

# Long-term patient-reported clinical outcomes and reoperation rate after photovaporization with the XPS-180W GreenLight Laser

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## Background

Clinical evidence is accumulating that photovaporisation of the prostate (PVP) using the GreenLight™ XPS laser system offers a promising alternative to transurethral resection of the prostate (TURP) for the surgical management of benign prostatic hyperplasia (BPH).

Further confirmatory evidence from longer-term studies are needed however, as well as demonstration of its efficacy for the treatment of medium-to-large sized prostate glands and the durability of the functional results obtained with this device. In addition, results that confirm a low rate of reoperation for recurrent BPH, or complications such as bladder neck or urethral strictures, would be of value in assessing the overall utility of the GreenLight XPS laser system versus TURP.

Previous studies of PVP for BPH have investigated lower-powered laser devices with follow-up periods of 3–5 years. In some cases, inclusion criteria for these studies have limited the allowable prostate volume.

The GreenLight XPS laser system has advanced technical specifications compared to previous devices, with a maximum power of 180 W and an improved beam geometry of the MoXy™ fibre.

**This study aimed to investigate long-term patient-reported outcomes and reoperation rate in patients undergoing PVP for BPH with the GreenLight XPS-180 W laser system, without any limitations on prostate volume.**

## Patients and study methods

- A prospective, longitudinal study of 84 consecutive men undergoing PVP for symptomatic benign prostatic enlargement with the GreenLight XPS laser system between 2010 and 2012
- Large prostate volume (>100 cc) was not an exclusion criterion

- Surgery was performed by a single surgeon using transrectal ultrasonography (TRUS) monitoring and undertaken at a single centre: Department of Urology, Centre Hospitalier Universitaire Régional de Brest, Brest, France.
- Indication for surgery was bothersome lower urinary tract symptoms associated with prostate enlargement as measured with TRUS.

## Assessments

### Preoperative assessments included:

- International Prostate Symptom Score (IPSS) questionnaire
- International Continence Society (ICS) questionnaire
- International Index of Erectile Function short-form (IIEF5) questionnaire
- TRUS prostate volume
- Maximum flow rate (Qmax)
- Prostate-specific antigen (PSA)
- Post-void residual (PVR) volume

**For each surgical procedure:** Intraoperative lasing time, total operative time, numbers of fibres used, and energy delivered were recorded.

### Preoperative assessments:

- Reoperation rate
- TRUS prostate volume: 3 & 12 months
- IPSS, ICS, and IIEF5: 1, 3, 12 & 48 months
- Qmax and PVR: 1, 3, 12 & 57 months
- PSA: 3, 12 & 57 months
- Patient satisfaction (Likert scale)



**PVP of the prostate using the GreenLight XPS laser is an effective technique able to durably improve reported clinical outcomes in patients with benign prostatic enlargement.**

## Results

### Long-term outcomes of patients who underwent PVP using the GreenLight XPS laser system

Outcome Mean ± SD	Preoperative	At 12 months	At 57 months
IPSS	19.9 ± 6.47	3.9 ± 3.4 p=0.0001	5.9 ± 5.86 p=0.007
ICS	1.73 ± 2.73	0.4 ± 1.09 p=0.14	0.6 ± 1.76 p=0.61
IIEF5	12.5 ± 8.4	12.3 ± 9.23 p=0.11	10.6 ± 8.97 p=0.001
PSA (ng/mL)	4.5 ± 4.31	2.2 ± 2.08 p=0.06	2.6 ± 2.27 p=0.04
Qmax (mL/s)	9.66 ± 3.86	25.2 ± 9.25 p=0.85	Not determined
PVR (mL)	96.6 ± 87.9	25.22 ± 9.25 p=0.11	Not determined

- Mean follow-up period: 57.4 months
- Mean (±SD) age: 68 ± 7.2 years (range: 51–85)
- Mean (±SD) prostate volume: 73 ± 38 cc (19 of 84 patients had a prostate >100 cc)
- Mean (±SD) duration of surgery: 80 ± 35 minutes

p-values are versus preoperative levels

### Summary of outcomes following PVP

- **Mean IPSS:** Decreased significantly from 19.9 to 5.9 at 57 months
- **Mean PSA level:** Decreased significantly (a reduction of 56%) from 4.5 ng/mL preoperatively to 2.6 ng/mL at 57 months
- **Mean Qmax:** Improved from 9.6 mL/s preoperatively to 25.2 mL/s at 12 months
- **Reoperation rate was low:** Overall: 4.8% (4/84 patients); recurrent BPH 2.4% (2/84 patients)
- **Long-term patient satisfaction was high:** 80% (74/84) of the patients were at least mostly satisfied after 57 months

## Conclusions

- The study found good and durable patient-reported clinical outcomes in an unselected cohort of men who had undergone PVP using the GreenLight XPS laser system.
- PSA levels declined postoperatively and remained low at a mean long-term follow-up of 57.4 months.
- Reoperation rate was low and compared favourably with studies of other laser devices and TURP.
- There was a high level of patient satisfaction with the clinical outcomes of PVP.

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