

Minimally Invasive Thulium Laser Enucleation of the Prostate

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Abstract

The goal of Minimal Invasive Laser Enucleation of Prostate (MiLEP) surgery is to reduce complication rates and risk of urethral trauma, while providing similar success rates by using smaller caliber instruments. Enucleation was performed with 22 Ch outer resectoscope sheath, a rotatable 19 Fr inner sheath, a 2.9 mm 30 degrees telescope (Tontarra - Germany). In this surgery, a 100 W pulse thulium YAG laser (Dornier Thulio® High Power Laser) with a 550 µm fiber laser was used. Enucleation was performed at 2 J & 50 Hz (enucleation mode), and coagulation at 0.4 J & 75 Hz (soft tissue mode). The total surgical time was 32 minutes. The enucleation duration was 17 minutes, and morcellation took 11 minutes. No intraoperative complications were observed. MiLEP surgery aims to provide similar efficacy to standard endoscopic laser enucleation of the prostate while using smaller endoscopic instruments and reducing postoperative complications.

Keywords: MiLEP, enucleation, benign prostatic hyperplasia

Introduction

Anatomic endoscopic enucleation of the prostate is an effective surgical alternative for relief of lower urinary tract symptoms in patients with benign prostatic hyperplasia (1). The goal of minimal invasive laser enucleation of prostate (MiLEP) surgery is to reduce complication rates and risk of urethral trauma, while providing similar success rates by using smaller caliber instruments (1). This video presents unedited real-time recordings of MiLEP surgery performed in a 66-year-old male patient with a pre-diagnosis of benign prostatic hyperplasia.

Case Presentation

A 66-year-old male patient with lower urinary tract symptoms for approximately 7 years presented to our outpatient clinic. He was under tamsulosin medication, but his symptoms worsened. In uroflowmetry, the Q_{max} was 8.5 mL/sec, and postvoid residual volume was 110 milliliters. The total prostate-specific antigen level was 3.5 ng/mL, and ultrasound estimates the prostate weight to be 65 milliliters. Therefore, the patient was scheduled for MiLEP with pulse Thulium-YAG laser.

Discussion

Enucleation was performed with 22 Ch outer resectoscope sheath, a rotatable 19 Fr inner sheath, a 2.9 mm 30 degrees telescope (Tontarra-Germany). For morcellation, a morscscope with a working channel of 5 mm for morcellation, compatible with all available morcellators was used. The morcellator fits the outer sheath of the resectoscope, eliminating the need to change the outer sheath intraoperatively. In this surgery, a 100-W pulsed thulium YAG laser (Dornier Thulio® High Power Laser) with a 550 µm fiber laser was used. Enucleation was performed at 2 J and 50 Hz (enucleation mode) and coagulation at 0.4 J and 75 Hz (soft tissue mode).

Surgical Equipment

22 CH Laser resectoscope set (Tontarra)

Laser: Pulse Thulium YAG laser (Dornier Thulio® High Power Laser)

Fiber: 550 µm

Laser Settings

Enucleation: Enucleation Mode - 2 J & 50 Hz

Coagulation: Soft tissue Mode - 0.4 J & 75 Hz

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Result

The total surgical time was 32 minutes. The enucleation duration was 17 min, and morcellation took 11 min. No intraoperative complications were observed, and the postoperative catheterization period was 2 days. Following catheter removal and spontaneous urine passage, the patient was discharged without complications. At the 1-month postoperative follow-up, Q_{max} was 24 mL/sec, and postvoid residual was 25 milliliters. There were no early-onset urinary incontinence issues.

Conclusion

MiLEP surgery aims to provide similar efficacy to standard endoscopic laser enucleation of the prostate while using smaller endoscopic instruments and reducing postoperative complications.



Video 1.

Ethics

Informed Consent: The patient featured in the video article has been appropriately informed and consented to publication.

Authorship Contributions

Surgical and Medical Practices: M.İ.G., Concept: M.İ.G., Design: A.F.Ö., Analysis or Interpretation: M.İ.G., Literature Search: A.F.Ö., Writing: M.İ.G., A.F.Ö.

Conflict of Interest: No conflict of interest was declared by the authors.

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Reference

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