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Mini Review

Strategies for Achievement Same-Day Catheter Removal and Hospital Discharge after HoLEP

Bruno Ribeiro Guimaraes Carvalho*, Pedro Nicolau Gabrich

Department of Urology, Rio de Janeiro State University, Rio de Janeiro, Brazil

ABSTRACT

Benign Prostatic Hyperplasia (BPH) is a common condition in aging men that is often associated with Lower Urinary Tract Symptoms (LUTS) and a decreased health-related Quality of Life (QoL). Holmium Laser Enucleation of the Prostate (HoLEP) technique constitutes the first-line treatment for BPH, regardless of prostate size. Performing HoLEP in an outpatient setting with bladder catheter removal requires a series of preoperative and perioperative strategies. Early urinary catheter removal before hospital discharge has been shown to be feasible and safe, with a 90-91, 1% success rate. To this end, it is necessary to follow a standard protocol that optimizes the perioperative period and the rigorous execution of the voiding test.

Keywords: HoLEP; Lower Urinary Tract Symptoms (LUTS); Same-day discharge; Catheter removal

INTRODUCTION

Benign Prostatic Hyperplasia (BPH) is a common condition in aging men that is often associated with Lower Urinary Tract Symptoms (LUTS) and a decreased health-related Quality of Life (QoL). The introduction of lasers for the treatment of LUTS due to Benign Prostatic Obstruction (BPO) has dramatically changed the surgical landscape of BPO. Since the description of the Holmium Laser Enucleation of the Prostate (HoLEP) technique by Gilling PJ and Fraundorfer MR in 1998 [1], HoLEP has been considered a safe and effective method for the treatment of BPH [2-5], as it is minimally invasive and has functional results similar to those of Open Prostatectomy (OP) [1-9]. This technique constitutes the first-line treatment for BPH, regardless of prostate size, but has a stronger impact when used in patients with large prostates (>90 g) [2-5] [10]. Additionally, HoLEP has been proven safe even in patients taking antiplatelet aggregation agents.

Traditionally, HoLEP and other surgical techniques for BPH treatment require postoperative hospital admission for continuous bladder irrigation. However, HoLEP is associated with lower blood transfusion rates and requires less time for bladder catheterization and a shorter hospital stay than Transurethral Resection of the Prostate (TURP) and OP [2-5, 8-10].

Considering the evolution and quality of this technique, in 2003, Larner et al., described this procedure for the first time in an outpatient setting. Subsequently, a series of studies was conducted to demonstrate its feasibility [11]. The favorable results presented by the aforementioned studies led some authors to evaluate the feasibility of removing the bladder catheter before hospital discharge. In December 2023, a systematic review was conducted by Theodoros Spinos et al., summarizing all existing evidence regarding the feasibility, safety, and efficacy of same-day trial of void and urethral catheter removal after HoLEP [12].

Six relevant articles were selected and included in the qualitative synthesis, while 15 were excluded. Four studies were retrospective, one was prospective non-comparative, and one was a randomized controlled trial. However, in the two prospective studies, the goal was not same-day hospital discharge but only catheter removal. Successful same-day catheter removal rates ranged among studies from 85.5% to 90%. Performing HoLEP in an outpatient setting with bladder catheter removal requires a series of preoperative and perioperative strategies. Some of these strategies were first described in a retrospective study published by Agarwal et al., which achieved a 90% success rate [13]. More recently, our study prospectively demonstrated the success of these strategies along with adaptations made in our service [14].

Correspondence to: Bruno Ribeiro Guimaraes Carvalho, Department of Urology, Rio de Janeiro State University, Rio de Janeiro, Brazil, E-mail: brunorgc@hotmail.com

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LITERATURE REVIEW

Patient selection for HoLEP is fundamental to the success of early patient discharge. Once the patient has an indication for surgical treatment, we must pay attention to the clinical characteristics of the patient. Among the patients eligible for day clinic HoLEP, we highlight: patients with low surgical risk, ASA 1 or 2; no history of previous radiotherapy or urethroplasty; absence of bladder stones or large bladder diverticula; and patients not using antiplatelet or anticoagulant agents. Very large prostates are not an absolute contraindication for the procedure in a day clinic setting, as demonstrated but due to increased surgical time, it can become a limiting factor for early discharge and catheter removal protocols.

Coordinated perioperative logistics are also essential for the success of the day clinic. Thus, the surgery should start no later than 10 AM; general anesthesia should be preferred over spinal blocks, and opioids should be avoided. We routinely administer prophylactic antibiotics and 1 gram of tranexamic acid, although some studies do not show benefits for the latter.

After the surgery, patients should be monitored in a postoperative recovery unit, where continuous bladder irrigation with 4000 ml of 0.9% saline solution is performed for four hours. After this period, irrigation is stopped, and patients are encouraged to drink fluids and receive intravenous hydration with 1000 ml of 0.9% saline solution for one hour.

Subsequently, all patients undergo a voiding trial by infusing 300 ml of 0.9% saline solution at a rate of 100 ml/min until the patient feels a significant urge to urinate, at which point the infusion is stopped, and the bladder catheter is removed. Patients who successfully void more than 70% of the infused volume are discharged without a bladder catheter. Those who cannot void nor have an unsatisfactory urine output may be discharged with an indwelling bladder catheter for removal the following morning.

DISCUSSION

Since Larner et al., a series of studies have demonstrated the safety and feasibility of outpatient HoLEP, with success rates ranging from 35% to 87.4% [11,15-18]. Early bladder catheter removal before hospital discharge has also been shown to be feasible and safe, first demonstrated by Agarwal et al., with a 90% success rate [13]. Recently, in our study, the safety and feasibility of outpatient HoLEP were prospectively evaluated, with a 94.1% success rate for same-day discharge. Additionally, the results showed that same-day removal of the indwelling urinary catheter did not negatively impact the patient's discharge outcome, with a 91.1% success rate for early catheter removal [14]. Although all studies avoided very large prostates (>200 g), Slade et al., conducted a retrospective review of 114 patients who underwent same-day catheter removal after HoLEP and concluded that the only variable influencing a negative outcome in catheter removal was the high surgical risk of patients, ASA 3 and 4 [19].

Optimizing preoperative care for HoLEP to reduce morbidity and hospital stay has been the subject of several studies in recent years. Many demonstrate the feasibility of the technique in an outpatient setting. There are many benefits to performing a resolutive and effective surgical treatment in a day clinic setting, such as reducing hospital costs, optimizing beds in the Brazilian public health system, among others. Associating these benefits with early catheter removal results in fewer trips to the hospital for catheter removal, less discomfort from using the catheter, and potentially lower rates of postoperative urinary tract infection.

CONCLUSION

For the successful performance of HoLEP with same-day discharge without a bladder catheter, the previously described perioperative coordination and strict adherence to the voiding trial protocol are necessary. The performance of the HoLEP technique in a day clinic setting is feasible and safe, and it can be done with bladder catheter removal before hospital discharge without compromising the regimen. To this end, it is necessary to follow a standard protocol that optimizes the perioperative period and the rigorous execution of the voiding test.

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