

# Prostatic Urethral Lift

## A Unique Minimally Invasive Surgical Treatment of Male Lower Urinary Tract Symptoms Secondary to Benign Prostatic Hyperplasia



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### KEYWORDS

- Prostatic urethral lift • Benign prostatic hyperplasia • Lower urinary tract symptoms
- Sexual function • Minimally invasive therapy • Surgical therapy

### KEY POINTS

- Prostatic urethral lift can be performed in the office with local anesthesia.
- Return to normalcy is rapid, typically without a catheter.
- Symptom improvement is rapid, significant, and sustained to at least 4 years.
- Sexual function is preserved.
- Future treatment options for patients are preserved.

### INTRODUCTION: NATURE OF THE PROBLEM

Traditional treatment options for male lower urinary tract symptoms (LUTS) due to benign prostatic hyperplasia (BPH) include watchful waiting with lifestyle management, medical therapy, and interventional procedures. Each approach is associated with positive and negative attributes and represents an important tool for the practicing urologist. Despite the number and variety of approaches, there still exists a large population of men who are underserved by these standard options and desire a therapy that has fewer side effects and offers faster recovery compared with standard surgery, yet is more effective and less burdensome than lifelong medical therapy.

Shortcomings of traditional therapies limit the population of patients to which they can be applied. The least disruptive of the treatment approaches is watchful waiting with lifestyle management. Although this approach exposes patients to

minimal iatrogenic risk, it is generally limited to patients with mild or moderate symptom frequency and severity and low bother due to the symptoms. Medications are associated with modest symptom relief (3.5–7.5 International Prostate Symptom Score [IPSS] improvement compared with 0–5.7 for placebo) but carry the burden of daily, lifetime dosing and not insignificant side effects.<sup>1</sup> As many as 25% of men on drug therapy are dissatisfied and discontinue treatment.<sup>2</sup> The most invasive treatment option is surgical therapy, whereby tissue is removed either by transurethral resection of the prostate (TURP) or ablative laser procedures (vaporization or enucleation). TURP, the gold standard surgery, results in 14.9 IPSS improvement at 1 year.<sup>1</sup> This substantial improvement in symptoms can be associated with significant postoperative morbidity, however, as complications from TURP include urinary incontinence (3%), urethral stricture (7%), erectile dysfunction (10%), and

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ejaculatory dysfunction (65%).<sup>1,3</sup> Catheterization after TURP is expected, and patients are counseled to expect 4 to 6 weeks of worsened irritative symptoms. Laser therapy demonstrates superior control of bleeding to TURP but is similar in effectiveness, anesthesia requirement, and complication rates.<sup>4</sup>

Existing minimally invasive thermotherapies such as transurethral microwave therapy (TUMT), transurethral needle ablation (TUNA), and steam injection (REZUM) induce tissue damage and necrosis by different heat sources. Their effectiveness is superior to medications but inferior to TURP (10.2 and 9.1 point improvement in IPSS at 1 year for TUMT and TUNA, respectively).<sup>1</sup> Because of the thermal injury, there is a healing response, tissue inflammation, and irritative voiding symptoms in most patients during the first few months after treatment.<sup>1</sup> After the procedure, patients experience routine catheterization, a 20% to 25% risk of acute urinary retention, and irritative voiding symptoms that last for 4 to 6 weeks.<sup>1,5</sup> The 3 TUMT patient groups in the Coretherm pivotal study underwent 14, 18, and 20 days mean posttreatment indwelling catheter time.<sup>6</sup> Further, TUMT therapies have been associated with a greater than 20% retrograde ejaculation rate.<sup>7,8</sup> Lower power alternatives were developed to minimize adverse effects, but effectiveness was greatly compromised as well. Retreatment rates for thermal ablation techniques have been disappointing, reaching as high as 20% to 50% by 3 years.<sup>9</sup> Because of limitations with the technologies and the difficult patient experience after the procedure, the number of minimally invasive thermotherapy procedures among Medicare beneficiaries increased gradually to modest levels of 37,637 in 2005 and then have precipitously declined.<sup>10,11</sup>

The prostatic urethral lift (PUL) is a nonthermal technology to treat patients who want superior efficacy with minimal risk. With the high prevalence of patients who discontinue medications and the declining number who pursue surgical or minimally invasive therapy, there is a significant population of suffering men who are inadequately treated by the currently available treatment options. The PUL procedure uses a mechanical approach, and the mechanism of action is to pin the lateral lobes out of the way and thereby reduce obstruction. By not requiring biological response to tissue removal or thermal injury, PUL can offer a more rapid recovery, freedom from urinary catheterization, and the opportunity to achieve significant symptom relief with low morbidity.

## SURGICAL TECHNIQUE

### *Preoperative Planning*

Selecting the most appropriate LUTS therapy for any patient requires careful consideration of the patients' history, condition, risk tolerance, and desired outcome. Because BPH is a quality-of-life issue, it is important to understand how symptom relief, perioperative experience, sexual function preservation, and continence preservation contribute to the overall outcome for a specific patient; if a man achieves LUTS relief yet loses the ability to perform sexually or maintain continence, his quality of life (QoL) may not be improved. The PUL procedure has been shown to improve QoL by improving LUTS while offering more rapid recovery without compromising sexual function or continence.<sup>12,13</sup>

Proper patient selection among patients who desire the therapy is a key component to ensuring the best clinical outcome. Typically, patients have a prostate volume less than 80 mL, when not on medical therapy an IPSS greater than 12 with associated bother, and Qmax (peak flow rate) less than 15 mL/s. Baseline prostate volume and prostate length have not been found to be predictors of symptom response.<sup>9</sup> It is important to note that a large portion of the clinical data involves patients who are washed out of any BPH medication, and baseline symptoms of medicated patients might be somewhat lower. Although definitive data on patients with large prostates are lacking, patients have been treated with prostates up to 145 mL.<sup>14,15</sup> Patients in active urinary retention or on anticoagulation have not been studied and, therefore, should be approached with caution. Patients should be instructed to discontinue anticoagulants before the procedure in collaboration with their prescribing provider. At present, direct PUL treatment of the obstructive median lobe is being studied and is currently contraindicated in the USA [[ClinicalTrials.gov](https://clinicaltrials.gov/ct2/show/study/NCT02625545) Identifier: NCT02625545]. As all BPH patients have a median lobe to one extent or another, it is important to assess cystoscopically whether lateral lobe opening would be sufficient. **Fig. 1A** shows an obstructive median lobe that would likely not be effectively addressed with simple lateral lobe pinning; **Fig. 1B** shows a median lobe that, although protruding, offers enough space anteriorly to not pose an issue for standard lateral lobe UroLift.

In order to determine whether a patient is an ideal candidate, the target locations and number of implants, and the ability to perform the procedure in the clinic, a planning cystoscopy and transrectal ultrasound (TRUS) are useful. The author often performs TRUS to determine prostate volume, presence and size of a median lobe, and to aid in procedure planning. In addition to its

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