

# IMPACT OF DIFFERENT TECHNIQUES OF TRANSURETHRAL RESECTION OF BLADDER TUMOURS ON OPERATIVE AND PATHOLOGICAL OUTCOMES IN NEWLY DIAGNOSED CASES

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## Introduction

For the diagnosis and treatment of bladder cancer, transurethral resection of bladder tumors (TURBT) is the cornerstone. It enables the determination of the tumor's grade and stage. It also removes the tumor mass, which relieves the patient of the symptoms of disease. The conventional method has been used extensively for TURBT. It involves piecemeal resection (cTURBT). One benefit of the technique is that it requires less time to operate. It has certain drawbacks, such as the possibility of artifacts from cauterization and a higher chance of missed CIS. The risk of tumor cells spreading as it cut through tumor. A significant rate of muscularis propria absence. A significant risk of bladder perforation after obturator nerve stimulation. To counteract the drawbacks of traditional resection, a novel resection technique has been employed and named En bloc resection (EBRT or eTURB).

## Aim of the work

The work's objective was to assess how various methods of transurethral resection of bladder tumors affected the surgical and pathological results.

## Patients and Methods

This prospective study was conducted in the urology department of Alexandria University's Main Hospital. Over 800 first presentation cases of bladder masses in a year. According to the resection technique, two hundred of them were randomly assigned to one of two groups: the conventional resection group or the En bloc resection group. We employed bipolar and monopolar electrocautery. For radiological features of tumors, including size, number, and location (lateral, domal, anterior, posterior, BN, extravesical), ultrasound, computed tomography, and magnetic resonance imaging were employed. The tumor was also characterized using cystoscopy. The Clavien-Dindo Classification was used to describe complications, the operation time was recorded, and the preoperative and postoperative hemoglobin values were used to calculate blood loss. Hospital stay and catheterization duration were evaluated. The stage, grade, presence of concurrent CIS, and presence of muscularis propria were used to describe the pathological outcome.

## Results

The average tumor size for cTURBT was 3.04 cm, while the mean size for eTURB was 2.47 cm. For both eTURB and cTURBT, T1 HG was most frequently observed (61.9% vs. 64.2%, respectively;  $p = 0.29$ ). eTURB and cTURBT both had similar levels of muscularis propria (95.2% vs. 90%,  $p: 0.67$ ). eTURB's mean operating time was lower than cTURBT's (45.21 min vs. 52.22 min,  $p:0.03$ ). The average length of catheterization was 2.25 days for cTURB and 1.9 days for eTURB ( $p:0.01$ ). eTURB and cTURBT had mean hospital stays of 2.4 and 2.8 days, respectively ( $p:0.02$ ). For eTURB, the mean hemoglobin decrease was 0.62 g/dl, while for cTURBT, it was 0.82 g/dl (0.001). During surgery, three patients (2.22%) in cTURBT received blood transfusions, while none in eTURB (0%) did.

Table 1: Distribution of the two studied groups according to complications (Clavien)

| Operative Data<br>Complications (clavien) | cTURBT<br>(n=137) | Enbloc<br>(n=63) | P     |
|-------------------------------------------|-------------------|------------------|-------|
|                                           | 90 (65.7%)        | 37 (58.7%)       |       |
| Clavien I                                 | 66 (48.17%)       | 31 (49.20%)      | 0.006 |
| Obturator R                               | 12 (8.75%)        | 3 (4.76%)        |       |
| Minor bleeding                            | 48 (35.03%)       | 17 (26.98%)      |       |
| Pain                                      | 12 (8.75%)        | 4 (6.34%)        |       |
| Transient fever                           | 7 (5.10%)         | 3 (4.76%)        |       |
| Prolonged catheterization                 | 4 (2.91%)         | 1 (1.58%)        |       |
| Catheter blockade simple                  | 3 (2.18%)         | 0 (0.0%)         |       |
| Mucosal injury                            | 2 (1.45%)         | 1 (1.58%)        |       |
| AUR                                       | 1 (0.72%)         | 0 (0.0%)         |       |
| False passage to urethra                  | 1 (0.72%)         | 0 (0.0%)         |       |
| Clavien II                                | 13 (9.48%)        | 4 (6.34%)        | 0.05  |
| Major bleeding                            | 7 (5.10%)         | 0 (0.0%)         |       |
| UTI                                       | 6 (4.37%)         | 4 (6.34%)        |       |
| Clavien IIIa                              | 6 (4.37%)         | 2 (3.17%)        | 0.02  |
| Clot retention                            | 2 (1.45%)         | 1 (1.60%)        |       |
| Clot/Evacuation                           | 4 (2.91%)         | 1 (1.60%)        |       |
| Clavien IIIb (Perforation)                | 5 (3.60%)         | 0 (0.0%)         | 0.001 |
| Clavien Iva                               | 0 (0.0%)          | 0 (0.0%)         |       |
| Clavien Ivb                               | 0 (0.0%)          | 0 (0.0%)         |       |
| Clavien V                                 | 0 (0.0%)          | 0 (0.0%)         |       |

