



# The Fast Track Surgery in Perioperative Nursing of HoLEP Operation

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## **Authors' contributions**

*This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.*

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## **ABSTRACT**

**Objective:** The Fast-track surgery for transurethral holmium laser prostatectomy a perioperative nursing research study.

**Methods:** We performed a retrospective analysis of transurethral holmium laser enucleation of the prostate in 89 patients with bladder outlet obstruction (BOO) due to benign prostatic hyperplasia (BPH) who were admitted to and treated at our hospital between 2018 and 2019. Measures such as early postoperative feeding and early catheter removal, adequate preoperative preparation, psychological counseling, intraoperative warming, unobstructed lavage, ensuring postoperative sleep, indwelling analgesic pump, and prevention and treatment of postoperative complications, as well as a successful job in postoperative health guidance and discharge guidance, were all implemented, and the extubation was performed, during the perioperative period in which advanced fast track surgery was used.

**Results:** All 89 patients who underwent holmium laser enucleation of the prostate made a full recovery, with only one experiencing post-operative recurrent hyphema, five experiencing post-operative urinary tract infection, and ten experiencing transient and urge urinary incontinence; all were discharged after conservative treatment.

**Conclusion:** Using fast track surgery as a guide for perioperative care of HoLEP surgeries might lessen the number of issues that arise after surgery and help patients get back to normal quicker.

**Keywords:** *Fast track surgery; transurethral holmium laser enucleation of the prostate (HoLEP); nursing; perioperative period.*

## 1. INTRODUCTION

Advancements in the field of medicine play a major role in increasing life expectancy in this part of the world in men as compared to women. Benign prostatic hyperplasia (BPH) is a condition affecting the urinary system that is most prevalent in men of advanced age. A major contributor to the decline in public health is the steadily rising rate at which traditionally-occurring illnesses strike local populations. It is dangerous in a major way. Using holmium via the urethra Traditional electricity is being phased out in favor of laser enucleation of the prostate (Holmium Laser Enucleation of the Prostate, HoLEP). For a new generation, it has set the bar very high [1]. The reason being, this method is unique in comparison to the one used before. Therefore, it adds extra obligations to clinical nursing practice in the perioperative phase. large obstacle Fast-track surgery (FTS) is the practice of using a variety of tried-and-true procedures during the perioperative period to ease patients' minds, lessen the likelihood of problems, and speed up their recoveries using a number of optimization strategies [2, 3]. This rise in popularity may be attributed in large part to the widespread dissemination of the FTS idea in recent years. Research by Cerantola [3] demonstrates that the FTS hypothesis is now infrequently implemented in urology, and the evidence-based proof is not yet accessible, despite its growing popularity and acceptance among physicians. Adequate. The medical facility performed laser prostate holmium enucleation from August 2014 until August 2015. During the perioperative phase, the idea of rapid recovery was implemented for the 89 patients who had excision surgery.

The following is a summary of the successful outcomes that were achieved.

## 2. MATERIALS AND METHODS

### 2.1 General Information

We utilized cluster selection to look back at the medical records of 89 male patients admitted to our hospital between August 2018 and August 2019. All patients signed off on the final clinical records. The ethical committee mandates the use of consent in clinical trials. All of the patients who were brought in from the ER or the outpatient clinic were transferred to the inpatient

ward. One hundred and eleven patients with dysuria had complications (secretory) ranging in severity, including 31 cases of urinary tract infection, 12 cases of bladder calculi, 15 cases of acute urinary retention, 3 cases of obstructive nephropathy, and 42 patients with a combination of internal diseases lasting anywhere from a few months to several years. Health issues (hypertension, coronary heart disease, diabetic cerebral infarction sequelae, etc.). anterior to the main body According to B-ultrasound measurements, the average capacity of a gland is 75 ml, with a range of 40-134 ml. Patients were determined to have been diagnosed with benign prostatic hyperplasia and had clear surgical grounds following preoperative preparation of the heart; the International Prostate Symptom Score (IPSS) ranged from 14-34 points, with an average of 25 points. Postoperative histology revealed benign prostatic hyperplasia in all patients treated with HoLEP in this cohort.

## 3. PREOPERATIVE CARE

### 3.1 Preoperative Care

Behavioral modification In order to maximize the benefits of rapid recovery surgery, it is crucial to have an in-depth discussion with the patient beforehand to get a sense of their general health and mental state. Educate the patient and their loved ones on the state of their health, the need for surgery, the kind of anesthesia to be used, and the pre- and post-operative care that will be provided by the nursing staff. The patient's anxiety is lowered, and the patient's compliance and cooperation are enhanced, as a result of the content with which the party must comply.

