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Editorial

HoLEP, the New Gold Standard

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To evaluate the efficacy and safety of Holmium Laser Enucleation of the Prostate (HoLEP) in treating benign prostatic hyperplasia (BPH) with large volume. PubMed, Embase, and Cochrane Library databases (until March 2022) were used to search related randomized controlled trials. A total of 11 studies including 1,258 patients were involved. HoLEP could significantly decrease the length of hospital stay and accelerate recovery. In a sub-analysis, HoLEP had better perioperative outcomes than bipolar transurethral resection of the prostate (B-TURP) and bipolar transurethral enucleation of the prostate (BPEP). The improvement in operative time and enucleation time was better in thulium laser enucleation of the prostate (ThuLEP) than HoLEP. In the follow-up period, the HoLEP decreased post-void residual urine (PVR) in short-term intervals and improved patients' maximum flow rate (Qmax) and prostate-specific antigen (PSA) in mid- and long-term intervals. In sub-analysis, HoLEP presented significant improvements in Qmax, PSA, and quality of life (QoL) compared to B-TURP, and HoLEP could also improve Qmax than ThuLEP after 6 months of surgery. The HoLEP reduced the risk of postoperative bleeding compared with other surgeries in safety. It was confirmed, also that the advantages of HoLEP in treating BPH when the prostate size was larger than 80 mL, which indicated that HoLEP could be the best choice for the treatment of large volumes of prostate [1].

By comparing different techniques with a standardized metric system, studies provided important insights that may assist in counseling patients. Robotic Simple Prostatectomy (RASP) performed better than HOLEP in both postoperative IPSS and Q-max. In terms of perioperative complications, both techniques showed very low complication incidence. At univariable regression analysis, the surgical approach was the only independent predictor of Trifecta achievement, which was significantly higher in the RASP group compared to the HOLEP group: 56% vs 33% respectively. Nonetheless, HOLEP represents an excellent alternative option if the Da Vinci robot is not available , or if patients are unfit for a robotic-assisted procedure [2].

A further study compared peri-operative and mid-term outcomes of patients who underwent Robot-Assisted Simple Prostatectomy (RASP) vs holmium laser enucleation of the prostate (HOLEP). RASP and HOLEP are the treatments of choice for men with symptomatic benign prostatic obstruction (BPO) and a prostate ≥80 g, achieving comparable short and mid-term efficacy. No randomized controlled studies have proved the superiority of one technique over the other.

They prospectively maintained databases of the participating institutions and they were queried for patients with a prostate volume (PV) ≥80 g, who underwent surgery for BPO between 2011 and 2021. The study population was divided into two subgroups based on surgical approach. Demographics, baseline characteristics, and 12-month outcomes were compared between groups: $\chi 2$ and Student t-tests were used for categorical and continuous variables, respectively. The Trifecta composite outcome (post-operative Q-max >15 ml/sec, International Prostate Symptom Score (IPSS) <8 and absence of complications) was used to define surgical quality and the two groups were compared accordingly. Logistic regression analyses investigated predictors of Trifecta achievement. Ninety-seven patients were included with comparable pre-operative features (all $p > 0.30$): 43 underwent RASP, and 54 HOLEP. Median PV was 102 g (IQR 89–120) and Q-max was 7.2 ml/s (IQR 5.4–9.0). The Trifecta rate was 43% overall, higher in the RASP subgroup (56% vs 33%; $p = 0.02$). The endoscopic approach was its only independent predictor (OR 0.5; 95% CI 0.28–0.88; $p = 0.016$). Trifecta achievement, which was significantly higher in the RASP group compared to HOLEP [3].

Transurethral Resection of the Prostate (TURP) was considered the "gold standard" surgical treatment for medication-refractory Benign Prostatic Hyperplasia (BPH) for decades. With the desire to reduce hospital stays, complications, and cost, less invasive procedures gained usage in the 1990's. With the advent of a soft tissue morcellator, holmium laser enucleation of the prostate (HoLEP) was introduced as an efficacious alternative to TURP and due to its advantageous side effect profile compared to TURP, has grown in popularity ever since. HoLEP has become a size-independent guideline-endorsed procedure of choice for the surgical treatment of BPH.

A growing body of literature has shown HoLEP to be a safe and efficient procedure for the treatment of BPH for all prostate sizes. Long-term studies have proven the durability of HoLEP, as a first-

line surgical therapy for BPH.