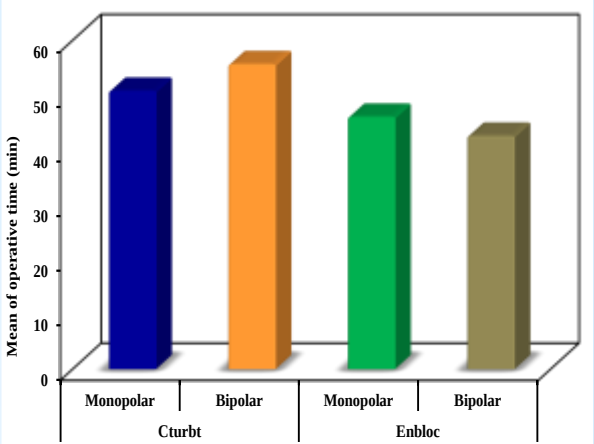


Figure 1: Comparison between the different studied groups according to operative time (min)

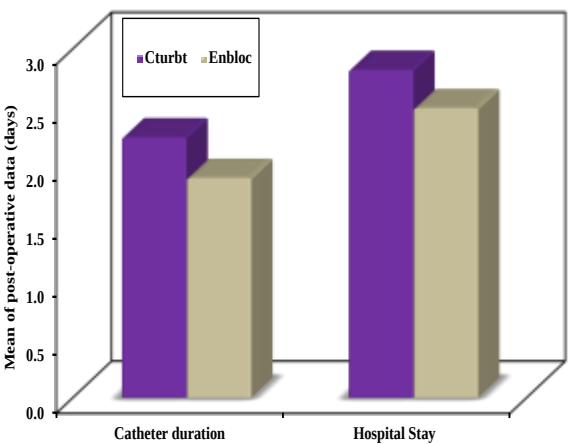


Figure 2: Comparison between the two studied groups according to post-operative data

Table 2: Comparison between the different studied groups according to presence of muscle in the specimen

|                    |                       | cTURBT (n=137)   |                | Enbloc (n=63)    |                | P    |
|--------------------|-----------------------|------------------|----------------|------------------|----------------|------|
|                    | Pathological Outcomes | Monopolar (n=98) | Bipolar (n=39) | Monopolar (n=47) | Bipolar (n=16) | 0.67 |
|                    |                       | No. (%)          | No. (%)        | No. (%)          | No. (%)        |      |
| Muscularis Propria | Absent                | 9 (9.2%)         | 5 (12.8%)      | 2 (4.3%)         | 1 (6.3%)       |      |
|                    | Present               | 89 (90.8%)       | 34 (87.2%)     | 45 (95.7%)       | 15 (93.8%)     |      |

## Conclusion

EBRT produced a similar rate of muscularis propria presence in the specimen with cTURB in newly diagnosed bladder tumors. Furthermore, it has been demonstrated that eTURB is substantially linked to fewer surgical complications, including bleeding, obturator jerk, and bladder perforation. Compared to cTURB, EBRT is substantially linked to shorter catheterization times and shorter hospital stays. Lastly, en bloc resection is linked to fewer second look resections than cTURBT, but the rate of residual papillary disease does not differ significantly. Since the current study has shown that ERBT has numerous benefits on both the perioperative and pathological aspects of the results, we propose that it is a good technique for treating non-muscle invasive bladder tumors.