

A RETROSPECTIVE AUDIT OF THE TURBT QUALITY IN TWO MAJOR CANCER CENTRES IN LANCASHIRE

Khaled Hosny¹, Jennifer Clark¹, Mahmoud Nosseir, Maithem Al-Attar¹, Mohammad Masaarane¹, Neil Cockburn², Izzati Samsudin²

¹East Lancashire Hospitals NHS Trust

²Royal Preston Hospital

Corresponding Author: khaled_hosny2@hotmail.com

Submitted: March 12, 2019. Accepted: May 7, 2019. Published: June 3, 2019.

ABSTRACT

Transurethral resection of bladder tumour (TURBT) is the first step in management of bladder cancers. A urology trainee in the UK must do at least 120 procedures during their training years before being a consultant. In our article, we are reporting a retrospective audit of the quality of TURBT across 2 major cancer centres in Lancashire. We assessed the adherence of surgical procedure to the national and international guidelines among different grades of urological surgeons who work in the 2 trusts.

Bladder cancer is the 11th most commonly diagnosed cancer in the world.¹ Of these, non-muscle invasive bladder cancer (NMIBC) represents 70% of the newly diagnosed cases.² In such cases, transurethral resection of bladder tumour (TURBT) is the first step in management, and is considered the gold standard in treating NMIBC.³ It is also important to do an adequate resection and accurate histological diagnosis for successful management of bladder tumours.⁴

The European guidelines and NICE guidelines highlight the importance of obtaining detrusor muscle as part of the procedure.^{5,6} In fact, studies showed that obtaining detrusor muscle plays an important role in the prognosis and good quality resection could reduce recurrence rates.⁷

TURBT is one of the standard core procedures for urology trainees in the UK, with each trainee required to perform in excess of 120 procedures within their training years under consultant supervision to achieve level 4 competencies allowing them to work as a first-day consultant urologist in a general hospital.⁸

Given the prevalence of NMIBC, we looked at the data for TURBT procedures performed at 2 major

cancer centres in Lancashire, United Kingdom and compared the data to the recognized standards.

PATIENTS AND METHODS

This audit combined data from 2 major cancer centres in the UK; East Lancashire Teaching Hospitals NHS Trust (ELHT) and Lancashire Teaching Hospitals NHS Foundation Trust (LTHFT). This included over 100 patients with newly diagnosed bladder cancer requiring a TURBT.

A total of 145 patients (N=145) were included, 71.3% of which were male and 28.7% female. The age range was 49–96 with a mean age of 74.2 years. The procedures were done in 4 different hospitals in Lancashire.

Initially, we looked at whether a detrusor muscle and a separate tumour base sample were taken and sent for analysis. The audit subsequently looked at the grade of the TURBT operator, whether a second resection was required, what the histology of the second resection was, the length of hospital stay after first resection, as well as the complication rate. The data was then adjusted to account for the size of the lesion and the initial grade of the tumour.

RESULTS

Tumour size was variable with 58/145 (40%) less than 3 cm and 60/145 (41.3%) greater than 3 cm. In 27/145 (18.6%) the tumour size was not documented on the operation note. 45/145 (31%) of tumours were multifocal in nature.

The grades of the resecting surgeon were examined with 73/145 (50.3%) resections completed by a consultant, 61/145 (42%) by a registrar or middle grade, 9/145 (6.2%) by core trainee, and in 2/145 (1.3%) the grade of the operating surgeon was not documented.

Muscle was included in 93/145 (64.1%) of samples with 52/145 (35.9%) containing no muscle. Of samples containing muscle 46/93 (43.4%) were taken by a consultant and 36/93 (39.3%) by a registrar.

Out of the 52 specimens containing no muscle; 2 cases showed no urothelial carcinoma and 24/52 (46.1%) were low-grade Ta disease and they showed no upstaging in further biopsies.

Also, 21/52 (40.3%) patients who had G3pT1 disease underwent re-resection with 28.5% (n=6) having residual disease. None of the cases showed upstaging. The remaining 5 cases were treated palliatively as they showed radiological evidence of extensive disease and were not fit for further active treatment.

In 15/145 (10.3%) cases, a separate sample was taken from the base (7 by a consultant and 8 by a registrar). They were further classified as follows: 11/15 were found to have low-grade Ta disease, 3/15 had G3 T1, and only one patient had T2 disease. Also, 10/15 patients who had separate base biopsy had muscle included in the main specimen. Among the 5 patients who had no muscle in the main specimen 1 was found to have G3pT1 disease and 4/5 had low-grade Ta disease.

Post-operatively 21/145 (14.4%) patients had minor complications including bleeding, sepsis, and extraperitoneal perforation. The length of stay ranged from 0 to 25 days with a mean time of 2 days.

