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# Transurethral incision versus transurethral resection of the prostate in small prostatic adenoma: Long-term follow-up

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## KEYWORDS

TURP;  
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## Abstract

**Objectives:** To evaluate the efficacy of transurethral incision of the prostate (TUIP) compared to transurethral resection of the prostate (TURP) in patients with small benign prostate adenoma, based on long-term follow-up.

**Patients and methods:** We prospectively randomized 86 men with bladder outlet obstruction symptoms caused by a prostate less than 30 g to undergo TUIP or TURP. The following preoperative parameters were evaluated: prostate weight, international prostate symptom score (IPSS), voided volume, maximum flow rate (Qmax) and post-void residual volume (PVR). Postoperatively the patients were followed up for 48 months and the following data were collected: morbidity, operative time, catheterization period, hospital stay, Qmax, IPSS, voided volume, PVR and reoperation rate.

**Results:** A total of 80 of the 86 patients completed the study: 40 patients in each group. The mean age of patients in group I (TURP) and group II (TUIP) was 63.6 and 66.2 years, respectively. Preoperative parameters in both groups showed no statistically significant differences with regard to uroflow parameters and prostate weight. At 48 months follow-up the mean voided volume increased from 161 ml to 356 ml in group I and from 161 ml to 341 ml in group II, Q-max increased from 8.4 to 18.4 in group I and 8.4 to 16.6 in group II, the IPSS decreased from 19 to 5.8 in group I and from 19 to 6.3 in group II and PVR decreased from 107 ml to 20 ml in Group I and from 109 ml to 21 ml in Group II (all differences statistically significant).

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Comparing groups I and II there were statistically significant differences with regard to mean operative time (60.0 versus 20.6 min), duration of catheterization (3.2 versus 2.2 days), hospital stay (3.7 versus 2.6 days), and the incidence of postoperative retrograde ejaculation (52.5% versus 22.5%) and erectile dysfunction (20% versus 7.5%).

*Conclusion:* TUIP and TURP for small prostatic adenoma of less than 30 g are equally effective in providing symptomatic improvement. TUIP is more advantageous with to side-effects, operative time, hospital stay and the duration of catheterization.

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## Introduction

Benign prostatic hyperplasia (BPH) is a chronic progressive disorder. One third of men older than 60 years will develop obstructive symptoms due to BPH, and approximately 25% of them will eventually require surgical intervention [1]. The aim of treating BPH is to improve bothersome lower urinary tract symptoms (LUTS) and associated quality of life, and to prevent or decrease complications. Treatment options range from self-monitoring for mild symptoms, to drugs or even surgical intervention for moderate to severe symptoms [2]. Despite many recent innovations, transurethral resection of the prostate (TURP) has been the benchmark therapy for BPH and it is still considered the reference standard of surgical treatment [3].

TURP is not without problems: 13% of patients need blood transfusion, 80% have retrograde ejaculation, and 15% complain of erectile dysfunction (ED). When looking at longer follow-up, 10% of patients will need a repeat procedure within 5 years and up to 5% will develop bladder neck stenosis or urethral stricture [4].

Transurethral incision of the prostate (TUIP) is a simpler, more cost-effective and less invasive procedure than TURP. It is recommended for patients in whom preservation of erectile function and antegrade ejaculation are important [4]. It has been suggested that at least half of the patients who undergo TURP could be treated effectively with TUIP, avoiding the complication of TURP [1,4]. Despite the encouraging results of TUIP, concerns remain regarding the duration of its efficacy, prostate size limitations and the re-operation rate [5]. TUIP is considered an under-utilized procedure in England – only 2500 of these cases are performed annually, compared to 25,000 TURPs [2].

The aim of this study was to evaluate TURP versus TUIP after long-term follow-up in men with small prostatic adenoma  $\leq 30$  g, with regard to efficacy, cost-effectiveness, adverse effects and reoperation rate.

## Patients and methods

Between January 2005 and December 2010, 86 men were selected from a large number of patients presenting to our urology departments with LUTS. The inclusion criteria were as follows: being on the waiting list for surgical treatment of BPH, total prostatic weight  $\leq 30$  g as measured with transrectal ultrasound (TRUS), and the ability to give informed consent. The exclusion criteria were: suspected prostate cancer (abnormal digital rectal examination (DRE), or elevated prostate specific antigen – PSA), bladder pathology (including mass, stones or chronic cystitis), prominent median lobe of the prostate or inability to comply with the follow-up schedule.

All patients were assessed for surgical and anesthetic fitness by clinical and laboratory evaluation. This included urine analysis, renal function tests, coagulation profile, liver enzymes, full blood count, PSA, chest X-ray and electrocardiogram. The international prostate symptom score (IPSS) [6] was documented and uroflowmetry (voided volume, maximum flow rate, average flow rate) was performed. The post-void residual urine volume (PVR) was calculated using ultrasound and confirmed by small caliber Nelaton catheter.

Diagnostic cystoscopy was performed under spinal anesthesia prior to surgical intervention: TURP in group I patients and TUIP in group II. TURP was performed according to the standard technique using a 26F resectoscope and resecting the adenoma from the bladder neck to the verumontanum up to the level of the prostatic capsule. TUIP was performed by making bilateral incisions extending from the ureteric orifice to the verumontanum up to the level of the perivesical fat. A Collin's knife was used. After obtaining hemostasis, a 20F three-way transurethral catheter was inserted and continuous bladder irrigation started [5].

The following data were collected on all patients: operative time, perioperative morbidity, length of hospital stay and catheterization time. Follow-up visits were scheduled for every 6 months. At 48 months follow-up IPSS and uroflowmetry (voided volume, maximum flow rate, average flow rate, and PVR) were assessed. Statistical analysis was performed using the paired samples test and Chi-square test with cross-tabulation for connected and unconnected variables.

## Results

Of the 86 patients enrolled, 80 completed the study: 40 patients in each group. The mean weight of the prostate was  $27.6 \pm 2.4$  g for TURP (group I) and  $28.2 \pm 2.1$  g for TUIP (group II) measured by TRUS. There were no statistically significant differences between the groups with regard to age, pre-operative IPSS, uroflowmetry parameters and prostate weight (Table 1).

When intraoperative and immediate postoperative variables were compared, statistically significant differences were found with regard to operative time, blood transfusion rate, duration of catheterization and length of hospital stay in favor of the TUIP group II (Table 2).

Long-term follow-up at 48 months revealed significant improvements in both groups (Table 3).

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