



ONCOLOGY/RECONSTRUCTION
ORIGINAL ARTICLE

The value of extended good quality transurethral resection of bladder tumour in the treatment of the newly diagnosed bladder cancer



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KEYWORDS

Bladder cancer;
TURBT;
T1G3

ABBREVIATIONS

CIS, carcinoma *in situ*;
MIBC, muscle-invasive bladder cancer;
NMIBC, non-muscle-invasive bladder cancer;
RC, radical cystectomy;
TURBT, transurethral resection of bladder tumour

Abstract Objective: To report our experience for the initial management of patients with newly diagnosed bladder tumours using our team approach for each case and using an aggressive extended transurethral resection of bladder tumour (TURBT) in order to investigate the real need for a routine 'second-look' cystoscopy in the current era.

Patients and methods: The study included 50 consecutive patients admitted to the urology department, of our tertiary care centre, for management of newly diagnosed bladder cancer. Exclusion criteria included past history of bladder tumour, palpable mass on bimanual examination under anaesthesia, presence of residual tumour at the end of resection, and patients with tumours of the bladder dome as thorough resection is difficult to achieve in this area without an attendant risk. Patients that had pathologically confirmed carcinoma *in situ* were also excluded. White-light cystoscopy was used in all of the cases. Extended TURBT was defined as resection of the whole tumour, resection of the tumour base and 1 cm of apparently normal bladder wall around the circumference of the tumour.

Results: The median (range) age of the patients was 52 (39–60) years. After initial TURBT, 10 patients (20%) were identified as having muscle-invasive bladder cancer. Of the remaining 40 patients, three had low-grade Ta disease, and so second biopsies

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were not taken. The remaining 37 patients had T1, grade 2–3 disease and none of them had evident residual disease at the site of tumour resection.

Conclusion: Re-staging TURBT could be safely omitted for select groups of patients. An experienced surgeon and teamwork, together with an extended TURBT can accurately achieve complete tumour resection, with accurate tumour staging, on initial resection.

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Introduction

Transurethral resection of bladder tumour (TURBT) under spinal or general anaesthesia is the initial treatment for all macroscopic bladder lesions to clear all visible disease and establish tumour type, grade, and pathological stage [1]. Although TURBT is a procedure familiar to all urologists, it is not easy to perform and may not always achieve the desired goals. Moreover, its potential complications have negative impacts on patient outcomes [2].

Complete tumour removal is not always possible during a first TURBT, whether due to poor cystoscopic views, large tumour size and multifocality, a critical location, an inexperienced surgeon, medical instability requiring abandoning of the procedure, or complications such as bleeding or significant extravasation [3]. To achieve optimal results and overcome all drawbacks, efforts have been made to standardise all steps performed during the procedure and introduce potential technological improvements [4].

The aim of our present study was to report our experience for the initial management of patients with newly diagnosed bladder tumours using our team approach for each case and an aggressive extended TURBT in order to investigate the real need for a routine 'second-look' cystoscopy in the current era.

Patients and methods

The study included 50 consecutive patients admitted to the urology department, of our tertiary care centre, for management of newly diagnosed bladder tumour.

Cystoscopy and TURBT was done by one of two experienced urologists, using a monitor during the whole procedure, and in the presence of a senior registrar and a resident, to get a group opinion confirming complete bladder mapping and identification of all visible tumours. Only patients in whom there was team approval of adequate resection of all visible tumours were included in the study. An indwelling catheter was left *in situ* for 5 days, as a routine manoeuvre, following the extended TURBT.

Exclusion criteria included: past history of bladder tumour, palpable mass on bimanual examination under

anaesthesia, presence of residual tumour at the end of resection, and cases with tumours in the bladder dome, as vigorous resection is difficult to achieve in this area without an attendant risk. Patients with pathologically confirmed carcinoma *in situ* (CIS) were also excluded. White-light cystoscopy was used in all of the cases.

Extended TURBT was defined as resection of the whole tumour, resection of tumour base and 1 cm of apparently normal bladder wall around the circumference of the tumour. Fig. 1 shows the bladder wall after the extended TURBT.

All patients underwent urine cytology and ultrasonography of the abdomen and pelvis before endoscopic management. CT urography was done before cystoscopy for patients with multiple bladder tumours identified by ultrasonography. All patients underwent a 'second-look' cystoscopy and a biopsy of the tumour bed at 1 month after the extended TURBT.

A urethral indwelling catheter was left *in situ* for 5 days after TURBT. Before catheter removal, in the first five patients urine leakage was excluded by cystography; however, this was not done routinely for the subsequent patients.

Data were analysed using the IBM Statistical Package for the Social Sciences (SPSS®) software package version 20.0. Qualitative data were described by the number and percentage and quantitative data were described using the mean, standard deviation (SD), and range.

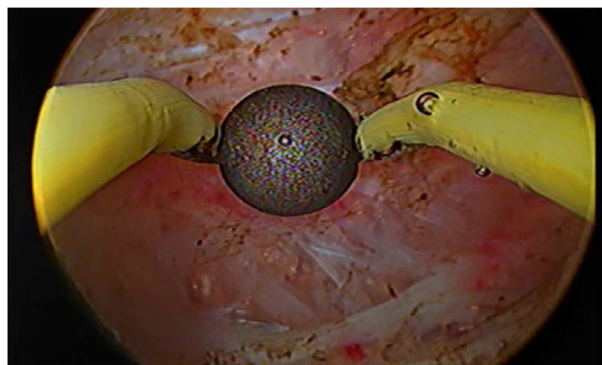


Fig. 1 Bladder wall following extended TURBT.

