

VALUE OF ENUCLEATION-MORCELLATION EFFICACY TO PREDICT THE LEARNING CURVE OF HOLMIUM LASER ENUCLEATION OF THE PROSTATE FOR TREATMENT OF BENIGN PROSTATIC HYPERPLASIA

Hypothesis / aims of study

Holmium laser enucleation of the prostate (HoLEP) is a minimally invasive laser therapy for benign prostatic hyperplasia (BPH). Increased evidence has shown HoLEP to be a safe and effective surgical procedure, giving comparable clinical results to transurethral resection of the prostate or open prostatectomy but with lower morbidity and a shorter hospital stay. The main limitation of HoLEP is the prolonged learning curve, which have delayed the diffusion of this procedure. The enucleation ratio or efficacy were known as one of the parameters for estimating the learning curve. But this parameter is only focused on time of enucleation not considering morcellation, even though operators spend time of enucleation and morcellation simultaneously during HoLEP procedure. In this study, we report on the initial experience of a single surgeon during 2 years and evaluate a various method to assess the learning curve of HoLEP.

Study design, materials and methods

One hundred and thirty consecutive patients with BPH underwent HoLEP combined with mechanical morcellation at our institution. All procedures were performed by 1 urologist. Intraoperative measures, including enucleation time, enucleation ratio (enucleated weight/transitional zone volume), enucleation efficacy (enucleated weight / enucleation time), consumed energy, morcellation time, morcellation efficacy (enucleated weight / morcellation time) and enucleation-morcellation efficacy (enucleated weight/enucleation and morcellation time) were analysed. Perioperative morbidity, length of hospital stay and length of urinary drainage were also investigated. In addition, functional outcomes such as Qmax, post-void residual volume, IPSS and QoL scores at 3 and 6months were also investigated.

Results

The mean age of the patients was 68.5 years (32-92) with a mean prostate volume of 56.5 cc (34-180) on transrectal ultrasonography. Within all procedures, mean total operative time was 88.6 minutes (45-260 minutes) with a mean enucleated weight of 37.7 g (18-120 g). Mean enucleation time, consumed energy, morcellation time and enucleation ratio were 47.0 ± 25.8 min, 64.2 ± 18.4 kJ, 18.3 ± 5.6 min and 0.68 ± 0.16 g/mL, respectively. In terms of efficiency, enucleation efficacy, morcellation efficacy and enucleation-morcellation efficacy were 0.97 ± 0.51 g/min, 2.26 ± 1.02 g/min and 0.64 ± 0.27 g/min, respectively. Perioperative complications were observed in 23 of 130 (17.7%). Of these, 18 were urinary tract infection (13.8%) and 5 was urethral stricture (3.8%). Considering the learning curve, the plateau of enucleation efficacy was reached after 38 cases. However, considering enucleation and morcellation time simultaneously, enucleation-morcellation efficacy has an increasing trend even after 38 cases and has remained roughly constant after 55 cases. Based on these criteria, we divided cases into two groups. Enucleation efficiency was significantly higher after 38 cases. Morcellation efficiency was also higher in the second group, however, the difference was not significant. Enucleation-morcellation efficiency was significantly higher after 55 cases. Perioperative morbidities, hospital length of stay, urinary drainage length and functional outcomes at 3 and 6months were not significantly different between the groups based on these criteria. However, persistent stress urinary incontinence (16.8%) occurred more frequently with the first group than second group (4.5%).

Interpretation of results

Although the learning curve did not interfere with functional results, our results demonstrated that even after 38 cases, surgical skill advances are still needed. Of these factors, morcellation time is as important as enucleation time in the whole surgical procedure.

Concluding message

Enucleation-morcellation efficacy might be considered a better parameter for estimating the operative learning curve of HoLEP rather than enucleation efficacy alone.

Disclosures

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