

Transurethral microwave thermotherapy (TUMT) is one of the most widely studied minimally invasive methods of treating symptomatic BPH. Catheter-mounted transducers use microwave energy (30 to 300 Hz) to heat prostatic tissue, resulting in coagulative necrosis and shrinkage of the prostate gland. The subsequent reduction in prostate transition zone volume results in an improvement in flow rates and symptom scores. Transurethral needle ablation (TUNA) uses low-level radio frequency energy to effect similar changes within the prostate gland. Other therapies currently available or in development include interstitial lasers and high-intensity focused ultrasound. All of these therapies are designed to deliver sufficient energy to the prostate to cause tissue destruction, resulting in a smaller prostate gland consequent improvement in the patient's symptoms.

The most common side effects of these treatments are temporary increases in overactive bladder symptoms, transient urinary retention, hematuria, and ejaculatory dysfunction (primarily retrograde ejaculation). Late complications such as urethral strictures and ED have been reported but are significantly less common than with traditional surgical approaches. The major benefits of these less invasive therapies are the reduction in traditional surgical morbidities (e.g., bleeding) and risks associated with general or spinal anesthesia and decreased rates of long-term complications such as incontinence, ED, bladder neck contractures, and urethral strictures. Additionally, most of these procedures can be accomplished safely on an outpatient basis, either in the office or in an ambulatory surgical setting.

Success rates for the heat-based minimally invasive therapies are intermediate between those achieved with medical management and those of traditional surgical therapy, with 65% to 75% of patients experiencing symptomatic improvement and improved flow rates. The long-term durability of these therapies appears to be good but is presently being evaluated.

Traditional Surgical Management

TURP remains the "gold standard" for the surgical management of symptomatic BPH. A TURP procedure involves removal of the transition zone of the prostate through the penis using a cutting electrocautery loop. The goals of the surgery are to reduce the transition zone prostate tissue to the level of the prostatic capsule and to create a smooth, open appearance of the prostatic urethra and bladder neck. Improvements in the conventional technique have included bipolar electrosurgical cutting, which allows saline irrigation and eliminates the chance of transient urinary retention syndrome.

Newer operating room-based therapies have evolved that produce end results similar to those of TURP. Holmium laser enucleation (HoLEP) is a surgical technique performed by specially trained urologists, generally indicated for large size prostates. Other procedures include various forms of

vaporization of the transition zone tissue of the prostate. In contrast to the TURP, no pieces of prostate are removed with these procedures. The various vaporization procedures include potassium titanyl phosphate (KTP or GreenLight) laser therapy, also called photovaporization of the prostate, and bipolar plasma vaporization of the prostate (button TURP). With the exception of HoLEP, all of these procedures are useful for all but the largest prostate glands (>100 mL), which are typically best managed with open surgical enucleation. Rates of urinary incontinence, retrograde ejaculation, and urethral stricture are all higher after operating room procedures than after office-based therapies. Perioperative morbidity, including the need for blood transfusion, although substantially decreased by technical improvements, is likewise higher after TURP and similar procedures. However, standard electrosurgical resection of the prostate (TURP) is the most effective surgical treatment for symptomatic BPH short of enucleation. Success rates, as measured by improved symptom scores and increased urinary flow rates, are 80% to 90% after TURP.

Transurethral incision of the prostate (TUIP) is a more limited surgical procedure consisting of incision of the bladder neck and proximal prostatic urethra. Although it is more invasive than the heat-based therapies, success rates approach those of TURP in properly selected patients (i.e., those with prostate glands <30 mL). Morbidity after TUIP is significantly less than after TURP, but long-term durability of symptom relief is less than that seen with TURP.

Open surgical enucleation (open or simple prostatectomy) is reserved for patients with very large glands. This is an invasive surgery that typically involves a 5- to 10-cm incision in the midline of the lower abdomen and an incision in the bladder neck or the capsule of the prostate. After the incision has been made, the transition zone of the prostate (prostatic adenoma) is bluntly removed. Success rates are high, but the rate of complications is higher than with any of the other traditional surgical approaches (Table 71-5). This surgery is uncommonly performed in the United States, having been replaced by HoLEP in many centers.

CONCLUSION

The management of LUTS resulting from BPH has undergone a dramatic shift from principally a surgical approach to a medical approach. This evolution of care, coupled with the aging of the U.S. population, has resulted in a shift of care for these patients from the urologist to the primary care physician. In the absence of severe LUTS or indications for early surgical intervention, the primary care physician can now successfully manage most cases of mild to moderate BPH. If there is no response to medical therapy, the patient can be offered office-based minimally invasive surgical therapy.

TABLE 71-5 SUCCESS IN MEDICAL VERSUS SURGICAL MANAGEMENT OF BENIGN PROSTATIC HYPERPLASIA

| DEGREE OF IMPROVEMENT | α_1 -BLOCKERS | FINASTERIDE | TURP | TUIP | OPEN SURGERY |
|---|----------------------|-------------|------|------|--------------|
| Symptoms (%) | 48 | 31 | 82 | 73 | 79 |
| Flow rate (%) | 40-50 | 17 | 120 | 100 | 185 |
| Mean probability (%) of achieving the stated improvements | 74 | 67 | 88 | 80 | 98 |

TUIP, Transurethral incision of the prostate; TURP, transurethral resection of the prostate.