Original Article

Mono-Polartrans Urethral Resection of Prostate; A Third World Gold Standard

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ABSTRACT

Objective: To show the safety profile of Monopolar Trans Urethral resection of Prostate weighing more than 80 grams

Study Design: Cross sectional study

Place and Duration of Study: This study was conducted at the Department of Urology, Shaheed Mohtarma Benazir Bhutto Medical College and Lyari General Hospital from January 2013 to July 2017.

Materials and Methods: Seventy two patients were selected through non probability purposive sampling. Inclusion criteria consisted of patients having 81gm to 161 gm Prostate; having failed trial without catheter and could not bear symptoms and cost. High risk patients were excluded. Monopolar Trans urethral resection of Prostate was performed by a single surgeon using standard technique.

Results: Mean age of the patients was 65 years with SD 7, minimum 50 and maximum 90 years. Twenty six patients were diabetic and hypertensive. Mean size of the prostate was 93 gm with minimum 81 and maximum 161. Consistency of the prostate was found hard in three and tenderness in five of the prostates. Three (4%)of the patients had malignancy of prostate. Escherichia Coli was the most common pathogen.

Conclusion: M-TURP is economical and is a locally easily available procedure with good safety profile and durable results.

Key Words: M-TURP, BPH, B-TURP

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INTRODUCTION

Benign Prostatic Hyperplasia (BPH), which is a disease of the old age (mostly after 60 years) leads to Urinary Tract obstruction and infection[1]. Alpha Antagonists alone or with 5-Alpha Reductase inhibitors are used to treat BPH in the initial phase of the disease. Upon failure, patients are moved to surgical intervention[2]. Monopolar Trans-Urethral Resection of Prostate (M-TURP) is one endoscopic surgical treatment option. By using diathermy (electric current), prostatic tissue is resected as chips as well as coagulate bleeding vessels up to the prostatic capsule[3].

The rationale of this study was to show that M-TURP is a viable option even in Large prostate size (>80gm) with acceptable and durable results along with reasonable safety profile. This technique, in spite of other newer and recently described modalities e.g. Bipolar TURP or laser, is Gold Standarad where familiarity and expertise with M-TURP are extensive.

MATERIALS AND METHODS

This cross-sectional study was conducted in the Department of Urology, Shaheed Mohtarma Benazir Bhutto Medical College and Lyari general Hospital from January 2013 to July 2017. Sampling technique was non-probability purposive and the sample size being 72. Approval from the Ethical Review Committee was taken. The study was started after taking verbal permission from patients. and their confidentiality was maintained. Complete history was taken and examination was performed. International Prostate Symptom Score (IPSS) was not assessed and Uro-flometery (UFM) was not done as patients were mostly catheterized with failed multiple trials without catheter (TWOC) on Alpha blockers and combination therapy. Cardiac and Anesthesia finesses were taken. Inclusion criteria consisted of patients from 81 gm to 161 gm prostate, having failed TWOC, were catheterized, could not bear symptoms and cost and with negative culture. Patients with high risk were excluded. M-TURP was performed using standard technique by a single surgeon with more than 10 years experience. Post operatively, Hemoglobin (Hb), Total

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Leucocyte Count (TLC), Electrolytes and Creatinine (Cr) were checked. Histopathology of prostate of all patients was got done to exclude malignancy. Foleys catheter was removed when bladder irrigation had been stopped for 12 hours.

Verbal questioning assessed effectiveness of the procedure and performa filled subsequently by the researchers. Patient's satisfaction was assessed in terms of their ability to void, control urination, frequency, urgency and urge incontinence. Most of the patients were discharged on third or fourth postoperative day.

On follow-up, patients were reviewed four to six weeks after catheter removal to evaluate treatment response and adverse events. If patients have symptomatic relief and are without adverse events, no further re-assessment was conducted similar to recommendation in European Urology 2018 guidelines[4].

Data were entered into SPSS-17(password protected). Mean, SD, minimum and maximum was calculated for continuous variable like age. Residence of the patients was exhibited through bar graph. Multiple response analysis was done for co- morbidities and Prostatic features. Categorical variable like urine culture type and indwelling Foley's catheter were exhibited in number and percentages. Missing data in continuous variables was handled by mean of the series.

