

Transurethral Bipolar Enucleation of the Prostate gland (BipolEP): a step-wise introduction/learning approach

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INTRODUCTION AND AIM

The endoscopic enucleation techniques for surgical treatment of BPH require expensive equipment, longer theatre times and are difficult to master making both the purchase of such instruments and the introduction of these modalities to a Urology Department challenging.

BipolEP is an emerging alternative enucleation technique that benefits using traditional TUR resection instruments available to every modern urology department with the addition of a morcellator kit.

We described a six-step approach for BipolEP introduction in a safe, effective and financially viable manner to a modern District General Hospital.

METHODS AND MATERIAL

Our six-step approach includes:

Theory and hands-on steps:
- 1a) BipolEP hands-on training in centre of excellence
- 1b) nurse-specific training course

Application of surgical technique:
- 2a) longitudinal (5,7 and 12 o'clock) and circumferential marking
- 2b) partial unilateral lobe enucleation and resection
- 2c) partial bilateral lobe enucleation and resection
- 2d) complete enucleation and morcellation

The study group included 30 BPH patients, selected for TUR surgery, with mean age 72 yrs (64,82), mean prostate size 60cc (42,89) and no significant comorbidities (ASAII/III) or history of prostate cancer.

The participants were divided in four groups: 5 enrolled in step 2a, 10 in step 2b, 10 in step 2c and 5 in step 2d. Surgical time, specimen weight were documented and IPSS score, Qmax, PVR volume were measured pre and post operatively.

RESULTS

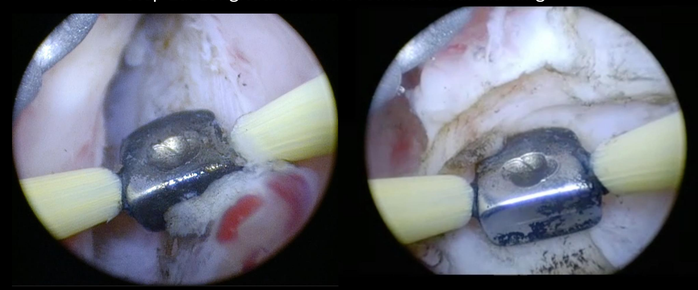
The mean surgical time increased to 3.6, 11.2, 16.8 and 27.3 minutes for steps 2a, 2b, 2c and 2d respectively.

Post-operative improvement was demonstrated in all measured parameters for our participants. The patients who underwent enucleation and morcellation (step 2d) showed pre and post-operative IPSS of 21 and 9.6, mean Qmax increase of 6.1 ml/s and fewer irrigation hours. No difference in hospital stay between our study group and the average standard bipolar TURP stay was noted. Efficacy proved to be equivalent compared to TURP while in terms of safety, intraoperative bleeding and tissue-removal weight, BipolEP presented significant benefit.

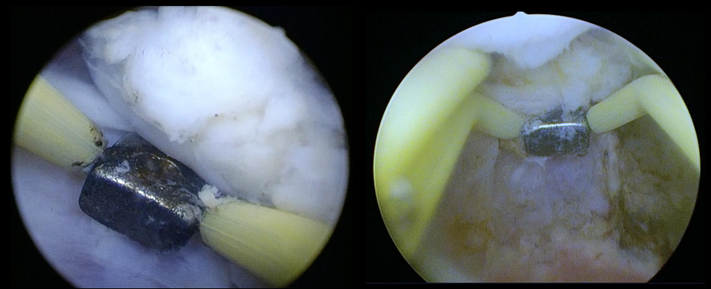
Table 1. Six-step approach patient's characteristics

	Training Steps	N	Surgical Time Extension (min)	Prostate Gland Size (cc)	Specimen Weight (gr)	Morcellation time/gram (Min/10gr)	Post-operative (4-weeks)		
							Qmax	IPSS	QoL
Marking	**Step 2a:** Longitudinal & Circumferential Marking	5	3.6 (2,5)	62.3 (41,89)	-	-	-	-	-
Mushroom resection	**Step 2b:** Unilateral enucleation	10	11.2 (8,14)						
	Step 2c: Bilateral enucleation	10	16.8 (13,19)						
Complete Technique	**Step 2d:** Complete enucleation/ morcellation	5	27,3 (17,38)		25.9 (12,38)	9.6 (7,16)	23,1 (21.3-25)	9.6 (4.3,12.1)	1.4 (0.8,2.1)

Step 2a. Longitudinal and circumferential marking



Step 2b/c: Partial lobe enucleation and lobe resection



Instruments used in each step:
Steps 2a, 2b, 2c: Storz AUTOCON III UH400 high frequency surgery unit , Storz passive bipolar TUR working element 27040 EB, Storz Bi-polar Vapo-Enucleation electrode 27040 VE
Step 2d: Storz DrillCut-X II URO morcellator handpiece, UNIDRIVE SIII motor system, UNIMAT-30 suction pump, S-PILOT vacuum control unit, Hopkins Wide-Angle Straight Forward Telescope 6"

CONCLUSIONS

BipolEP can be introduced in a feasible, cost effective and safe way to a conventional urology department. The step wise approach proposed, achieved comparable symptom relief results, did not affect significantly the intraoperative time and required a shorter learning curve, leading to long term savings for the NHS.

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