The patient is taught to take a few deep breaths as part of their preoperative preparation. Light, easily digestible, and high in cellulose, the preoperative diet should also encourage proper back patting and sputum expectoration. Take precautions against fatigue, address any constipation early on, and become comfortable defecating in a bed pan before undergoing surgery. To ensure successful postoperative urination, instruct patients in the proper execution of the lavatory a muscle exercise. Regular exercise is recommended for those who suffer from incontinence. In addition to not drinking anything for four to six hours before surgery and

doing an irregular bowel cleaning, patients must abstain from consuming solid food for the duration of the fast.

### 3.2 Intraoperative Care

**Checklist for Patients** It is important to make sure the operating room is at the appropriate temperature and humidity, that the operating bed is securely fastened, and that any necessary heating pads are in place before the patient is brought in. As soon as the patient is wheeled into the operating room, a tripartite check is performed while the patient's status is monitored and given appropriate comfort measures. Open the venous access, examine the vital signs, and implant the bladder after adequate anesthetic. Care must be made to prevent compression and ischemia due to inappropriate limb positioning once the lithotomy position has been adequately set.

Preparation of instruments and equipment checking the monitor, holmium laser, and crushing machine before surgery. We have successfully linked the machine to the patient's side, and it is operating at peak efficiency. The irrigation pressure is kept constant at 5.89 kPa by suspending the rinse bag 60 cm higher than the patient's bladder. Warming the irrigation fluid is recommended when the patient is old or frail, or if hypothermia develops during surgery.

Exhaust to prevent flushing liquid from pooling, coordinated nursing care for patients whose operations were delayed because of a clogged water outlet pipe, and prompt replacement of flushing bags Don't block the primary knife's line of sight. Time the main surgeon's laser incisions accordingly. The maximum power of the laser is 100 W, the frequency is 50, the holmium laser energy is 2.0, and the holmium laser energy is adjusted to 0.30.5 when the main knife conducts laser homeostasis and the frequency is 25. Helps the surgeon swiftly reconnect the pulverizer after the prostate gland has been removed and inserted into the bladder, checking that the water supply and the pulverizer's outflow line are properly connected. The process continues until the first row of glands in the bladder are crushed and sucked out. Catheterization is ensured once the F22 three-lumen urinary catheter is inserted, the balloon is filled with 20-40 mL of water, and the irrigation bag is connected swiftly. It's easy to pass urine since the urethra is clear.

Intraoperative attention points: If the blood volume is too high, the blood volume should be

replenished in a timely manner, and heating should be used during blood transfusion Pimp; blood sugar, electrolytes, etc., should be detected and adjusted in a timely manner; older patients, patients with poor cardiopulmonary function, and patients with more comorbidities require special attention.

### 3.3 Postoperative Care

**Altering Course after Surgery** To avoid losing the urinary catheter and experiencing more bleeding from the prostate wound, you should switch positions.

**Symptoms and symptoms observation** Patients' blood pressure was checked every hour for the first six postoperative hours and then every six hours after that; Whether the patient is experiencing chills, shivering, nausea, vomiting, chest pain, shortness of breath, or any combination of these symptoms, Need not be taken seriously; nonetheless, prompt medical attention upon discovery is essential [4].

Keep the three-lumen urinary catheter in place and clear at all times, and be sure to keep an eye on the color of the flushing fluid, which should be a pale pink or clear tint. In the Ming Dynasty, it was seen advantageous to have a calm and clear demeanor, with the rate of flushing being changed in real time to accommodate changing circumstances. the patient's circulation or body temperature might be negatively impacted by a rapid flush [5], but they should also avoid a too-slow flush. At this moment, bladder pressure is low, making it difficult to empty the bladder. Blood clots and other remnants of tissue that form within the aorta are promptly drained out. Any further decline indicates ongoing bleeding of significant volume, which requires prompt attention. Hemostatic medications and cold saline should be used to flush the bladder. Surgical hemostasis should be considered if it can still be beneficial. Blood clots in the bladder may cause a triple-lumen catheter to become clogged or obstructed, in which case high-pressure irrigation and suction may be used, or the catheter can be changed [6]. Within 1-2 days after surgery, the F22 triple-lumen urinary catheter is typically indwelled for 2-3 days, and normal saline is used for continuous bladder irrigation. The indwelling time may be increased proportionally for bigger prostates.

The use of pain medication after surgery is crucial in FTS. An effective analgesic may alleviate the patient's discomfort and stress

reaction, allowing them to feel more at ease. Low-to-moderate intensity, with the goal of enhancing the mental health of the patient and facilitating faster healing [7]. Typically, patients using intravenous anesthetic pumps for postoperative pain treatment also rely on non-opioid or multimodal pain medications. According to the nursing manual, patients who are using pharmacological analgesia properly should also be encouraged to employ non-pharmaceutical distraction techniques, such as reading, talking to others, and looking at pictures.

