

IRRIGATION FREE TRANSURETHRAL RESECTION OF PROSTATE (TURP)

MOHAMMAD ASLAM, SYED SAEED ABIDI, IRFAN FEROZ, SAQUIB U. KHAN, MOIN JUNAID

Department of Urology, Karachi Medical and Dental College & Abbasi Shaheed Hospital

ABSTRACT

Objectives:

To assess the safety and feasibility of irrigation free TURP in our routine practice.

Methodology:

This study was carried out at Department of Urology, Karachi Medical and Dental College & Abbasi Shaheed Hospital, from March 2009 to February 2010. In this interventional study our inclusion criteria was benign disease and prostate weight up to 70 grams. Patients having more than two systemic medical illness like Diabetes, Hypertension (HTN), Ischemic heart disease (IHD), Cerebro-vascular accident (CVA) and Parkinsonism, were excluded from study. Patients remains on anti coagulant medications, patients with present or persistent urinary tract infections were also excluded. Patients who had surgical trauma, incidentally invent urethral stricture and vesical stones were also excluded. All cases were operated by one qualified, experienced surgeon. The decision of irrigation free TURP was taken on the basis of satisfactory hemostasis and good peri operative blood pressure control. Irrigation free TURP was ordered in post operative notes and such cases were closely observed for next 24 hours. After initial advice of irrigation free group if the patient needed irrigation because of haematuria, different patient's and operative variables were reviewed.

Results:

There were total 50 patients aged 52-84 years with prostate weight ranging from 35 to 70 grams. Mean weight of prostate was 50.12 grams. Our 27 % patients were hypertensive, 20 % were diabetic and 17 % patients had two comorbid conditions. Out of 50 patients 39 that is 78 % cases remained

irrigation free and followed the routine post operative course and were discharged. Patients who developed haematuria and had irrigation were 22 %, seven had about two liters irrigation fluid over 6 hours and 4 patients had larger amount of fluid for 24 hours. In those patients who needed irrigation, seventy six percent were hypertensive, forty two percent were diabetic and twenty percent had two comorbid conditions. History of urinary infection was positive in ninety percent cases. Size of prostate and duration of surgery had no major impact on post operative period in this study. Seventy percent of the patients who needed irrigation had low blood pressure during surgery and became hypertensive in post operative phase.

Conclusion:

Post TURP Irrigation is an important step that helps in avoiding clot retention in early post operative phase. It increases the work load and treatment cost. In selected patients who have moderate gland, no major co morbidities and no infection, irrigation free TURP can be practised under close observation.

Keywords:

Prostate, Benign Prostate Hyperplasia (BPH), Transurethral resection of prostate (TURP), Irrigation free TURP, haematuria.

INTRODUCTION

TURP is considered gold standard and the surgical treatment of choice for clinically symptomatic Benign Prostatic Hyperplasia¹ (BPH). Since mid fifties when endoscopic resection of prostate was introduced², many modifications have also been brought that include operative technique, extent of resection, change in instrument size, design, and change in telescope. Irrigation during resection is an essential part of endoscopic resection. Changes were also launched in this area. Resection was

started with pure water, then use of dextrose water, Manitol, glycine and now Sorbitol is also used³. All those modifications were introduced to make this procedure more effective and more safe.

Classically TURP is followed by continuous bladder irrigation with normal saline⁴. Duration and amount of post TURP irrigation fluid is not fixed. Sometimes it may continue for more than 36 to 48 hours and volume may exceeds more than 30-35 liters. Irrigation continuously washes and evacuates blood that if pooled or coagulated into the bladder, may cause retention of urine or clot colic. This irrigation demands not only the presence of large amount of normal saline but also a well trained nursing staff to change the bottles and also a doctor who is smart enough to assess the patients urine output via excluding volume of irrigation fluid. Also persistent and continuous irrigation is one of the commonest cause of prolong hospital stay in patients had TURP⁵.

Is Post TURP irrigation an essential step of procedure? Is it possible to predict its use and assess the duration of this step and what are the factors that may contribute to short duration or prolonged irrigation? Keeping these questions in mind we conducted an experimental study in patients needing TURP for benign enlargement of prostate without post TURP irrigation. Presently, not enough published data is available on irrigation free TURP. This study was conducted to evaluate the results of irrigation free TURP with the stress on surgical techniques resulting in excellent hemostasis in order to save man power and make it more cost effective treatment in our society.

