# Day Case Transurethral Prostatectomy without Post-Operative Catheterisation: A Preliminary Study

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## ABSTRACT

**Background:** The pain fibers from the pelvic viscera including the prostate gland, the urinary bladder, and the entire perineum are mostly carried by the sacral parasympathetic outflow via the anterior divisions of the sacral nerve roots 2, 3, and 4. Caudal anesthesia has been used over the years for out-patient procedures. It was considered that if the usual indications for postoperative admission in patients who have undergone transurethral resection of the prostate could be removed, then they too can be managed as day cases.
**Method:** Ten selected patients with obstructing benign prostatic enlargement on urethral catheter drainage with prostate glands weighing 60g or less on ultrasound assessment, were subjected to transurethral resection of the prostate gland (TURP) as day-cases under caudal block regional anesthesia using 2% xylocaine with 1 in 80,000 adrenaline. Hemostasis was secured until effluent of the irrigation fluid from the bladder was totally free of any visible trace of blood. A catheter was not inserted postoperatively.
**Results:** These patients resumed spontaneous voiding postoperatively before discharge. Their discharge on the same day did not in any way lead to any adverse events.
**Conclusion:** With a better understanding of the anatomy of the innervations and blood supply of the prostate gland, and proper patient selection, day-case TURP without postoperative catheterization can safely be added to the list of day case procedures. If a larger study further confirms the safety of these preliminary findings, the cost and inconvenience associated with hospitalization on the part of the patient would be reduced.

*KEY WORDS: TURP, Dy case, Catheterisation*

## Introduction

Transurethral resection of the prostate gland (TURP) is a major surgical operation, which is usually performed under general, spinal or epidural anesthesia. This usually required an overnight fast, nothing by mouth on the day of operation, intravenous fluids, bladder irrigation postoperatively, and postoperative hospitalization for a variable number of days. However, since the pain fibres from the pelvic viscera including the prostate gland, the urinary bladder, and the entire perineum including the penis are mostly carried by the sacral parasympathetic outflow via the anterior divisions of the sacral nerve roots 2, 3, and 4, [1,2] it was considered that caudal block regional anesthesia as obtained by injection of 2% xylocaine with 1 in 80,000 adrenaline local anesthetic at the dose of 2mg/kg into the sacral canal for outpatient urethral dilatations and cystoscopies should also be adequate for transurethral resection of the prostate gland on an outpatient basis if the need for postoperative urethral catheterization and bladder irrigation could be obviated.

## Patients and Method

Ten patients with obstructing benign prostatic enlargement on urethral catheter drainage of urine requiring surgery were recruited into this study. Obese patients, diabetics and those with prostate glands weighing more than 60 grams on ultrasound measurement were excluded. Patients who had no access to a telephone were also excluded. Informed consent was obtained from each patient. Backup facilities for general, and spinal anesthesia were provided as well as a standby anesthetist. Baseline blood pressure, pulse and respiratory rate were recorded and checked every 5 minutes subsequently during the procedure, and an intravenous line of normal saline was set up. The patient was placed prone, the natal cleft and the adjoining areas of the gluteal region cleaned with iodine and methylated spirit and sterile draping done. The sacral hiatus is identified by palpation as a bony defect lying at the apex of an equilateral triangle with a line joining the sacroiliac joints as the base. Two percent xylocaine with 1 in 80,000 adrenaline was administered aseptically at the dose of 2mg/kg, using a 21G hypodermic needle through the sacral hiatus into the sacral canal. The patient then turned to lie supine and was placed in the Lloyd Davies position for the transurethral resection of the prostate gland (TURP). Effectiveness of the anesthesia was confirmed by testing the penis, scrotum and perineum for total loss of pinprick sensation, 5 minutes after administration of the caudal anesthesia. The patients were not sedated. Transurethral resection of the prostate was performed using a 24FR single channel resectoscope. They were instructed to indicate at any time if they experienced pain. Resection was commenced at 7 o'clock, and then at 5 o'clock, then the middle lobe, followed by the lateral lobes and finally the anterior lobe. Hemostasis was secured until effluent of the irrigation fluid from the bladder was totally free of any visible trace of blood. A catheter was not inserted postoperatively.

