



Opinion: Open Science

Checklist for Transurethral Resection of Bladder Tumor (TURBT): A Step Forward in the Standardization for TURBT Reporting

Luis Martínez-Piñero*

Department of Urology, La Paz University Hospital and La Paz Hospital Research Institute, Autonomous University of Madrid, Madrid, Spain

Transurethral resection of bladder tumor (TURBT) is the mainstay of surgical management for non-muscle-invasive bladder cancer (NMIBC). Several improvements in technique have been reported during the past decade, such as the use of bipolar energy, en-bloc resection (EBR), and enhanced visualization using high-definition cameras, photodynamic diagnosis, narrowband imaging, or the Storz Spies system [1]. It has been suggested that EBR can improve outcomes owing to its ability to ensure complete removal of tumor in a single piece, leading to better histopathological assessment and reduced cancer seeding [2]. However, heterogeneity in design and in EBR energy sources (monopolar, bipolar, laser, HybridKnife) preclude any clear conclusions. The EBR procedure is only applied for rather small, nonmultifocal bladder tumors; this may have led to selection bias in the published studies, so they may not reflect all NMIBC patients.

In this issue of *European Urology Open Science*, Diana et al. [3] present an updated analysis of a single-center, prospective, noninferiority, randomized controlled trial (RCT) of patients undergoing EBR or TURBT. A total of 248 patients were assessed for eligibility and 201 patients reached at least 1 yr of follow-up; the median follow-up for patients without recurrence was 19 mo. The 1-yr recurrence-free survival rate was very similar in both arms, at 90.9% for EBR and 87% for TURBT.

It appears that the quality of the surgical technique and not the surgical method per se might be the key point in achieving appropriate oncological outcomes. More than a decade ago, Brausi et al. [4] draw attention to the quality of the TURBT performed by individual surgeons as an important issue in the recurrence rate for bladder tumors. Following the European Association of Urology guidelines, the authors pointed out that small tumors can be resected

en-bloc and that the specimen should contain the complete tumor plus part of the underlying bladder wall, while larger tumors should be resected separately in fractions, including the exophytic part of the tumor, the underlying bladder wall with detrusor muscle, and the edges of the resection area. Specimens from different fractions should be sent to the pathologist in separate containers to allow for a correct diagnosis, and cauterization should be avoided as much as possible to prevent tissue destruction.

The presence of detrusor muscle within TURBT specimens serves as a surrogate for resection quality [5]. In the study by Diana et al. [3], 95% of patients in both the EBR and TURBT arms had detrusor muscle in the specimen. EBR was not superior in this aspect and might only offer the advantage of allowing better detection of muscularis mucosae and detrusor muscle in specimens, thus facilitating accurate T1 substaging.

Several systematic reviews and meta-analyses of RCTs including more than 1000 patients each have recently been published and can shed light on the controversy between EBR and TURBT. They demonstrate that EBR may have a lower likelihood of serious adverse events (prolonged hematuria, bladder perforation), mainly when laser is used. Avoidance of the obturator reflex using laser devices might be the reason for this difference. However, the RCTs do not support the hypothesized potential histopathological and oncological benefits of EBR [6,7]. Results are very similar for both the presence of detrusor muscle in the pathological specimen as the most reliable indicator of adequate resection and the risk of recurrence. The paper by Diana et al. [3] supports these results.

Disease recurrence is affected by multiple factors that are very difficult to balance when comparing studies, including tumor biology; host factors; continuous saline

DOI of original article: <https://doi.org/10.1016/j.euros.2022.09.025>

* Department of Urology, La Paz University Hospital and La Paz Hospital Research Institute, Autonomous University of Madrid, Madrid, Spain.
E-mail address: martinez-pineiro@telefonica.net

<https://doi.org/10.1016/j.euros.2022.11.022>

2666-1683/© 2022 The Author. Published by Elsevier B.V. on behalf of European Association of Urology. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).



or sterile water irrigation [8]; type of adjuvant therapy and delay in its administration after surgery; restaging TURBT; and technical issues such as enhanced visualization and surgeon experience, judgment, and skill that might impact seeding of tumor cells during resection, incomplete resection rates, and missing of microscopic tumors. The use of checklists in RCTs investigating TURBT might take into account all the factors previously mentioned and facilitate comparison of results between trials in the future [3]. I agree that such a checklist for TURBT would be a step forward in the standardization for TURBT reporting, as has been suggested by some authors, and international collaborative groups such as the International Bladder Cancer Group should work on this issue in future consensus meetings [9–11].

Conflicts of interest: The author has nothing to disclose.

References

- [1] De la Rosette J, Martov A, Hurle R, et al. Conventional white light imaging-assisted transurethral resection of bladder tumour (TURBT) versus IMAGE1S-assisted TURBT in non-muscle-invasive bladder cancer patients: trial protocol and 18 months results. *World J Urol* 2022;40:727–38.
- [2] Yanagisawa T, Yorozu T, Miki J, et al. Feasibility and accuracy of pathological diagnosis in en bloc resection versus conventional transurethral resection of bladder tumor: evaluation with pT1 sub-staging by 10 pathologists. *Histopathology* 2021;78:943–50.
- [3] Diana P, Baboudjian M, Gallioli A, et al. Implementing a checklist for transurethral resection of bladder tumor to standardize outcome reporting: when high-quality resection could influence oncological outcomes. *Eur Urol Open Sci* 2023;48. <https://doi.org/10.1016/j.euros.2022.09.025>.
- [4] Brausi M, Witjes JA, Lamm D, et al. A review of current guidelines and best practice recommendations for the management of nonmuscle invasive bladder cancer by the International Bladder Cancer Group. *J Urol* 2011;186:2158–67.
- [5] Soria F, D'Andrea D, Moschini M, et al. Predictive factors of the absence of residual disease at repeated transurethral resection of the bladder. Is there a possibility to avoid it in well-selected patients? *Urol Oncol* 2020;38:77.e1–e7.
- [6] Motlagh RS, Rajwa P, Mori K, et al. Comparison of clinicopathologic and oncological outcomes between transurethral en bloc resection and conventional transurethral resection of bladder tumor: a systematic review, meta-analysis, and network meta-analysis with focus on different energy sources. *J Endourol* 2022;36:535–47.
- [7] Li Z, Zhou Z, Cui Y, et al. Systematic review and meta-analysis of randomized controlled trials of perioperative outcomes and prognosis of transurethral en-bloc resection vs. conventional transurethral resection for non-muscle-invasive bladder cancer. *Int J Surg* 2022;104:106777. <https://doi.org/10.1016/j.ijso.2022.106777>.
- [8] Mahran A, Bukavina L, Mishra K, et al. Bladder irrigation after transurethral resection of superficial bladder cancer: a systematic review of the literature. *Can J Urol* 2018;25:9579–84.
- [9] Mostafid H, Kamat AM, Daneshmand S, et al. Best practices to optimise quality and outcomes of transurethral resection of bladder tumours. *Eur Urol Oncol* 2021;4:12–9. <https://doi.org/10.1016/j.euo.2020.06.010>.
- [10] Haddad J, Anderson C, Heinlen J, et al. Improving the quality of operative reports for transurethral resection of bladder tumor surgery in resident education. *Can J Urol* 2017;24:8976–81.
- [11] Anderson C, Weber R, Patel D, et al. A 10-item checklist improves reporting of critical procedural elements during transurethral resection of bladder tumor. *J Urol* 2016;196:1014–20. <https://doi.org/10.1016/j.juro.2016.03.151>.