MATERIAL AND METHODS

The protocol for this interventional study was approved by the appropriate review board. Total 50 cases of BPH were included in this study who underwent TURP. Diagnosis was made on the basis of history, digital rectal examination while ultrasonography was used to assess the size of prostate. Complete blood count, routine urine examination and blood sugar level were done in all the cases. Urine Culture and sensitivity was done only in already catheterized patients. X ray IVP, Transrectal ultrasound, and Uroflowmetry were optional investigations. Serum PSA was advised only in selected

patients. Renal function tests, ECG and X ray chest were done in all cases.

All patients were given antibiotics preoperatively and they underwent surgery under spinal anesthesia. As routine we followed Blandy's method of resection. Special emphasis on hemostasis was done with the help of pin point and roller ball cautery. Procedure was continued till the color of urine became naked eye clear and blood free. After completion of surgery 22 Fr. three way Foley catheter was placed. Usually we avoid catheter traction. On table decision about irrigation following TURP was made on the basis of size of prostate, vascularity of prostate, hemostasis, extent and duration of resection and comorbid conditions. Bolus of 500 cc normal saline was advised over 2 hours and occasionally Furesimide was also injected for diuresis.

All post operated cases were detained in recovery room for at least two hours then were shifted to their beds in urology department. The initial post operative period was monitored by urology resident, who follow patient's blood pressure, pulse, urine output and color of urine in hourly basis. Decision of continuing irrigation free orders or to start irrigation was based on clinical condition of patients and the color of urine. Clinically urine color was sort out into four scales. That is clear, mild tinge, light red and dark. Irrigation was resumed only if significant amount of haematuria persisted that is light red urine with clotts or dark red urine. If patient needs irrigation, after initial advice of irrigation free case, different patients and operative variables were reviewed. These variables included, prostate size, presence of comorbid conditions like diabetes or high blood pressure, past history of anticoagulant medication, past history of urinary tract infection, history and duration of indwelling catheterization. Also duration of surgery, amount of resected tissue, peri operative blood pressure and any operative trauma was reviewed.

RESULTS

There were total 50 patients aged 52-84 years. Out of that hypertensives were 27%, diabetics were 20%. Patients with ischemic heart disease were 10 % and 17 % had two comorbid conditions. Prostate weight ranged from 35 to 70 grams. Mean weight

of prostate was 50.12 grams. Mean resection time was 68 minutes. Out of 50 patients 39 that is 78 % cases remained irrigation free and followed the routine post operative course and discharged in time. 22 % patients developed significant haematuria and needed irrigation, seven had about two liters irrigation fluid over 6 hours and 4 patients had larger amount of fluid for 24 hours.

TABLE 1.
COMPARISON OF PATIENTS VARIABLES WHO REMAINS IRRIGATION FREE (A) TO THOSE WHO NEEDS IRRIGATION (B) AFTER TURP.

<i>Patients Variables.</i>	<i>A n=39</i>	<i>B n=11</i>
	<i>78%</i>	<i>22%</i>
Patients mean age in year	69	71
Prostate mean weight	51	49
One comorbid condition	57%	38%
Two comorbid condition	12%	62%
History of UTI	12%	90%
History of Anticoagulants	15%	19%
Mean Resection time	64	72
Peri operative blood pressure control	80%	08%

In patients who needed irrigation, seventy six percent were hypertensive, forty two percent were diabetic and twenty percent had two comorbid conditions. History of urinary infection was positive in ninety percent cases. Size of prostate and duration of surgery had no major impact on post operative period. Seventy percent patients who needed irrigation were hypotensive during surgery and became hypertensive in post operative phase. (Table 1)

DISCUSSION

Urinary symptoms secondary to enlargement of prostate are common health issues all over the world. Its incidence is increasing with the increasing age, and it is estimated that at the age of 70 years fifty percent males are affected due to benign prostatic hyperplasia⁶. From medical treatment^{7,8} to surgical intervention dozens of modalities were used to treat this health issue⁹. The treatment associated

morbidity and mortality made all methods as non ideal. Though TURP is still considered best, it also has significant complications¹⁰. From 1950s, when TURP was first introduced, there are gradual and persistent efforts to make this procedure more effective, safe and affordable for all. Is every step of procedure as essential as it was in the era of Blandy?. This question demands a deep review on the procedure related mortality and morbidity. In last three decades its mortality is decreasing from 05% to 0.25% or less but morbidity is still 18-20%¹¹. The major issues were because of extended catheterization after surgery¹². Commonly catheter is removed after 12-18 hours of holding bladder irrigation when urine gets clear.

