1,060 (15.58%)	1,224 (17.52%)
CAD	78 (1.14%)	96 (1.37%)
CVA	100 (2.16%)	72 (1.03%)
Renal insufficiency (S.Creat 2-4 mg%)	272 (4%)	312 (4.46%)
Dyslipidemia	1,168 (17.18%)	1,098 (15.71%)

Table 2 Immediate morbidity and mortality.

Event	Group A	Group B
UTI	410 (6.02%)	367 (5.25%)
Clot evacuation & bladder wash	160 (2.35%)	100 (1.43%)
TUR syndrome	17 (0.25%)	05 (0.07%)
Failure to void	70 (1.03%)	55 (0.78%)
Mortality	10 (0.14%)	07 (0.01%)
Cardiac event (Angina/MI)	06 (0.08%)	05 (0.07%)

Table 3 Mortality following TUR (P).

	Group A (10)	Group B (7)
Hypovolumic shock	2	2
MI	4	3
TUR syndrome	2	1
Septice mia and multiorgan failure	2	1

It could be possibly because of better hemostasis, experience of surgeon and limitation of surgical time in Group B. In spite of access to urodynamics in selected patients, a failure to void is seen in both groups which were not significant statistically. However, a majority passed urine after 7-10 days of recatheterisation, but 18 patients in Group A and 24 patients in Group B required Urodynamic assessment necessitating the need for clean intermittent catheterization and use of Bethenechol for 6-12 months. There were 10 deaths in Group A and 7 in Group B in the initial post op period of which 2 in both groups died of hypovolemic shock, secondary to bleeding (Table 3).

Only 2 patients of MI (myocardial infarctionin) both groups could be saved. There were 2 deaths in Group A and 1 in Group B due to septicemia and multi organ failure where the patients were of advance age group with diabetes and dyslipidemia.

There was no statistical difference between the resected gland weight in either group (Table 4). It was observed that most of the patients had chronic prostatitis in both groups possibly because of longstanding UTI and delayed surgical treatment. Many patients in both group had foci of pus pockets, which could be managed conservatively. Incidentally, a significant proportion of patients were found to have incidental carcinoma (Ca) on histopathology. In most of the patients it was above Gleason's score of 6. These patients were further staged and treated accordingly. Surprisingly, about 0.22%-0.31% of patients had tubercular prostatitis for which medical treatment was instituted.

In the delayed complications (Table 5), there was significant reduction in the incidence of meatitis, meatal stenosis, stricture urethra and bladder neck stenosis in Group B ($p > 0.001$) possibly because of standard preoperative urethral dilatation, regular use of intra operative lubricants, limitation of resection time post operative catheter care with proper fixation and long term chemoprophylaxis in patients of chronic prostatitis. It was observed that patients in both groups who had longstanding poorly placed catheters with improper fixation and poor hygiene had more episodes

Table 4 Distribution of cases according to weight and histopathology (HPE).

	Group A (6800)	Group B (6986)
Weight in gms		
15-30	140 (2.05%)	150 (2.15%)
30-45	2,800 (41.17%)	2,950 (42.22%)
45-60	2,080 (30.59%)	2,010 (28.77%)
60-90	1,580 (23.23%)	1,690 (24.19%)
90 and above	200 (2.95%)	186 (2.66%)
Histopathology		
Being prostatic hyperplasia (BPH)	1,795 (26.4%)	1,305 (18.95%)
BPH with chronic prostatitis	4,280 (62.94%)	4,690 (68.01%)
BPH with acute prostatitis	64 (0.94%)	62 (0.89%)
Incidental carcinoma prostate	646 (9.5%)	817 (11.84%)
Tuberculosis prostate	15 (0.22%)	22 (0.31%)

Table 5 Morbidity within six months following TURP.

Event	Group A (6800)	Group B (6986)
Intermittent hematuria	70 (1.02%)	78 (1.11%)
Meatitis & meatal stenosis	590 (8.67%)	315 (4.5%)
Stricture urethra	816 (12%)	561 (8.03%)
Bladder neck stenosis	978 (14.38%)	458 (6.55%)
Stress incontinence	652 (9.58%)	682 (9.76%)
True incontinence	10 (0.01%)	8 (0.11%)
Persistant pyuria	90 (1.32%)	85 (1.21%)

of such complications in both groups. A concomitant BNI in small glands has possibly led to decreased incidence of bladder neck stenosis ($p > 0.001$) in Group B.

It was observed that patients with advance age, respiratory problems and large glands, tubercular prostate had more incidence of SUI which responded with time to Kegels exercise and supportive treatment. In all patients with true incontinence in both groups, two patients underwent bulbar urethral sling operation, one had artificial sphincter placed elsewhere and rest opted for Cunningham penile clamp. Patients with pyuria were found to have associated renal failure, chronic prostatitis and diabetes requiring chemoprophylaxis for more than 12 months in both groups.

4. Conclusion

Monopolar TURP is still regarded as the standard treatment for BPE. Its morbidity can be reduced by simple measures like restricting resection time to 90 minutes, sequential intraoperative urethral dilatations before insertion of resectoscope, regular use of lubricants during the procedure, proper catheter fixation and care, concomitant BNI in small glands and long term chemoprophylaxis in chronic prostatitis patient as is evident from this large study.

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