Results

The median (range) age of the patients was 52 (39–60) years. Most of the patients were male, with only seven females included in our study. Gross haematuria was the presenting symptom in all the cases and dysuria was associated with haematuria in five cases. Urine cytology was found positive for malignant cells in 12 patients (24%). Large tumours (> 3 cm) were identified in 40 patients (80%), whilst multifocality was detected in five patients (10%; Table 1).

The hospital stay was 1 day for 46 of the patients and the remaining four patients stayed for an extra day due to haematuria after TURBT, managed by fluids, antibiotics, and coagulants. The urethral catheter was removed in the outpatient clinic on the fifth postoperative day without any complications. None of the first five cases showed any urine leak on the cystogram before catheter removal.

After the initial resection, 10 patients (20%) were identified as having muscle-invasive bladder cancer (MIBC). Of the remaining 40 patients, three had low-grade Ta disease, and so second biopsies were not taken. The remaining 37 patients had T1, grade 2–3 disease and

none of them had evident residual disease at the site of tumour resection, as confirmed clinically and pathologically by taking a cold-cup biopsy from the tumour bed. At the second-look cystoscopy five patients (10%) had tumours in areas distant from the resection sites. These new tumours were papillary, a few millimetres in size, and required fulguration rather than resection. These tumours were in the dome of the bladder (three patients) and in anterior bladder wall, close to the bladder neck (two patients). These tumours could represent a very early recurrence or missed tumours during initial resection, being very small and in difficult locations.

None of our patients developed Clavien–Dindo grade \geq III complications. Four patients developed grade II complications requiring i.v. fluids, antibiotic, and coagulants. No blood transfusions were required. All remaining patients developed grade I complications requiring analgesics.

Discussion

A second-look cystoscopy a few weeks after initial TURBT is recommended to improve tumour resection and achieve accurate staging [5]. Many reports have confirmed the presence of residual tumour on re-staging cystoscopy in 70% of cases [6,7]. However, looking in depth into the many reports and institutional studies, we found that a high percentage of cases lacked detrusor muscle sampling on initial resection [8].

Mariappan et al. [9] studied 473 non-muscle-invasive bladder cancer (NMIBC) specimens and correlated the first resection with second cystoscopic findings. They showed that the presence of detrusor muscle in the first specimen and surgeon experience were the two factors that were significantly associated with a lower recurrence rate. Kurth et al. [10] reported that the most important risk factor for T1 tumour understaging was the absence of detrusor muscle in the specimen obtained by TURBT. In our present prospective cohort, we tried to decrease individual error by adopting a team approach, so that the decision of adequate resection was not made by one person. All of our present cases were managed by an experienced senior surgeon, in the presence of an attending registrar and a resident. Complete agreement was reached within the team on complete tumour removal by the end of the cystoscopy. All of our cases had detrusor muscle and multiple chips of free bladder wall were included in all specimens, confirming our extended technique.

NMIBC constitutes \sim 80% of all newly diagnosed bladder cancer cases, with \sim 20% of cases initially presenting as *de novo* MIBC [11]. Using our team approach and extended TURBT protocol, we found the same incidence in our studied group at the first TURBT, with no patient showing progression on re-staging cystoscopy. In our present study, five patients (10%) had new

Table 1 Clinical and pathological criteria of the studied patients.

Variable	Value
Age, years, median (range)	52 (39–65)
N (%):	
Sex:	
Male	43 (86)
Female	7 (14)
Presentation:	
Haematuria	45 (90)
Haematuria + dysuria	5 (10)
Urine cytology:	
Negative	38 (76)
Positive	12 (24)
Tumour size, cm:	
\leq 3	10 (20)
> 3	40 (80)
Multifocality:	
Solitary	45 (90)
Multiple	5 (10)
Tumour grade	
Low grade	3 (6)
High grade	47 (94)
Pathological stage:	
Ta	3 (6)
T1	37 (74)
T2	10 (20)
Tumour recurrence:	
Resection site	0
Other sites	5 (10)

tumours in different locations, other than initial tumour resection area; however; these very small, probably missed tumours were apparently of low grade and stage, requiring extensive fulguration rather than resection. Donat et al. [12] conducted a study of 267 patients on routine bladder cancer surveillance and found that cystoscopy and tumour fulguration for tumours of < 5 mm could be a safe and effective method of treatment. Cano-García et al. [13] extended their selection criteria for tumour fulguration to tumours of < 10 mm in the absence of CIS, with documented safety and efficacy.

Repeat TURBT has not been shown to reduce relapse rates or prolong survival, but there is a clear rationale for seeking accurate staging information for accurate treatment decisions [14]. According to our present prospective cohort, accurate staging could be achieved at the initial TURBT and in our group, repeat TURBT could be safely omitted without affecting the patients' proper staging and the plan for definitive treatment.

Kulkarni et al. [15] suggested a maximum time from TURBT to radical cystectomy (RC) of 40 days to achieve good survival outcomes. Fahmy et al. [16] performed a systematic review of the delay in surgical treatment of bladder cancer and found that a delay from diagnosis of MIBC to RC of > 3 months would adversely affect survival. In our present study, all patients with MIBC were identified during the first TURBT, which would shorten the time lag to RC and thus probably improve survival outcomes. A second-look TURBT for patients with MIBC would be inappropriate for these patients with a poor prognosis, resulting in an unneeded delay and probably worse outcomes after RC.

We acknowledge that a limitation of our present study is the relatively few patients included; however, we hope the present report stimulates further larger studies that may be of value in modifying our clinical practice.

Conclusion

Re-staging TURBT could be safely omitted in select groups of patients. An experienced surgeon and team-work, together with an extended TURBT can accurately achieve complete tumour resection, with accurate tumour staging, on initial TURBT. Extended TURBT by an experienced surgeon would not miss any case of MIBC and would shorten the time lag to RC.

Conflicts of interest

None.

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None.

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