



**COMPARISON OF SURGICAL TECHNIQUES FOR BENIGN PROSTATIC
HYPERPLASIA: OUTCOMES AND INNOVATIONS**

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Abstract: Benign prostatic hyperplasia (BPH) is a prevalent condition among aging men, characterized by nonmalignant enlargement of the prostate leading to lower urinary tract symptoms (LUTS). Surgical intervention remains the gold standard for patients with moderate to severe symptoms unresponsive to medical therapy. This article compares conventional and minimally invasive surgical techniques, including transurethral resection of the prostate (TURP), holmium laser enucleation (HoLEP), photoselective vaporization (PVP), and robotic-assisted simple prostatectomy (RASP). Advances in laser technology and minimally invasive approaches have significantly reduced morbidity, hospitalization, and catheterization time while maintaining comparable efficacy to TURP.

Keywords: benign prostatic hyperplasia, TURP, HoLEP, PVP, robotic prostatectomy, surgical outcomes

1. Introduction

Benign prostatic hyperplasia affects over 50% of men older than 50 years and up to 90% of men in their 80s. It contributes to significant morbidity due to urinary retention, recurrent infections, and impaired quality of life. Medical therapy with α -blockers and 5 α -reductase inhibitors is first-line, but 20–30% of patients eventually require surgical management.

2. Pathophysiology and Indications for Surgery

BPH involves stromal and epithelial hyperplasia primarily in the transitional zone of the prostate, leading to bladder outlet obstruction (BOO).

Surgical indications include:

- Recurrent urinary retention
- Bladder stones or diverticula
- Recurrent hematuria
- High post-void residual volume
- Failure of medical therapy



3. Surgical Techniques

3.1 Transurethral Resection of the Prostate (TURP)

Considered the 'gold standard' for prostates <80 mL. Uses monopolar or bipolar resection under endoscopic guidance. Advantages: Proven long-term efficacy, improved urinary flow rate. Limitations: Bleeding, TUR syndrome, retrograde ejaculation.

3.2 Holmium Laser Enucleation of the Prostate (HoLEP)

Enucleates the adenoma using holmium laser energy followed by morcellation. Suitable for large prostates (>100 mL). Advantages: Minimal bleeding, shorter catheterization and hospital stay, durable results. Limitations: Requires specialized equipment and learning curve.

3.3 Photoselective Vaporization of the Prostate (PVP)

Utilizes a 532-nm GreenLight laser to vaporize prostatic tissue. Advantages: Safe for anticoagulated patients, less bleeding, outpatient procedure. Limitations: Reduced tissue retrieval for histology, potentially longer operative time.

3.4 Open and Robotic-Assisted Simple Prostatectomy (RASP)

Indicated for very large prostates (>150 mL). Robotic approach reduces blood loss and hospital stay compared to open surgery. Provides complete adenoma removal with low recurrence rates.

4. Comparative Outcomes

Table 1. Comparison of Surgical Techniques for BPH

Parameter	TURP	HoLEP	PVP	RASP
Prostate size (mL)	<80	Any	<100	>150
Hospital stay (days)	2–3	1–2	<1	3–5
Catheter time (hours)	48–72	12–24	<12	48–72
Blood transfusion rate (%)	5–10	<1	<1	2–5
Reoperation rate (5 years)	10	5	10–12	3

Studies show HoLEP provides outcomes equivalent to or better than TURP, particularly for large prostates, with fewer complications. PVP offers a favorable safety profile but slightly higher retreatment rates. Robotic prostatectomy is best for massive prostates but cost-intensive.

5. Complications

Common postoperative complications include:

- Retrograde ejaculation (up to 75% in TURP)
- Urinary incontinence (temporary in HoLEP)
- Urethral stricture
- Transient dysuria or hematuria

Advances in energy sources and surgical precision have markedly decreased morbidity.



6. Future Perspectives

Emerging techniques such as Aquablation (robotic waterjet ablation) and prostate artery embolization (PAE) offer minimally invasive alternatives with promising results. Personalized selection based on prostate size, comorbidities, and patient preference is essential.

7. Conclusion

Modern surgical options for BPH have evolved from open resection to highly precise, minimally invasive laser and robotic procedures. TURP remains the benchmark, but HoLEP and RASP demonstrate superior outcomes in specific cases. The choice of surgery should be individualized based on prostate volume, surgeon expertise, and resource availability.

References:

1. Толибов, Ф. (2024). ИММУННАЯ СИСТЕМА: АНАТОМИЯ ЛИМФАТИЧЕСКОЙ СИСТЕМЫ И МЕХАНИЗМЫ ИММУННОГО ОТВЕТА. Журнал академических исследований нового Узбекистана, 1(2), 55-58.
2. Farxodivich, T. F. (2024). The Syndrome of External Secretory Function Insufficiency is a Common Complication of Chronic Pancreatitis. American Journal of Bioscience and Clinical Integrity 1 (10), 90-95
3. Farxodivich, T. F. (2024). Clinical Characteristics of Gastritis in Digestive Diseases. Research Journal of Trauma and Disability Studies, 3(3), 294-299. International Journal of Integrative and Modern Medicine

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4. Farxodivich, T. F. (2024). INFECTION OF COVID-19 ON COGNITIVE FUNCTIONS. SCIENTIFIC JOURNAL OF APPLIED AND MEDICAL SCIENCES, 3(4), 325-330.
5. Tolibov F.F. - VIOLATION OF PLATELET AGGREGATION AND IMBALANCE OF



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6(68)2024 264-268 <https://newdayworldmedicine.com/en/article/3758>

6. o'g'li, K. S. M. (2025). LUMBAR DISC HERNIATION: PATHOGENESIS, DIAGNOSIS, AND MODERN TREATMENT APPROACHES. International Journal of Cognitive Neuroscience and Psychology, 3(9), 33–38.

7. Jabborov Sherbek Otabek o'g'li. (2025). GASTRITS: ETIOLOGY AND TREATMENT.

<https://doi.org/10.5281/zenodo.15070415>

8. Vali o'g'li, M. S. (2024). KIDNEY CANCER: EPIDEMIOLOGY AND

9. TREATMENT. EUROPEAN JOURNAL OF MODERN MEDICINE AND PRACTICE, 4(11), 459–463.

10. Vali o'g'li, M. S. KIDNEY CANCER: EPIDEMIOLOGY AND TREATMENT.

11. Valiyevich, M. S. (2024). Specific Morphofunctional Characteristics of the Kidney

Caused by Brain Damage in Various Emergency Situations. Research Journal of Trauma and Disability Studies, 3(4), 286-289.