RESULTS

Mean age of the patients was 65 years with SD seven, minimum 50 and maximum 90. Most of the patients were residents of Lyari and Baluchistan (each 18%; 32%). . Twenty six patients had significant co-morbids. Of those 30% (n-8) were Diabetic and 70%(n-18) were Hypertensive. In situ catheter was present in 28 (38%) with mean duration of 20 days. Mean size of the prostate was 93 gm with minimum 81 and maximum 161. Consistency of prostate was found hard in 3 (6%); and tenderness in five of the patients. Three (4%)of the patients had malignancy of prostate. Creatinine was raised in four (5.5%) of the cases. Preoperative urine culture was positive in 39 (80%) of the cases. Escherichia Coli was the most common organism 14(25%).

DISCUSSION

Since its inception in 1909, Trans-urethral resection of prostate(TURP) has under gone several modifications and evolutions[5]. Initially it had a high complication rate, most dreaded of which were bleeding and TURP syndrome[6]. Also a difficult learning curve with poor vision, it was uncomfortable for the surgeon to perform as it strained the back and neck due to nature of the telescope. With time, as a result of improvement in video monitor and camera technology, it became easier to perform, teach and learn; hence expertise grew. Multiple studies defined rules to increase its safety and M-TURP became labeled as a GOLD STANDARD[7].

One rule defined was that it is not the first choice in more than 80 gm prostate size as it increases chances of TURP syndrome and bleeding intra-operatively as well as post-operatively.To counter this limitation, laser technology as well as Bipolar diathermy (instead of the Monopolar diathermy being used traditionally) called Bipolar Trans-Uretheral resection of prostate (B-TURP) were introduced. Both found success in resecting more than 80gm Prostate safely but at an added cost especially in lasers use[8]. In spite of the evolution of above technologies, M-TURP remains the most common surgical modality for treating BPH[9].

The European Urology guide lines 2017 (EUA-GL 2017) give Open Prostatectomy or Endoscopic Enucleation1st recommendation in >80gm prostate size along with laser resection as 2nd line and TURP as a very last option[10].

Many studies have found conflicting results at best showing equivalence of both procedures and at worst showing a slightly increased risk of bleeding for Monopolar TURP and a slightly increased risk for stricture formation in Bipolar TURP[11]. Three recent trials comparing B-TURP to M-TURP, found no significant difference between the techniques[12]. Two trials found that M-TURP had a shorter operating time[13]. A review of B-TURP by Issa showed outcomes of both M-TURP and B-TURP had similar efficacy with regard to AUASS, QoL score, peak urinary flow rate and residual urine[14]. A meta-analysis evaluating outcomes at 12 months found that bipolar devices demonstrated no significant difference in American Urology Association Symptom score (AUASS) or prostate volume reductions compared with M-TURP[15].

Researchers in the Department of Urology, Sindh Government Lyari general hospital (LGH),routinely perform M-TURP regardless of prostate size. The reasons are limited resources of the hospital and no concept of medical insurance. This Hospital catersa low socioeconomic subset of population, local and from other areas mainly Baluchistan and interior Sindh. Admissions sometimes extend up-to a month as many people come from far flung areas where there is no availability of local tertiary care hospital. They cannot afford to rent rooms and so have to be admitted to optimize and be investigated sometimes till definitive procedure can be performed.

This study shows safety, efficacy and long term durability of M-TURP. It is acceptable to this sub set of patients and it should not be underestimated as a viable technique for large (>80gm) prostate resection. The American Urology Association (AUA) guidelines suggest that the choice of approach should be based on the patient's characteristics like anatomy, surgeon's experience and discussion of the potential benefits and risks of complications[16]. European Urology Association guide lines-2017 also state that the upper limit suggested for TURP is 80 mg as this limit depends on

the surgeon's experience, resection speedand choice of resectoscope size[17].

