

Photoselective vaporization of the prostate with the 180-W XPS-GreenLight laser: Five-year experience of safety, efficiency, and functional outcomes

Ajib K, et al. Can Urol Assoc J. 2018 Mar 19. doi: 10.5489/cuaj.4895.

Background

Benign prostatic hyperplasia (BPH) is characterised by the development of lower urinary tract symptoms (LUTS), including voiding and storage problems, and has an increasing incidence in men over the age of 50 years.

The management of BPH includes medical therapy in patients with moderate-to-severe symptoms, but in cases that are refractory to medical treatment or where there is gross haematuria, recurrent infections, bladder stones, or deterioration of kidney function, then international guidelines suggest that surgery should be offered.

Standard of care surgical therapy in this setting is transurethral resection of the prostate (TURP) however it is known to be associated with adverse effects in subjects who are taking anticoagulants and in those with large prostates.

An alternative surgical option – photoselective vaporisation of the prostate (PVP) using a laser – has more recently gained acceptance. Since the introduction of first laser device in 2000 there have been considerable improvements in device technology. Clinical evidence has also accumulated supporting the efficacy and safety of the newer devices, including shorter catheterisation and hospitalisation times compared with TURP, however long-term data on treatment durability have been lacking up to now.

This study was the first to assess the long-term (5-year) clinical outcomes of patients undergoing PVP for the treatment of BPH using the GreenLight™ XPS-180 W laser system.

Patients and study methods

- A retrospective analysis was performed on a prospectively-gathered database of 370 consecutive patients who underwent PVP using the GreenLight XPS-180 W laser system
- Surgery was performed by a single experienced laser surgeon between 2011 and 2016 at a single centre: Section of Urology, Department of Surgery, Centre Hospitalier de l'Université de Montréal, Montreal, QC, Canada
- Indications for treatment were based on the American Urology Association BPH clinical guidelines

Assessments

All patients were assessed preoperatively and reviewed at 3, 6, 12, 24, 36, 48 and 60 months postoperatively.

The following assessments were undertaken at each visit:

- **Prostate-specific antigen (PSA)**
- **International Prostate Symptom Score (IPSS)**
- **Quality of life (QoL) scores**
- **Post-void residual (PVR) volume**
- **Maximum flow rate (Qmax)**
- **Transrectal ultrasound prostate volume**
- **Complications:** Assessed using the Clavien–Dindo classification



PVP using the GreenLight XPS-180 W laser system can be considered a safe and durable procedure for patients with BPH needing surgical treatment, with effectiveness maintained for a period of at least 5 years.

Results

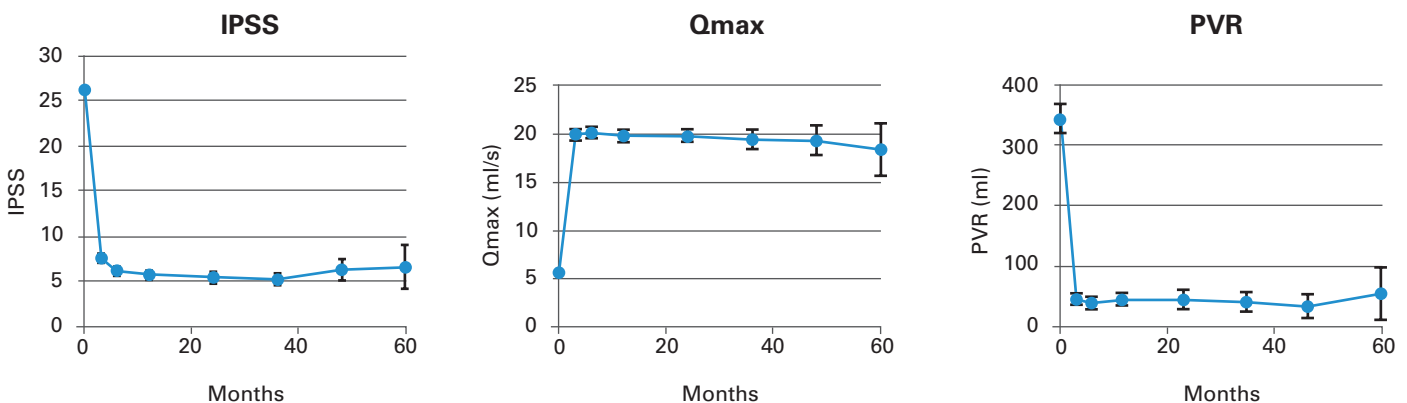
Outcomes of 66 patients with complete 5-year follow-up

Outcome	Preoperative	At 5 years
PSA (ng/mL)	11.9 (range: 8.4–15.0)	2.5 (range: 0.3–4.0)
IPSS	25.3 (range: 23.5–26.8)	6.5 (range: 4.0–8.9)
QoL	4.5 (range: 4.2–4.8)	1.0 (range: 0.9–1.48)
Qmax (mL/s)	4.5 (range: 4.2–4.8)	18.4 (range: 16.5–20.4)
PVR (mL)	293.1 (range: 229.9–356.2)	53.7 (range: 36.1–71.4)

- Mean follow-up period: 59.4 months
- Mean age: 68 years
- Mean prostate volume: 78.8 cc
- Mean duration of surgery: 62.7 minutes
- Of the 370 patients evaluated, 66 had a complete 5-year follow-up at the time of the analysis

- All functional outcomes improved significantly compared with baseline ($p < 0.001$ in each case) and were maintained over the 5-year follow-up period
- Complication rates were low

Functional outcomes over the 5-year study period (all patients)



Conclusions

- The first study reporting the long-term efficacy and safety of PVP for the treatment of BPH using the GreenLight™ XPS-180 W laser system.
- The results of the study confirm that the GreenLight XPS-180W laser system is safe and effective in clinical use and the treatment effect is durable for at least 5 years for the management of bladder outlet obstruction resulting from BPH.

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