Eating soon after waking from anesthesia is possible; when the anus is depleted, the patient may consume liquids or semi-liquids. A patient's worries about the requirement of eating early may be put to rest if they are made aware of the value of this practice. Patients should be warned about eating too much, too quickly, or improperly after surgery to prevent gas and perhaps dynamic intestinal blockage.

Abolition of the trachea too soon FTS promotes the prompt removal of postoperative catheters. Research shows that using any kind of drainage tube raises the patient's risk of infection and delays the surgery. Early exercise has an effect on speedy patient recovery [8]. For these specific patients, the If the volume of the prostate is less than 40 mL, the catheter may be withdrawn within a few days after surgery. Urinary catheter removal occurred on day 3 or 4 postoperatively when the prostate volume was larger than 40ml. tenpatient's experienced temporary urge urinary incontinence following catheterization, and one patient developed severe hematuria and required another indwelling catheter and flushing following a successful extubation. After undergoing physical treatment, individuals made full recoveries.

Observation and prevention of complications

①Bladder spasm: induced by surgery-related trauma, irritation of the trigone from the three-lumen catheter, and severe postoperative hypothermia from the lotion's quick absorption into the bladder. Issues with the urethra, nausea, lower stomach discomfort, leaking around the catheter, ineffective bladder irrigation, and strong urine are all symptoms of a poorly functioning urinary system. Blood contaminated the toilet flush [9]. As soon as possible, the nurse informed the patient of what was triggering the spasms. Adjust the catheter's placement and add a single sub-dose of medication or antispasmodic pain relievers using the analgesic pump as directed

by your doctor. This may be done by slowing the rate at which the flushing solution is being dispensed or by using warm water for flushing. In this group, 25 people had bladder spasms, all of which were successfully treated. ② For patients with lower extremity venous thrombosis, the following measures should be taken before surgery, upon return to the ward after awakening from anesthesia, and every 6 hours thereafter: have the patient massage both lower limbs or perform limb massage; have the patient turn over or have the patient assisted in taking the lateral recumbent position or semi-recumbent position; have the patient regularly and quantitatively perform ankle pump exercises to promote blood circulation in the lower extremities. Those who have had bladder irrigation stopped should be helped to resume normal routines, including an early rise and regular mealtimes. It's important to ease into the shift slowly and methodically, and to take special care to prevent the stool from snapping in half. In addition to relieving constipation, it also helps to stop thrombus from breaking apart [10]. ③Infection prevention measures include the prompt administration of antibiotics, careful monitoring of the patient's core body temperature, and regular monitoring of blood culture and C-reactive protein levels. Smoking must be avoided, sputum must be eliminated, and nebulization may be used before surgery for individuals who have low lung capacity as measured by a preoperative pulmonary function test or who have a moderate pulmonary infection. Ensure that the patient's oxygen levels are monitored and that sputum is suctioned out as soon as possible during the operation. Help the patient roll over and pat their back to induce a productive cough, give them phlegm-reducing medication, and, if required, atomize the inhaled medication so that it may be expectorated more easily. A strict adherence to the aseptic operation concept should be maintained at all times during perineal care; this includes maintaining a clean urethra, avoiding urine reflux, and routinely exchanging the urethra. Reduce your risk of infection following surgery by getting up and moving about early and changing the urine collection bag. Also, having the surgeon remove your catheter. In order to avoid or lessen the effects of urine incontinence, it is important to take proper care of the urinary catheter after surgery and choose a silicone tube with the right compatibility and wall thickness. Cleansing the area surrounding the urethra on a regular basis may help prevent infections from traveling backwards. In cases of urine incontinence after catheter removal, it is important to differentiate it

from urge incontinence or any other forms of incontinence. In most cases, urge incontinence is just transient. The patient may be offered drug control after the event has occurred. Furthermore, the patient might be given pelvic floor function training and levator ani exercise to strengthen the bladder sphincter. Even if it can't be cured, it may be utilized to Biofeedback treatment for the pelvic floor is an exercise and stimulation program for people with urine incontinence [11]. Ten patients had postoperative mild urine incontinence, and all of them were cured after receiving the aforementioned medication.

#### 4. DISCHARGE GUIDANCE

The patient was discharged with strict instructions to increase their water consumption and urination frequency respectively. Dietary advice includes cutting down on tobacco, alcohol, and stimulating meals like chili and eating more high-fiber, easily digested foods and fresh fruits and vegetables. Don't put anything on the stools. If you're having trouble passing stool, it's best not to push it so as not to aggravate the prostate wound and cause bleeding. Keep warm to avoid catching a cold. Focus on moderate activity instead of severe exercise, limit your sitting time, and stay off of soft furniture like couches and stools. Patients restricted to having intercourse, riding a bicycle, and doing straddle motions for three months following the procedure. Follow up with an outpatient therapist on a regular basis, and be sure to do your pelvic floor exercises as prescribed by your doctor or arranged with your rehabilitation specialist.