It is a proven modality for the surgical treatment of BPH. It can be performed on patients with a high risk for postoperative bleeding, or after previous prostate-reducing procedures. HoLEP is the only procedure that is AUA guideline endorsed for all prostate sizes for the surgical treatment of BPH. Given these considerations, HoLEP has become the new gold- standard for the surgical treatment of BPH.

A growing body of literature has shown HoLEP to be a safe and efficient procedure for the treatment of BPH for all prostate sizes. Long-term studies have proven the durability of HoLEP, as a first-line surgical therapy for BPH [4].

Another study compared the peri-operative and functional results between trans-urethral resection of the prostate (TURP) and holmium laser enucleation of the prostate (HoLEP) in the treatment of Benign Prostatic Hyperplasia (BPH) associated with lower urinary tract symptoms (LUTS) in middle-old patients. This prospective single-center study included patients over 75 years old treated with B-TURP or HoLEP for BPH associated with LUTS with Prostate Volume (PV). It concluded that in middle-old patients, B-TURP and HoLEP appear to be both safe and effective procedures for the surgical treatment of BPH. but there we found significant differences in terms of post-operative bleeding, post-operative Qmax, prostate tissue removed, reduction of catheterization time, and length of hospitalization, which were all in favor of the HoLEP group [5].

Holmium Laser Enucleation of the Prostate (HoLEP) with mechanical tissue morcellation is one of the most effective surgical modalities for the treatment of symptomatic BPH. HoLEP has many advantages over the historical gold standards Open Prostatectomy (OP) and Transurethral Resection of the Prostate (TURP). HoLEP is an AUA guideline-endorsed surgical treatment for Lower Urinary Tract Symptoms (LUTS) due to benign prostatic hyperplasia (BPH), independent of prostate size.

Performing HoLEP in a teaching university hospital, with an emphasis on the surgical technique and its evolution. Although it is very equipment-sensitive and has a relatively long learning curve. HoLEP can be performed by several surgical approaches that can be used according to the specific anatomy of the patient. Advances in laser technology, endoscopic morcellators, and surgical techniques has improved the HoLEP procedure in efficiency, hemostasis, and safety.

The HoLEP procedure, first introduced in 1998, has undergone significant changes including advancements in laser technology, endoscopic morcellation devices, and modifications to the surgical technique. These advancements have made HoLEP a more effective, more efficient, easier to perform, and easier to learn technique for the surgical management of BPH. The modified 2-lobe and the en-bloc techniques are a natural progression from the classic 3-lobe technique [6].

Patients with symptomatic prostatic hyperplasia and candidates for surgical treatment were selected. Both procedures were explained and they chose HoLEP or TURP. At the hospital were collected: age, date of birth, international prostate symptom score, urinary peak flow rate, prostate volume, post-voiding residual urine, globular volume, and serum PSA. At the procedure operating time, morcellating time (HoLEP), bladder mucosal injury, and intercurrences were collected. At the first postoperative day, globular volume and sodium were assessed. Besides that were observed the catheter indwelling time and hospital stay and after 90 days, urinary peak flow rate and international prostate symptom score. Statistical analysis has been done partially by Sinpe® and also by a professional team. The results twenty patients in the HoLEP group and 21 at TURP were operated. Baseline urinary peak flow rate was 8 ml/s in both groups and the preoperative international prostate symptom score was 22 in HoLEP and 20 in TURP, very similar. Operative time was 85 minutes in HoLEP and 60 in TURP [6],

Holmium laser enucleation of the prostate (HoLEP) is an established method for treating benign prostatic obstruction. Nonetheless, its steep learning curve limits its wide distribution. A questionnaire was prepared to identify surgeon's experience on laparoscopy and HoLEP, as well as their learning curves. This questionnaire was then distributed via e-mail to 110 urologists who are actively involved in endourology/laparoscopy.

Of the 110 urologists, 80 (72.7%) responded and completed the questionnaire. Of the 80 surgeons, 47 (58.8%) reported that they had completed the HoLEP learning curve with <20 cases. Moreover, 33 (41.2%) reported that they were able to complete the learning curve by performing >20 cases. Completion of the HoLEP learning curve in <20 cases was reached at 1.3%, 13.8%, and 43.8% by beginner, moderately skilled, and experienced laparoscopists, respectively ($p<0.001$). Laparoscopic experience appears to be beneficial for surgeons while learning HoLEP. Highly experienced laparoscopic surgeons have a shorter HoLEP learning curve [7].

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