
Holmium Ablation for Treatment of BPH

Clinical Experience

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Abstract

Over the last 5 years, holmium ablation (HoLAP) has been a quick, safe, and effective outpatient resolution of bladder obstruction with excellent outcomes and minimal or no patient complications. Tools for this easy to learn and use procedure are the Lumenis VersaPulse® PowerSuite™ Holmium Laser System and DuoTome SideLite™ Laser Delivery Device.

Introduction

The holmium laser, operating in a pulsed mode at a wavelength of 2.1 microns, can be delivered endoscopically through flexible quartz fibers. The “Moses effect”, which allows laser penetration up to 0.5 mm in tissue, provides controlled ablation and hemostasis with minimal risks of surrounding tissue damage.

When patients receive laser treatment, the configuration of their prostate dictates which technique will be used. A smaller prostate without a large median lobe typically is treated using ablation (HoLAP). Larger prostates are treated using enucleation (HoLEP) because it is a more efficient procedure for removing large amounts of tissue. Some patients may be treated using a combination of the two techniques. A general rule of thumb is that prostates of 40 grams or less are treated using holmium ablation, while the remainder receive enucleation. The “cutoff” weight of 40 grams may vary by doctor, region, or country.

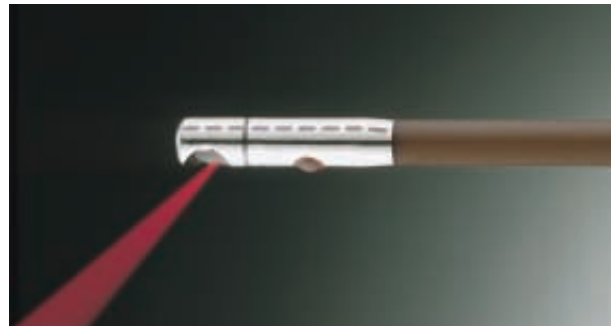


Figure 1: Laser energy is delivered at a 70° angle with the DuoTome SideLite Delivery Device

About the Procedure

Holmium ablation procedures are typically performed under general, spinal, or epidural anesthesia. While not done at this institution, the procedure can be done under local anesthesia. A high power laser system (100W preferred, at least 60W or dual-wavelength 80/100W required) delivers the laser energy to the enlarged gland through a side-fire delivery device. High pulse energies are typically used to ablate more tissue per pulse of laser energy, although some surgeons use lower energies at higher repetition rates¹. Characteristic laser settings for holmium ablation are 3.0-3.5 Joules at 20-25 Hertz, or pulses per second.

The ablation technique is straightforward and easy to use, in large part because the treatment energy exits the delivery device at a 70° angle in relation to the fiber tip. A red aiming beam indicates precisely where the treatment beam will be delivered. The delivery device is placed

in a fixed position within the endoscope. The endoscope is then moved back and forth until the prostatic tissue is appropriately ablated and an adequate channel is created.

On average, the lasing time is one minute per gram of tissue. Table 1 provides average lasing and procedure time for various prostate sizes in more detail. Most holmium ablation cases are performed in less than one hour total operating room time.

Prostate Size	Average Laser Time	Average Procedure Time
up to 15 g	15 min	20 min
20–30 g	30 min	45 min
30–40 g	45 min	60 min

Table 1: Laser and procedure time for various prostate sizes

Patient Statistics

Following the surgery, patients notice immediate symptom relief because tissue ablation instantly removes the obstruction with minimal fluid absorption, minimal loss of blood, and without blood transfusion. Most of the patients go home within 24 hours without a

catheter; none have been re-catheterized. AUA symptom scores typically improve by 5-10 points, a 70% improvement. While eliminating BPH symptoms in a similar fashion to standard TURP, patients treated using holmium ablation usually report fewer irritative symptoms. Long term, there have been no side effects reported and no re-operations¹.

Complications, although minimal, include urinary infections, occasional retrograde ejaculation, and rarely strictures.

Conclusions

Holmium ablation is a fast, easy and effective technique for removing prostatic tissue with a low rate of patient morbidity. Delivered endoscopically through a side-fire delivery device at a pulse energy of 3.0-3.5 Joules, holmium ablation removes enlarged tissue from prostates under 40 grams at a rate of about 1 gram of tissue per minute. In addition to experiencing immediate symptom relief, the patients' quality of life improves dramatically, a fact that has led to overwhelming patient acceptance of the ablation procedure.

REFERENCES

1. Bagley, D. and Das, A. Endourologic Use of the Holmium Laser. Teton NewMedia, 2001.



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