

Holmium Laser Prostatectomy

Rick Popert, Consultant Urological Surgeon, London Bridge Hospital, HCA International

THE HOLMIUM LASER is a powerful tool used to treat patients presenting with bladder outflow obstruction. Patients will present with moderate to severe lower urinary tract symptoms. There is typically a history of hesitancy, poor urinary flow, incomplete bladder emptying, post void dribbling and frequent visits to the toilet at night. Most patients will have received treatment with medication to relax the smooth muscle of the prostate and the bladder neck, an alpha blocker, such as Tamsulosin (Flomax) or Alfusosin (Xatral) or to shrink the prostate, a 5 alpha reductase inhibitor, such as Finasteride (Proscar) or Dutasteride.

The urinary flow rate will typically show a prolonged void with a maximum flow of less than 10 ml/s, this flow is dramatically improved after surgery. Patients will have high urinary symptom scores.

Our initial experience with the Holmium laser has been encouraging and has included over 120 patients since 2004. It has allowed us to treat patients who would otherwise be considered unfit for prostate surgery. There is no need for patients to stop aspirin preoperatively and we have treated patients on anticoagulants and haemophiliacs without any need for transfusion. We have been able to treat large prostates in excess of 100g and although the procedure takes appreciably longer the advantages of reduced bleeding, reduced catheter time and reduced inpatient stay are obvious.

Data on 122 consecutive men who underwent HoLEP by a combination of enucleation and resection under glycine or morcellation were prospectively collected and analysed for patient selection criteria, haematological and biochemical parameters and hospital stay. The indications were acute urinary retention (AUR) in 23%, chronic urinary retention (CUR) in 14% and LUTS in 63%.

The median operative time was 59 minutes and the median weight of prostate removed 20gr. There was no significant change in serum Sodium, although 64% of patients had a median drop of 3mmol/l. One had post-operative Na⁺ of <125mmol/l, secondary to an intraperitoneal leak from a supra pubic catheter, the only significant intra-operative complication. 76% had a fall

in haemoglobin, in 72% this was <1g/dl. No patients required peri-operative transfusion. Catheter dwell time was <24, 24-48, >48 hours in 34%, 26% and 40% of patients respectively. Catheter time increased with age, comorbidity, weight of prostate enucleated and a history of urinary retention.

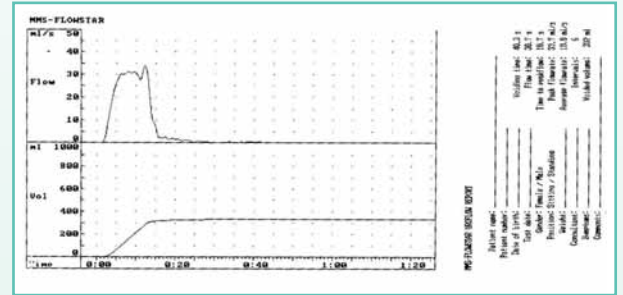
In general, catheters are removed on the evening of surgery or early the next morning and most patients discharged within 24 hours of surgery. Patients with larger prostates, the elderly and those on anti-coagulants tend to stay a little longer. There is an immediate improvement in the urinary flow, with only mild discomfort, which compares well with TURP and vapourisation laser techniques.

Holmium Laser Ablation (HoLAP) is an alternative to Enucleation and Morcellation. The procedure is technically identical with the PVP or Green Light Laser in which a side fire laser carrier allows the laser energy to be applied directly on to the prostate tissue, vapourising it. The vapourisation or ablative approaches have been of limited use in the past and it has only been with the development of more powerful lasers (100 watt) that it has become a practicable procedure. Vapourisation seems a useful technique which can be applied to smaller prostates, it is less demanding surgically, it creates a reasonable cavity and early outcomes are encouraging.

The greatest advantage of the Holmium Laser is that it has multiple uses in Urology, especially in urinary tract stone disease, ablation of bladder tumours, bladder outflow surgery as described above and including urethral stricture disease.

CONCLUSION

The rapid progress in laser prostatectomy technology and techniques over the last few years are challenging the place of TURP as the gold standard operation for patients with bladder outflow obstruction. It is still early days but urological progress is led by technological advance and I have no doubt that laser prostatectomy will change the face of surgery for bladder outflow obstruction. Short stay and selected day case prostatectomy will be increasingly available as the techniques continue to be refined. ■



Above Figure 1: Pre Operative Urinary Flow Rate

The endoscopic appearances of the prostate will show occlusive enlargement of the middle and lateral lobes responsible for the physical obstruction experienced by the patient. It is this central portion of the prostate which has to be removed.



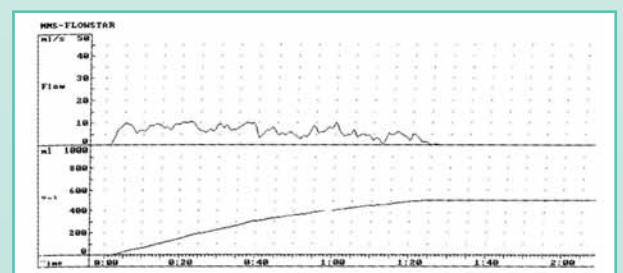
Above Figure 2: Occlusive Tri Lobar Enlargement of the Prostate

The final appearances 6 weeks post operatively demonstrate a large cavity in which all of this central tissue has been removed.



Above Figure 3: Post Operative appearance at 6 weeks

Patients urinary symptom scores dramatically improve after surgery consistent with the objective assessment of the urinary flow rate.



Above Fig 4: Post Operative Urinary Flow Rate at 6 weeks