DISCUSSION

TURBT is the first line of management in all bladder tumours. Obtaining detrusor muscle in the biopsy is considered the cornerstone of the future management of bladder cancer patients as it is important to

establish whether it is a muscle invasive or non-muscle invasive tumour.

In the absence of any standardized techniques for performing TURBT, there has been a discussion about the use of an extended TURBT technique which involves taking additional biopsies from the centre of the tumour base and normal looking tumour margins, which are sent separately for evaluation. A study highlighted the potential benefits of this technique illustrating a 37.7% rate of positive margins and base.³

Separate bladder base biopsies can be taken by loop diathermy or cold-cup biopsies.⁹ A multi-centre study in 2017 concluded that thermal artifacts from electrocautery for large bladder tumours can delay accurate staging in around 6% of the cases and recommended separate cold-cup biopsies.¹⁰

Photodynamic therapy has also been described aimed at the reduction of residual tumours. A UK study in 2014 revealed the additional detection of 24% of lesions compared to the standard protocol.¹¹ A meta-analysis of 14 randomized controlled trials evaluating photodynamic therapy published in 2017 showed a reduction in recurrence rates compared to standard techniques.¹² Photodynamic utilization during TURBT does not appear to have an independent impact on the prognosis of patients after radical cystectomy.¹³

CONCLUSION

We concluded that there was no significant difference in the outcome compared to the level of surgeon expertise. However, the rate of separate base 10.3% is low, with almost 36% of specimens containing no muscle. This could be improved by sending separate bladder base biopsies as described. Despite the low risk of upstaging in the NMIBC, we believe that providing a separate muscle base biopsy would reduce the amount of cystoscopy and re-resection.

REFERENCES

1. Ferlay J, Soerjomataram I, Ervik M, et al. GLOBOCAN 2012 v1.0: Estimated Cancer Incidence, Mortality and Prevalence Worldwide in 2012. 2013. 2015. World Health Organization: Geneva.
2. Konety B. and Isharwal S. Non-muscle invasive bladder cancer risk stratification. *Indian J Urol* 2015;31(4):289.

3. Richterstetter M, Wullich B, Amann K, et al. The value of extended transurethral resection of bladder tumour (TURBT) in the treatment of bladder cancer. *BJU Int* 2012 Jul;110(2 Pt 2):E76–9.
4. Sureka SK, Agarwal V, Agnihotri S, et al. Is en-bloc transurethral resection of bladder tumor for non-muscle invasive bladder carcinoma better than conventional technique in terms of recurrence and progression? A prospective study. *Indian J Urol* 2014;30(2):144–9.
5. EAU Guidelines. Edn. presented at the EAU Annual Congress Copenhagen 2018. ISBN 978-94-92671-01-1.
6. Nice.org.uk. (2018). Bladder cancer: diagnosis and management | Guidance and guidelines | NICE. [online] Available at: <https://www.nice.org.uk/guidance/ng2/chapter/1-Recommendations#diagnosing-and-staging-bladder-cancer-2> [Accessed 17 Oct. 2018].
7. Brausi M, Collette L, Kurth K, et al. Variability in the recurrence rate at first follow-up cystoscopy after TUR in stage Ta T1 transitional cell carcinoma of the bladder: a combined analysis of seven EORTC studies. *Eur Urol* 2002;41:523–31.
8. Jcst.org. Certification Guidelines for Urology [online] Available at: <https://www.jcst.org/-/media/files/jcst/certification-guidelines-and-checklists/certification-guidelines--urol-2017-final.pdf> [Accessed 17 Oct. 2018].
9. Traxer O, Pasqui F, Gattegno B, and Pearle M. Technique and complications of transurethral surgery for bladder tumours. *BJU Internat* 2004;94(4):492–96.
10. Truong M, Liang L, Kukreja J, et al. Cautery artifact understages urothelial cancer at initial transurethral resection of large bladder tumours. *Can Urol Assoc J* 2017;11(5):E203–6
11. Osaghae S. and Turner, D. Photodynamic diagnosis of bladder cancer: Initial experience of a single UK centre. *African J Urol* 2014;20(3):123–29.
12. Chou R, Selph S, Buckley DI, et al. Comparative effectiveness of fluorescent versus white light cystoscopy for initial diagnosis or surveillance of bladder cancer on clinical outcomes: systematic review and meta-analysis. *J Urol* 2017;197:548.
13. May M, Fritsche H, Vetterlein M, et al. Impact of photodynamic diagnosis-assisted transurethral resection of bladder tumors on the prognostic outcome after radical cystectomy: results from PROMETRICS 2011. *World J Urol* 2016;35(2):245–50.