The duration of the procedure was

documented. They were asked immediately postoperatively to rate the severity of the pain they experienced during the operative procedure on a 0-10 pain rating scale[3]. They were commenced on normal meals as soon postoperatively as they wished and were discharged home on antibiotics after they had voided at least once. They were instructed to telephone the hospital in the morning and evening for the first two days postoperatively to report how they felt generally and specifically if they had pain or hematuria. They were instructed to return to the hospital immediately if they had hematuria other wise to return for a review with their histology report after 2 weeks.

## Results

Ten patients were studied. They were aged 62 - 75 years (mean 70+/-5 years), and the mean prostatic volume was 55+/-5cc. Resection time was 35 - 55minutes (mean 45+/-10 minutes). None was transfused. The anesthesia was satisfactory in all the patients with a mean pain score of 0 on the 0 to 10 pain scoring scale. None of the patients had any complaints on telephone. There was no occurrence of postoperative pain or hematuria. None of the patients needed to come back before the fortnight appointment. The histology of the resected specimens was benign in all the patients, with histologic evidence of chronic prostatitis in one patient.

## Discussion

Prostatectomies whether open or closed have traditionally been performed under general, spinal or epidural regional anesthesia with the attendant manpower and material costs of the anesthesia and anesthesia related morbidity and mortality. Postoperative admission and bladder irrigation, which before now seemed inevitable further increased cost, and inconvenience to the patient and led to higher pressures on our often-limited bed facilities in the hospital.

Caudal block regional anesthesia administered as described in this study into the sacral canal, anesthetizes both somatic and pelvic parasympathetic neuronal outflow from the 2nd to 4th sacral segments; in effect blocking sensory perceptions from the bladder, prostate, urethra, lower anorectum and the perineum. [4] It has thus found extensive use in pediatric surgery, general surgery [5] and obstetric practice [6] but as yet had not been tried in urology for transurethral resection of the prostate gland. In a study involving 525 patients, Polushin et al [7] noted that the duration of anesthesia ranged from 2.5 to 3.5 hours and could be longer if the local anesthetic was mixed with a sedative drug[7]. This duration far exceeds the traditional 60 minutes allowed for safe transurethral resection of the prostate to keep the incidence of transurethral resection syndrome in check. Though they experienced failure of the procedure in 5.2% of their patients, they did not encounter any complications and concluded that the method was simple and reliable.

In this study, the caudal anesthesia was successfully administered to all the patients and no complication related to the caudal anesthesia, or to performance of the procedures as day cases without the

use of postoperative urethral catheterization and bladder irrigation was encountered. It is worthy of note that since caudal block anesthesia does not affect the central nervous system, cardiovascular system, musculoskeletal system, or the gastrointestinal system, the patients are hemodynamically stable during the anesthesia and operative procedure and were recommenced on normal oral feeding as soon after surgery as they desired. Previous experiences had shown that diabetics and obese patients who could be harboring undiagnosed chemical diabetes tended to develop detrusor muscle failure after caudal anesthesia, necessitating urethral catheterization and continuous catheter drainage of urine for varying periods of time to allow for recovery of detrusor muscle tone. Diabetics and obese patients were therefore excluded from this preliminary study. Patients with prostate glands weighing more than 60gm were excluded since the larger glands may pose more difficulties with the achievement of perfect hemostasis which was the basis for managing these patients as day-cases. The method of resection used in this study which commences at the 7 and 5 o'clock positions before tackling the middle lobe, the lateral and the anterior lobes is predicated on the fact that even though the prostate gland may derive its blood supply from numerous branches from the inferior vesical artery, all the branches enter the prostate gland at the 5 and 7 o'clock positions[1,2]. Therefore, commencing resection at the 7 and 5 o'clock positions effectively drastically reduces the blood loss experienced during the rest of the prostatic resection and also makes it possible to achieve a totally bloodless effluent from the bladder at the time of conclusion of the procedure. This will also explain why none of the patients required blood transfusion, postoperative urethral catheterization or bladder irrigation. Postoperative pain was noticeably absent in all the patients. None required postoperative analgesics. The reason for this phenomenon is not immediately apparent and further studies are required to find an explanation for this.

With a better understanding of the anatomy of the innervation and blood supply of the prostate gland and proper patient selection, day-case transurethral resection of the prostate gland without post-operative urethral catheterization can safely join the list of day case procedures. A larger study is currently underway and if it further confirms the safety of this preliminary study, the cost and inconvenience associated with hospitalization on the part of the patient after transurethral resection of the prostate gland would be reduced.

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