Rieken M. compared various surgical techniques. He found that the choice of the technique depends on prostate size, risk factors of the patient and expertise of the surgeon[18]. One study by Srivastava also claims its effectiveness in the management of large prostate gland in men with Impaired Renal Function.[19]

In this study mean age of the patients was 65 years with SD seven. The catered population was mainly from Lyari, Baluchistan and interior Sindh. Twenty six patients had significant co-morbids. Of those 30% (n-8) were Diabetic and 70% (n-18) were Hypertensive. All patients presenting with severe Lower Urinary Tract Symptoms (LUTS) had failed medical treatment or were ignoring symptoms till those became unbearable with 28 (38.35%) already on prolonged catheterization on admission. This could be due to lack of awareness or difficult access to health facility as TURP is not available in all public sector hospitals. This finding is shared by a study conducted by Vijay et a[20]. Digital Rectal Examination (DRE) along with Prostatic Specific Antigen (PSA) testing performed on all patients excluded Carcinoma Prostate (CAP) . Mean size of the Gland on Trans-vesicle ultra sound was found 93 ranging from 81 to 161. This was nearly similar to those found in other studies[21]. Four patients came with raised Creatinine (Cr). Following TURP, Cr of one patient became normal and three were labeled patients with Chronic Renal Failure (CRF). They were asymptomatic, dialysis free and maintained Cr. Two of them underwent Arteriovenous fistula (AVF) formation for future Hemodialysis, if needed and were followed up in Nephrology OPD.

Pre op Urine Cultures showed 39 (53.34%) patients to have a positive culture. Most common organism was E-coli. This was likely due to the prolonged catheter in situ and unhygienic condition along with neglect that the patients faced before coming to hospital. They were meticulously treated for at least seven days before surgery to optimize for procedure. Intra operatively no major complications were faced. In two patients (2.7%;153gm& 161gm) M-TURP was performed in two stages on two separate occasions within same admission one week apart as it became difficult to complete the procedure in single setting safely because of prostate size and resection time so we felt this was appropriate to be on safe side, This is a described technique in literature also called staged TURP (Hemi-resection)[22].

Post operatively patients were kept on traction of Foleys cathater for 6 hours along with continuous irrigation through a 3 way Foleys catheter which was stopped on 1st post op day as well as antibiotics and pain killers which were continued for the duration of admission. Foley's catheter was removed on the third to fourth post operative day. All patients except one, voided successfully with nil to negligible post void residue on Trans-abdominal Ultrasound performed day after catheter removal. All were discharged with advice for follow up after 2-3 weeks.

On follow up, patients were catheter free, satisfied with void on verbal questioning and had a nil to minimal Post void residue so were completely emptying their bladder. Uroflowmetery (UFM) was not performed on patients routinely. One patient, who failed post TURP trial, was re-catheterized and 2nd trial after two weeks was successful. Two patients (2.7%) went into clot retention and needed to undergo Cystoscopy for clot removal. A meta-analysis reported 51 of 880 patients undergoing M-TURP, had clot retention[23]. One patient developed partial incontinence. It was due to sphincter damage as a result of difficult instrumentation. One patient presented with Bladder neck stenosis and needed Bladder Neck Incision (BNI) to relieve the condition. There was no bladder perforation or Ureteric orifice damage. Also there was no massive bleeding during or after the operation and so no blood transfusion was needed, unlike a meta-analysis that found 53 of 1226 patients undergoing M-TURP required blood transfusion[23]. There was no incidence of TURP syndrome in patients. Similar to this, few other studies have also not reported TUR syndrome in patients undergoing M-TURP[24]. No incidence of meatal stenosis or urethral Stricture on follow up was noted.

The effect of M-TURP on penile erection is controversial[25]. Many patients had decreased or weakened this function preoperatively likely due to prolonged catheterization. Also the patients did not have specific complaints regarding erection. The Researchers believe this could be because none of the patients who underwent M-TURP had any severe cardiac co-morbid or capsular perforation during procedure. .Literature say there is significant risks when above two conditions are met[26].

The short comings and limitations of our study were its single center, single operator nature, non randomized limited number of patients and short limited follow up. This was mainly due to many patients becoming lost to follow up as they lived far away and financial limitation keeping them from returning for follow ups.

CONCLUSION

M-TURP has good safety profile with durable reproducible results provided enough familiarity and expertises with this procedure are present and safety rules are followed. Also it is still a more economical and easily available method compared to the other minimally invasive modalities for treatment of Enlarged prostate. Size of the prostate does not matter as much as experties and well controlled resection speed of a surgeon.

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