

Safety of transurethral resection of large prostate

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Abstract

Background: Benign prostatic hyperplasia is a common benign disease occurs in older men. Some patients can be treated medically but eventually, most of them will need a surgical intervention, and the most commonly applied procedure is transurethral resection of the prostate (TURP).

Objectives: The objective of this study is to assess the feasibility and safety of performing transurethral resection of large prostate (80 g and more).

Methodology: Out of 153 patients reviewed 48 cases included in this study. The main data collected from patients' files and patient interview. The criteria of exclusion were prostate size <80 g and previous history of TURP. The collected data were analyzed by the Statistical Package for the Social Sciences (SPSS).

Results: The main results showed that 93.7% of patients did not experience major bleeding postoperatively, neither major drop in hemoglobin level. Moreover, the patient's distribution according to the presence of TUR syndrome was only 2.1% with mild symptoms. No patient had an episode of retention during the hospital stay or in the follow-up.

Conclusion: Surgeon experience, systematic resection approach, and strict time of resection are important factors to assure the safety of TURP in large prostate. In cases of huge prostate size > 100 g, staged TURP can be offered safely or if patients' obstructive symptoms do not resolve after the first procedure.

Keywords: Benign prostatic hyperplasia, transurethral resection of the prostate, lower urinary tract symptoms

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INTRODUCTION

Benign prostatic hyperplasia (BPH) is a common benign disease in old males (Bosch *et al.* 2007; Loeb *et al.* 2009).^[1,2] As men advance in age, they are at more risk to developed prostate enlargement that can lead to lower urinary tract symptoms (LUTS) (Lim 2017; Vuichoud and Loughlin 2015).^[3,4]

The prevalence and incidence of BPH and LUTS have increased rapidly with aging (Patel and Parsons 2014).^[5]

LUTS that do not improve with medical treatment and interfere with the quality of life are the most common indications for surgical intervention (McVary 2003).^[6]

Absolute indications to recommend surgical intervention include refractory urinary retention and renal insufficiency caused by BPH. Relative indications for surgical intervention include failure of medical therapy, recurrent cystitis, bladder calculi, and persistent prostatic bleeding (Nickel *et al.* 2010).^[7]

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Transurethral resection of the prostate (TURP) is considered a valid choice for prostate size 30 g or more while open prostatectomy is the golden choice for prostate size more than 80 g. EUA guidelines recommend TURP. Open prostatectomy is often recommended in men with very large prostate to avoid TUR syndrome and complications of TURP.^[10] In this study, we retrospectively assess the feasibility of performing transurethral resection of large prostate (80 g or more).

METHODOLOGY

This is a retrospective study that was conducted in a single-center, Riyadh Region, Kingdom of Saudi Arabia, from 2015 to 2019. Data were collected from 153 patients files including patient Age, prostate size, hemoglobin level preoperatively, hemoglobin level on day 2 postoperatively, sodium level preoperatively, major bleeding postoperatively, TUR syndrome, bladder stones, prostatic median lobe, duration of hospital stay, duration of the procedure, and the success of voiding after the procedure.

Inclusion criteria were prostate size 80 g or more and no previous history of TURP. Exclusion criteria were prostate size <80 g and history of previous TURP. The collected data were analyzed by the Statistical Package for the Social Sciences (SPSS Inc., Chicago, IL, USA) software.

RESULTS

A total of 48 patients met the inclusion criteria and were reviewed in this study. The youngest patient was 57 years old, the oldest was 103 years with the mean age of patients was 75.21 ± 9.66 years. The smallest prostate size is 80g and the largest is 254g, mean 121.17 ± 41.66 Table 1.

After reviewing the patient’s perioperative data, we found that the mean operative time (in minutes) was 108.63 ± 31.4. The mean hemoglobin level pre- and postoperative was 132.71 g/l ± 15.6 and 120.98 ± 18.0, respectively. The mean sodium levels pre- and postoperative were 138.67 ± 2.82 and 137.03 ± 3.16, respectively, patients spend between 2–5 days in hospital with a mean of 3 days Table 2.

According to the presence of major bleeding postoperatively, the vast majority of patients (93.7%) did not experience bleeding postoperatively, while three patients (6.3%) experienced significant bleeding postoperatively requiring transfusion [Figure 1]. The development of TUR syndrome was recorded in 2.1% of patients experienced TUR syndrome and that associated with large prostate size (199 g) and longer resection time and it was mild form

of TUR syndrome treated conservatively in the patient ward [Figure 2].

Bladder stones were found in 54.2% of cases with no limitation of performing TURP. The presence of the median lobe was found in 27.1% of cases. This finding had no significant impact on operative time or postoperative outcome [Table 3].

On outpatient follow-up in 1 year in minimum 6.3% of patients who underwent TURP in our study required a second-stage TURP due to symptom relapse, the prostate size for all of them was larger than 130 g. No history of urinary retention was experienced with any of these patients. Stress incontinence was encountered with only one case (2.1%).