#### 5. RESULT AND DISCUSSION

All 89 patients were well-prepared for surgery, and everything went swimmingly during and thereafter. There was a 108% drop in IPSS score from a pre-op average of 25 points (range: 14-34 points) to a post-op average of 12 points (8-18 points); Early removal of the urinary catheter resulted in less symptoms, and re-indwelling the catheter, increasing the rate of flushing, and administering hemostatic medications resulted in further improvements; Urinary tract infections improved in 5 individuals when they drank more water, urinated more often, and received antibiotics; There was a temporary sense of urgency among the 10. Oral medicine plus pelvic floor function training plus a pelvic floor biofeedback therapy device resulted in complete recovery from urinary incontinence and subsequent discharge. On average, patients

spent 7.6 days in the hospital (of which 4.5 days were spent recovering after surgery). The discharge of all patients went without a hitch.

Prostatic hyperplasia is an increasingly frequent clinical condition, especially among men in their middle and later years. Several conditions common in the senior population, such as cardiovascular disease, cerebrovascular illness, diabetes, and others, provide substantial and unanticipated therapeutic challenges. It also poses serious difficulties for local health professionals. Rather of undergoing open surgery, men with benign prostatic hyperplasia now typically undergo Intracavitary minimally invasive surgery. Although transurethral resection of the prostate is now the best option for minimally invasive treatment of benign prostatic hyperplasia, it is not without risk of bleeding during and after the procedure. Syndrome of tissue resection, resulting complications [12]. With the advancement of HoLEP technology in recent years, minimally invasive surgery has largely supplanted more invasive procedures because to its benefits (less blood loss, less pain, shorter operation time, quicker recovery, fewer problems, and a positive prognosis for the future). Proven effective in treating BPH [13]. HoLEP is a promising new technique, but it has only just begun to be implemented into clinical practice. The success or failure of a surgery is inextricably linked to the nursing personnel, with whom there is a lack of familiarity [14]. It may make the patient's preoperative preparation more flawless, the surgery procedure smoother, and the postoperative recovery speedier. While our study's average hospital stay was only 7.6 days, previous research has shown that without the incorporation of fast recovery therapy into perioperative management, the average duration of catheterization following TURP or HoLEP was 3-6 days, significantly longer than the 2.6 days we observed. In this research, the scores dropped from 70% to 120%, while they dropped by 108% in the previous one. There was no statistically significant difference between the two groups, and the study's authors urged patients to resume normal diet and exercise soon after surgery to reduce their risk of problems. Extubation-related deep vein thrombosis was eliminated, representing a statistically significant difference when compared to the group that did not implement the idea of quick recovery surgery (0 VS 0.1%-0.4%), and postoperative urinary tract infection was dramatically decreased (5.6% VS 8%-17%). Based on our findings, patients

with benign prostatic hyperplasia undergoing HoLEP surgery should be provided with preoperative psychological counseling and preparation in order to reap the full benefits of the quick recovery surgery concept in the perioperative period. early postoperative activities, ensuring smooth and effective bladder irrigation, effective analgesia, early postoperative feeding, early extubation, prevention and treatment of postoperative complications, exercises for the pelvic floor following surgery, health education, and individualized discharge guidance, etc. With fewer difficulties and a shorter hospital stay, a patient's recovery time is decreased and their overall effectiveness during and after surgery is enhanced recuperation. There are problems with this experiment that include: ① There is a lack of confidence in the results because of the limited size of the sample. Since just the experimental group was established, no controls were available to allow for meaningful comparisons between the groups. No prospective cohort research that can accurately represent the true situation has been implemented in this experiment; hence the results are only available from the past. This is why we want to address these issues in future studies and create a prospective randomized controlled trial that is more representative of the real world.

## 6. CONCLUSION

HoLEP is widely considered to represent the pinnacle of next-generation BPH procedures. The notion of quick recovery surgery, when applied to nursing practice, has the potential to both increase the surgical success rate and decrease the overall number of procedures performed. Incidence of Complications; Enhance Patient Comfort and Speed Up Recovery. Postoperative treatment for HoLEP is rapidly evolving to include the notion of quick recovery surgery.

## ETHICAL APPROVAL

As per international standard or university standard written ethical approval has been collected and preserved by the author(s).

## CONSENT

As per international standard or university standard, patients' written consent has been collected and preserved by the author(s).

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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