Bladder endoscopic dissection of NMIBC procures better specimens for pathology than standard TURBT - the Pathologists' perspective

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I- Introduction

Advances in optics and energy paved the way for **bladder endoscopic dissection (BED**) and the procurement of en bloc specimens, as opposed to the sequential fragmentation of standard TURBT. Although elegant from the surgeon's perspective, limited evidence attest to their clinical utility.

One unmet need in NMIBC is the documented variability of conclusions between pathologists. Beside differences in training and experience, one reason might be the mediocre quality of the specimens.

II- Objectives

We hypothesized that specimens procured by BED would be more amenable to confident pathological analysis than the multi-fragmented chips of standard TURBT.

III- Materials and Methods

Digitalized H&E sections were independently reviewed by 3 pathologists for cautery artefacts, presence of detrusor muscle, clear definition of the subepithelial connective tissue and characterized in terms of ease of analysis (Likert scale from 0 very difficult to 4 very easy, later dichotomized as 0-2 vs 3-4). Stage and grade were also assessed, duration of analysis was recorded and level of confidence in the report was graded by the readers as "High" or "Low".

Specimens were characterized according to the technique of procurement. All patients were operated with Olympus TURis° bipolar plasma kinetic technology in saline with, for BED, use of Rocamed Endopump°.

Univariate and multivariate analyses researched the factors associated with "High" degree of confidence.

Table 1: Study population characteristics

		Fragmented TURBT	BED	
Total		**36** (57.1%)	**27** (42.9%)	
Grade (WHO 04)				
	HG	21 (58.3)	15 (55.6)	p= 0.82
	LG	15 (41.7)	12 (44.4)	
Stage				
	pTa	23 (63.9)	17 (63)	p=0.53
	pT1	8 (22.2)	9 (33.3)	
	pT2	4 (11.1)	1 (3.7)	
	CIS	1 (2.8)	0	

IV- Results

The study population is characterized in Table 1. Standard TURBT was used in 36 patients, BED in 27.

Confidence in H&E analysis report was "High" in 57.1% of the reports (108/189) and "Low" in 42.9% (81/189).

Although no relationship was found between BED and the presence of detrusor muscle, it doubled the odds of procuring specimens devoid of cautery artefacts (Odds Ratio (OR) 2.6 95%CI 1.4-5.1, p=0.004), that allowed optimal visualisation of subepithelial connective tissue (OR 2.9 95%CI: 1.5-5.4, p=0.0006) and facilitated analysis (ease of analysis, OR 2.5, 95%CI 1.4-4.7, p=0.002).

The time devoted to analysis was significantly 13% shorter in BED specimens, as compared to TURBT chips (3.9 ±1.7 vs. 4.5 ±2.2min for BED specimens and TURBT chips respectively, p=0.0005).

Regarding the stage and the assessment of muscle presence, the concordance between pathologists was increased by BED resections (Table 2).

On average, bladder dissections (BED) showed:

- ↘ 19,3% of cautery artefacts
- ↗ 14,7% of easiness in cases interpretation (≥ 3 on a 0 to 4 scale)
- ↗ 11,6% of diagnostic confidence level

In multivariate analysis 4 independent factors related to pathologists' **high confidence** in their conclusions:

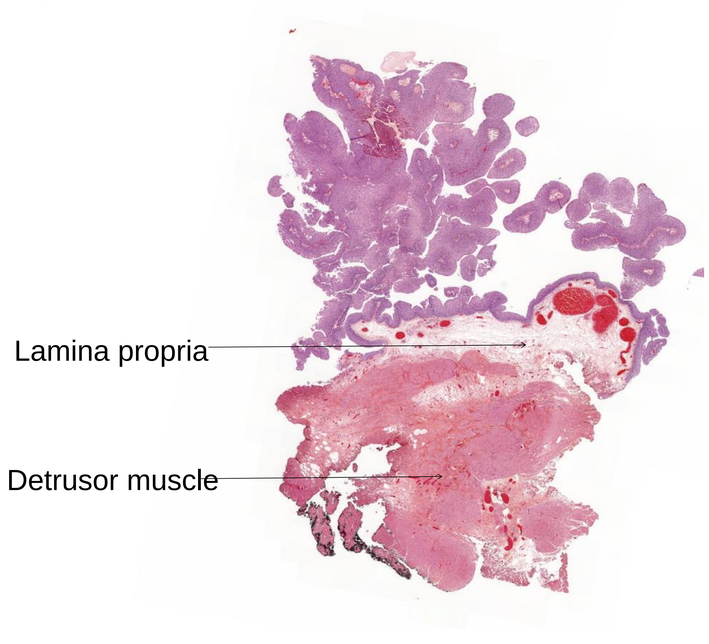
- Bladder endoscopic en bloc dissection (p= 0,01)
- Presence of Detrusor muscle (p= 0,04)
- Lack of cautery artefacts (p= 0,0008)
- Ease of analysis (p = 0,02)

Table 2: Concordance between pathologists

	Fragmented TURBT			BED		
	N	Kappa	95%CI	N	Kappa	95%CI
Stage:	34	**0.53**	(0.40 – 0.66)	26	**0.61**	(0.43 – 0.78)
Presence of muscle:	36	**0.6**	(0.37 – 0.78)	26	**0.71**	(0.54 – 0.86)
WHO 1973:	35	0.38	(0.28 – 0.49)	26	0.28	(0.13 – 0.44)
WHO 2004:	34	0.7	(0.53 – 0.83)	26	0.52	(0.32 – 0.72)

1000 µm

Low grade, pTa tumor, dissected En Bloc



V- Conclusions

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References

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