DISCUSSION

Surgical management is indicated in cases of moderate-to-severe irrelative and or obstructive symptoms not responding to medical therapy, or acute or chronic retention of urine leading to obstructive uropathy (Borboroglu *et al.* 1999; Pickard, Emberton, and Neal 1998).^[11,12] The reduction of unwanted symptoms, improvement of the quality of life with good urinary flow, less postoperative complications, and low frequency of reoperation are the main aims of any surgical management of BPH.

Table 1: The mean, standard deviation, the lowest and largest value for patient’s age, and prostate size

	n	Minimum	Maximum	Mean±SD
Age	48	57	103	75.21±9.66
Prostate size	48	80.0	254.0	121.17±41.66

SD: Standard deviation

Table 2: The mean, standard deviation, the lowest and largest value for each (operative time, hemoglobin level preoperatively, hemoglobin level postoperatively, sodium level preoperatively, sodium level postoperatively)

	Minimum	Maximum	Mean±SD
Operative time	46	180	108.63±31.40
Hg preoperative	94	159	132.71±15.69
Hg postoperative	79	163	120.98±18.02
Na preoperative	132	143	138.67±2.82
Na postoperative	128.0	146.0	137.03±3.16
Hospital stay	2	5	3.083±2.12

SD: Standard deviation, Hg: Hemoglobin, Na: Sodium

Table 3: Presence of bladder stone and median lobe

	Bladder stone, n (%)	Median lobe, n (%)
Yes	26 (54.2)	13 (27.1)
No	22 (45.8)	45.8 (72.9)

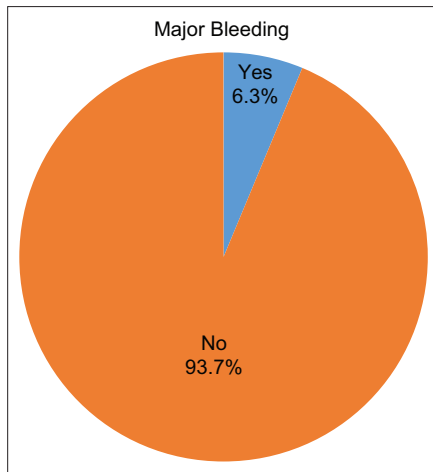


Figure 1: Percentage of patients had Major bleeding

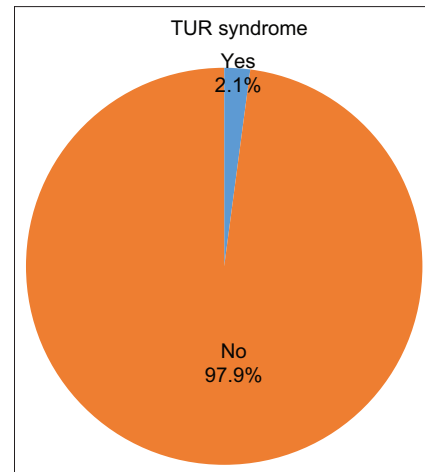


Figure 2: Percentage of patients had TUR syndrome

As per the EAU guidelines, TURP comprises 95% of surgical procedures and is the treatment of choice for prostates sized between 30 mL and 80–100 mL and is considered the gold standard modality. In the other hand, open surgery is the treatment of choice for large glands (>80–100 mL) (Mearini *et al.* 1998; Tubaro *et al.* 2001).^[8,9]

Larger prostate size and longer operative time are associated with the list of complications in a patient treated with TURP (Mebust *et al.* 2002).^[13] This includes massive perioperative blood loss that needs transfusion and TUR syndrome. Mayer *et al.* found that 4.4% of patients underwent TURP will require transfusion (Mayer *et al.* 2012).^[14] In a meta-analysis, TUR syndrome was reported at 0.8% (Ahyai *et al.* 2010).^[15]

In another study done by (Joshi *et al.* 2014), it showed TUR syndrome in two out of 30 patients (6.66%) who underwent TURP.^[16] Our study revealed only one out of 48 patients (2.08%) develop TUR syndrome.

(Yucel *et al.* 2013) study showed none of the patients had significant bleeding requiring transfusion and only one patient had to go for 2nd look. In the other hand, our study showed three patients (6.25%) received transfusion due to significant bleeding. Furthermore, three patients (6.25%) underwent 2nd look due to recurrent of symptoms upon follow-up.^[17]

The presence of the median lobe was found in 13 patients (27.08%) in our study and it did not affect our resection time OR lead to perioperative complications. Furthermore, bladder stone was found in 26 patient (54.17%) in our study and was managed in the same setting.

CONCLUSION

TURP is considered one of the most common procedures in urology that can be done safely with large size prostate (more than 80 g). Surgeon experience, systematic resection approach, and limited time for resection are important factors to limit complications of TURP in large prostate.

In cases of huge prostate size >100 g, staged TURP can be offered safely if patients' obstructive symptoms do not resolve after the first procedure.

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Conflicts of interest

There are no conflicts of interest.

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