Transurethral resection of prostate is the commonest surgery in urology unit. Its pre operative, operative and post operative protocols are very established. In majority of cases it is routine to start continuous, uninterrupted normal saline as irrigation fluid. It is a common observation that in some patients the urine remains clear right from beginning and in some cases it remains dark red and alarming even after maximum efforts to control it. Keeping these observations in mind this study was designed to assess the importance of post operative irrigation. Efforts were also made to find out factors that may help to avoid it or predict its use after surgery.

In literature the references for irrigation free resection are very rare. All those workers who performed TURP as day care or wanted to avoid post operative catheterization as experimental study actually achieved their goals because of avoiding irrigation after TURP^{11,13}. Chander J in 2003 published his experience of catheter free (means irrigation free) TURP in BJU internationals mentioned that TURP is possible as day care procedure only if there is no bleeding after surgery therefore no need of post operative catheterization and irrigation. To achieve his goal instead of electric current author used laser energy for resection and fulguration in relatively small size prostate. The important point from his study is there should be no haematuria at the end of procedure. In our study sampling we select moderate to large size prostate and used electric current as source of energy for resection and fulguration. But in both studies the key is the same

“there should be no haematuria when the procedure ends”.

In this study our 78% patients remained irrigation free and only 22% patients needed some degree of irrigation. Among 22% patients there were few common factors. Most important is the history of urinary tract infection. 90% of these patients had past history of urinary infection. The scarred or inflamed tissue has a tendency to bleed more. Chances of bleeding increases in patients with indwelling catheters. Bacteriuria after endoscopic procedures is a documented fact. Its incidence varies from 24 % to 60 %. Secondary hemorrhage is a known delayed sequel of infection¹⁴. To avoid these complications it is very important to have urine culture in patients who were catheterized or had history of fever with urinary complaints, and use of prophylactic or therapeutic antibiotics.¹⁴

Second important factors that lead to post operative haematuria is uncontrolled blood pressure and diabetes. Our 76 % patients who needed irrigation were hypertensive and 42 % had diabetes. High blood pressure leads to excessive bleeding¹⁵, prolonged operative time, also large amount of fluid used during surgery may get absorbed, leads to fluid and electrolytes imbalance and post TURP syndrome¹⁶. An over controlled hypertension on table sometimes became more traumatic. On table low blood pressure is very harmful, as during this period there is less or no bleeding during resection and many significant bleeders are missed for coagulation. It is difficult to perform pin point coagulation when patients have hypotension. A relatively clear field gives us a false impression of good hemostasis. Once the patient is out of theatre and maintains his normal pressure he starts bleeding which demand continuous irrigation.

All those patients who did not need irrigation after TURP had the same protocol for admission, pre operative evaluation, resection and coagulation during surgery. Against the common believe, the weight of prostate, duration of resection and history of using anticoagulant medications has no major impact on operative and post operative bleeding. The main difference was of less associated co-morbid conditions, catheter free and infection free before

surgery and good blood pressure during resection and fulguration.

CONCLUSION

In our experience those patients who had minimal comorbid conditions, infection free, controlled blood pressure and good hemostasis behaved well in achieving good post operative hemostasis and did not need routine full speed and prolonged irrigation.

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ERRATUM-1

In issue 16(1) 2011 the Case Report “**Developmental Severe Macroglossia. Management and Surgical treatment of a difficult case**”. one author name Tahir Uz Zaman (Staff Physician) ENT was missed.

Authors name to be read as ‘**Mohammad Sharif, Laiq Ahmad, Abdul Latif Khan, Tahir uz Zaman**’.

ERRATUM-2

In issue 16(1) 2011 the original article “**Complications of Labour in cases referred to Abbasi Shaheed Hospital & Qatar Hospital Karachi**’ was by mistake published in content table by other title “**Effect of Chronic Noise Stress on Mantle Zone of Lymphoid Follicle of Splenic Tissue in Albino Rats**”.