

Surgical treatment of benign prostatic obstruction: vaporisation and alternative ablative techniques

1. Vaporisation of the prostate

Bipolar transurethral vaporisation of the prostate (B-TUVP): B-TUVP utilises a bipolar electrode and a high-frequency generator to create plasma field (thin layer of highly ionised particles) to vaporise prostatic tissue. It displays thinner (< 2 mm) coagulation zones, compared to monopolar TUVP (up to 10 mm), potentially resulting in fewer irritative side-effects. Bipolar-TUVP and TURP have similar short-term efficacy and. Plasmakinetic B-TUVP has a favourable peri-operative profile, similar mid-term safety but inferior midterm efficacy compared to TURP.

Recommendation	Strength rating
Offer bipolar transurethral vaporisation of the prostate as an alternative to transurethral resection of the prostate to surgically treat moderate-to-severe LUTS in men with a prostate volume of 30-80 mL.	Weak

532 nm ('Greenlight') laser vaporisation of the prostate

Laser vaporisation of the prostate using the 80-W KTP, 120-W LBO, and 180-W LBO lasers (PVP) demonstrated higher intra-operative safety with regard to haemostatic properties when compared to TURP. Perioperative parameters such as catheterisation time and hospital stay are in favour of PVP, whereas operation time and risk of re-operation are in favour of TURP. It seems to be safe for the treatment of patients receiving antiplatelet or anticoagulant therapy.

Recommendations	Strength rating
Offer 80-W 532-nm Potassium-Titanyl-Phosphate (KTP) laser vaporisation of the prostate to men with moderate-to-severe LUTS with a prostate volume of 30-80 mL as an alternative to transurethral resection of the prostate (TURP).	Strong
Offer 120-W 532-nm Lithium Borat (LBO) laser vaporisation of the prostate to men with moderate-to-severe LUTS with a prostate volume of 30-80 mL as an alternative to TURP.	Strong
Offer 180-W 532-nm LBO laser vaporisation of the prostate to men with moderate-to-severe LUTS with a prostate volume of 30-80 mL as an alternative to TURP.	Strong
Offer laser vaporisation of the prostate using 80-W KTP, 120- or 180-W LBO lasers for the treatment of patients receiving antiplatelet or anticoagulant therapy with a prostate volume < 80 mL.	Weak

Vaporisation techniques under investigation

- **Diode laser vaporisation of the prostate:** Laser vaporisation using the 120-W 980 nm diode laser demonstrated high intraoperative safety with regard to haemostatic properties when compared to TURP. Peri-operative parameters like catheterisation time and hospital stay were in favour of diode lasers and it seems to be safe with regard to haemostasis in patients receiving anticoagulant therapy.

2. Alternative ablative techniques

Aquablation—image guided robotic waterjet ablation: AquaBeam

It appears to be as effective as TURP both subjectively and objectively but is still considered under investigation.

Recommendations	Strength rating
Offer Aquablation* to patients with moderate-to-severe LUTS and a prostate volume of 30-80 mL as an alternative to transurethral resection of the prostate.	Weak
Inform patients about the risk of bleeding and the lack of long-term follow-up data.	Strong

Prostatic artery embolization

It is less effective than TURP at improving symptoms and urodynamic parameters such as flow rate.

Recommendations	Strength rating
Offer prostatic artery embolisation (PAE)* to men with moderate-to-severe LUTS who wish to consider minimally invasive treatment options and accept less optimal outcomes compared with transurethral resection of the prostate.	Weak
Perform PAE only in units where the work up and follow-up is performed by urologists working collaboratively with trained interventional radiologists for the identification of PAE suitable patients.	Strong

Alternative ablative techniques under investigation

- **Convective water vapour energy (WAVE) ablation: Rezum system:** It has shown significant symptom relief and improved quality of life in clinical trials, with sustained efficacy up to five years and a low surgical retreatment rate of 4.4%. It preserves sexual function.

3. Non-ablative techniques

Prostatic urethral lift (PUL): significantly improves IPSS, Qmax, and QoL, though less effectively than TURP. It has a low incidence of sexual side effects, but long-term effects and the risk of retreatment remain uncertain.

Recommendation	Strength rating
Offer Prostatic urethral lift (Urolift®) to men with LUTS interested in preserving ejaculatory function, with prostates < 70 mL and no middle lobe.	Strong

Intra-prostatic injections: Do not offer intraprostatic Botulinum toxin-A injection treatment to patients with male LUTS.

Non-ablative techniques under investigation: (i)TIND

Studies show significant improvements in IPSS, QoL, and Qmax, though less effective than TURP. The procedure is well-tolerated with minimal complications and no new reports of ejaculatory or erectile dysfunction.

TREATMENT ALGORITHM OF BOTHERSOME LUTS REFRACTORY TO CONSERVATIVE/MEDICAL TREATMENT OR IN CASES OF ABSOLUTE OPERATION INDICATIONS.

(1)Current standard/first choice. The alternative treatments are presented in alphabetical order. Laser vaporisation includes Greenlight, thulium, and diode laser vaporisation. Laser enucleation includes holmium and thulium laser enucleation. HoLEP = holmium laser enucleation; TUIP = transurethral incision of the prostate; TURP = transurethral resection of the prostate; PU = prostatic urethral.

