

## Study Aims

- To uncover transient SUI complications rates associated with HoLEP procedures performed at our institution by a single surgeon.
- To identify factors that may be associated with increased risk of SUI post-operatively.
- To recognize risk factors associated with transient SUI, which will allow providers to be better able to counsel patients and hopefully reduce provider and patient frustration.

## Introduction

In the subset of patients whose BPH symptoms do not improve with medical therapy, surgical treatment constitutes the next step in management. Historically, transurethral resection of the prostate (TURP) has been the gold standard to which all endoscopic surgical modalities for BPH are compared<sup>1</sup>. This technique, although efficacious, has been associated with poor hemostasis and subsequent morbidity. This includes prolonged hospital stays, higher risk of blood transfusion, increased catheterization times, and higher reoperation rates<sup>2</sup>. These negative attributes of TURP have prompted the rise of newer and innovative modalities to treat BPH<sup>3</sup>.

HoLEP is one of the new modalities of surgical management. This procedure uses a 2140nm wavelength laser to enucleate the adenoma of the prostate off the surgical capsule, as seen in the image below (Figure 1). The use of a laser allows for removal of a greater amount of tissue, and greater hemostasis during the procedure in comparison to TURP<sup>4</sup>. Additionally, HoLEP is size independent and can be used for enucleation of larger prostates over 100g which have not been good candidates for TURP procedures.

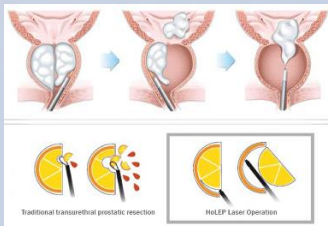


Figure 1: Traditional TURP versus HoLEP laser operative technique<sup>5</sup>

One of the most common complications with HoLEP is post-operative stress incontinence. The literature shows reported rates transient SUI in anywhere from 1-44% of patients undergoing this procedure depending on technique used<sup>6</sup>. This represents one of the most common complaints affecting quality of life after the procedure, though the vast majority of cases are short lived. These complaints, along with a high learning curve for the procedure, are seen as the two most prominent reasons for urologists' failure to adopt this technique currently.

## Methods

- A retrospective review, from an IRB approved database, of all 515 patients that underwent a HoLEP at our institution between January 2012 and December 2017 was performed.
- Transient SUI after HoLEP was defined as any leakage of urine lasting up to 3 months post-operative date.
- Patients were stratified by gland size determined by transrectal ultrasound (TRUS) and whether they were catheter dependent; either clean intermittent catheterizations (CIC) or continuous urethral drainage catheter.
- Patients were seen for follow-up at 2 weeks, 6 weeks, and 3 months post-operative date.
- Univariate analysis was performed for baseline demographics, and for pre-, peri-, and post-operative data collection.

## RESULTS

Table 1: Baseline Characteristics and Pre-Operative Data

Variable	Patients with no SUI (n=515)	tSUI patients (n=53)	p value
Age	70.5±8.5	71.8±9.0	0.3122
BMI	30.0±11.9	29.8±6.1	0.9351
Serum PSA (ng/mL)	6.70±14.9	7.3±8.0	0.8258
TRUS Prostate Size (mL)	93.6±56.7	146.9±57.4	<0.0001*
Pre-Op Uroflow Peak Flow (mL/s)	8.5±10.4	9.5±8.9	0.8703
Pre-Op Uroflow Mean Flow (mL/s)	3.6±2.4	3.7±3.2	0.5463
Pre-Op Post Void Residual (mL)	246.9±263.7	299.6±296.8	0.2134

- Out of the 515 patients analyzed, 53 (10.3%) developed transient SUI
- Transient stress urinary incontinence resolved in 47 out of 53 patients (88.6%) within the first 6 weeks post-operatively and resolved in the remaining 6 out of 53 (11.3%) between 6 weeks to 3 months (Figure 2)



Figure 2: Transient SUI from 0 days post-op to 3 months post-op

- TRUS was obtained to measure prostate size in 330 out of 515 patients, of which 123 (37.3%) patients had prostate size greater than 100g
- 71.6% with transient SUI were catheter dependent prior to their HoLEP
- 83% of patients with transient SUI had prostate size above 100g
- In patients with resolution of transient SUI within 6 weeks, 84.8% had prostate size larger than 100g while 100% of patients with resolution between 6 weeks to 3 months had prostate volume larger than 100g

Table 2: Perioperative and Post-Operative Data

Variable	Patients with no SUI (n=515)	tSUI patients (n=53)	p value
Laser Energy Used (kJ)	347.8±190.5	511.7±150.1	<0.0001*
Laser On Time (min)	108.1±71.5	145.8±93.1	0.0380*
Resected Prostate Weight (mL)	87.9±50.5	131.6±71.0	0.0010*
Post-Op Catheterization Time (days)	6.2±3.7	5.1±2.1	0.2022
Post-Op Uroflow Peak Flow (mL/s)	23.0±16.0	21.7±12.5	0.6588
Post-Op Uroflow Mean Flow (mL/s)	5.9±4.3	5.1±3.2	0.5181
Post-Op Post Void Residual (mL)	65.0±90.8	63.4±78.5	0.9161

## CONCLUSIONS

- The majority of patients (88.6%) with transient SUI fully recover their control of their bladder within the first 6 weeks after their operation.
- Major risk factors identified by our study include patients with prostate sizes greater than 100 g, operative time, and preoperative catheter-dependent urinary retention. Patients in these populations have a significantly increased risk for transient SUI.
- Patients with transient SUI should be counseled appropriately to reduce frustration during their postoperative course.
- Future research includes investigation of utilizing perioperative pelvic floor rehabilitation prior to their procedure in order to hopefully reduce or eliminate transient SUI post-HoLEP.

## REFERENCES

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