



A FOLLOW-UP STUDY ON TRANSURETHRAL RESECTION OF BLADDER TUMOR FOR SUPERFICIAL BLADDER CANCER AT A TERTIARY CARE CENTRE

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ABSTRACT

Bladder cancer is one of the ten most prevalent forms of cancer around the globe, with an expected 573,000 new cases and 213,000 fatalities in 2020. Transurethral resection of bladder tumours (TURBT) is the mainstay of diagnosis and treatment for non-muscle-invasive bladder cancer (NMIBC) and provides both the stage and the foundation for risk stratification. At the time of diagnosis, seventy percent of bladder cancers are non-muscle-invasive and are treated via transurethral resection (TUR). Essential to the successful management of these tumours are adequate initial resection and an accurate histological diagnosis of the resected tissue. Transurethral resection of bladder tumours (TURBT) continues to be the treatment of choice for non-muscle-invasive bladder cancer (NMIBC) to date. Thirty participants who underwent TURBT were enrolled in the present study to determine recurrence and complications. The average age of the study participants was 57.40±10.35 years. 76.67% of the 30 study participants were male, and 70% have a smoking history. 83.33 percent of study participants were found to have T1 cancer staging, and 86.77 percent had low-grade cancer. It was determined that the average tumour size of the study participants was 2.7±0.6 cm. It was discovered that 30% of the study participants had tumours in the lateral wall, followed by 20% in the posterior wall. 13.33% of the participants in the study were found to have tumour recurrence, and 10% were found to have complications. Hence we conclude that transurethral resection of bladder tumours is the therapy of choice for non-muscle-invasive bladder cancer. When administered correctly, a high-quality, comprehensive TURBT can influence diagnostic accuracy, recurrence, and disease progression.

KEYWORDS

Transurethral resection of bladder tumor; superficial bladder cancer; complications; recurrence;

INTRODUCTION:

Bladder cancer is one of the ten most prevalent forms of cancer around the globe, with an estimated 573,000 new cases and 213,000 fatalities in 2020 [1]. 90% of all instances of bladder cancer are of the urothelial cell type. Seventy percent of urothelial cell carcinoma patients have peripheral or non-muscle-invasive bladder cancer (NMIBC). Unlike muscle-invasive cancer, NMIBC is typically not immediately catastrophic, but it has a high recurrence rate and the potential to progress. Depending on disease risk, recurrence and progression rates range from 50 to 80% and 10 to 45%, respectively. [2].

Transurethral resection of bladder tumours (TURBT) is the cornerstone of both the diagnosis and treatment of NMIBC, as it provides both the stage and the basis for risk stratification. 70% of bladder malignancies are diagnosed as non-muscle-invasive [3] and are treated with transurethral resection (TUR). The combination of an adequate initial resection and an accurate histological diagnosis of the resected tumours is crucial for effective tumour management [4].

TURBT remains the gold standard for the treatment of NMIBC. The purpose of TURBT is to remove all visible lesions and provide viable tissue for an accurate pathological diagnosis [5]. Detection of the detrusor muscle within the tissue was the most significant factor associated with recurrence-free survival [6].

Objective of The Study:

- To evaluate the recurrence and complications among study participants who underwent TURBT.

METHODOLOGY

Study Design: Prospective study

Study Duration: 2 years (September 2020 -August 2022)

Study Area: Al-Ameen Medical college Hospital (AMCH), Bijapur.

Study Participants: All patients aged > 18 years who underwent TURBT for superficial bladder cancer.

Exclusion Criteria:

- Patients with a huge unresectable mass, an invasive tumor shown during preoperative imaging, or an irradiated bladder.
- Patients who refused for long term follow up.

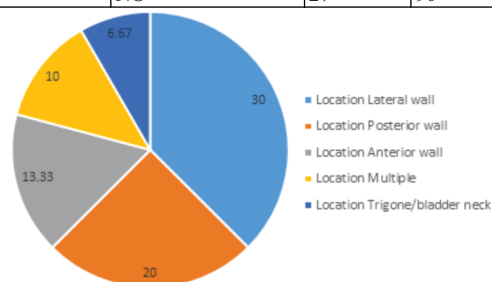
During the research period, all participants who underwent TURBT for superficial bladder cancer were enrolled in the study. The patient was placed in the bladder lithotomy position with the bladder volume controlled at 200 mL after general anaesthesia. Placement of the transurethral electroresection for resection. Before surgery, the tumour's size, nature, shape, and location were meticulously examined, and a plan for a reasonable and effective resection was devised accordingly. To lessen the likelihood of an obturator reflex during TURBT, general anaesthesia with neuromuscular paralysis was used. Before surgery, normal saline was infused into the bladder to maintain a semi-filled state. Base tumours larger than 2 cm in diameter were removed. One side of the tumour was excised down to its base. In order to remove the tumour, an incision was made from the root to the superficial muscle layer, followed by an electrical resection of two centimetres of normal tissue surrounding the base. After the bladder was flushed, a urinary catheter was inserted. Patients were followed through their cystoscopy and urine cytology visits every three months for two years, then were advised for further follow up every six months for the next two years, and then annually thereafter.

RESULTS:**Table 1: Distribution of study variables of the study participants:**

Study variables		Frequency	Percentage
Age	30 – 40	2	6.67
	41 – 50	6	20
	51 – 60	9	30
	61 – 70	7	23.33
	71 – 80	6	20
Gender	Male	23	76.67
	Female	7	23.33
Smoking	Yes	21	70
	No	9	30

TABLE 2: Distribution of variables, recurrence and complications of the study participants

STUDY VARIABLES		Frequency	Percentage
Stage	Ta	5	16.67
	T1	25	83.33
Grade	Low grade	26	86.77
	High grade	4	13.33
Tumour morphology	Pedunculated	24	80
	Flat	6	20
Tumor size	<3 cm	23	76.67
	> 3cm	7	23.33
Mean tumor size (cm)		2.7±0.6	
Location	Lateral wall	15	30
	Posterior wall	6	20
	Anterior wall	4	13.33
	Multiple	3	10
	Trigone/bladder neck	2	6.67
Postoperative hospital stay		4.62 ± 0.32	
FOLLOW-UP		Frequency	Percentage
Recurrence	YES	4	13.33
	NO	26	86.77
Complications	YES	3	10
	NO	27	90

**DISCUSSION:**

NMIBC, the most prevalent form of bladder cancer, has a significant impact on health and the economy, and there has been considerable interest in its effective management. TURBT is a procedure with variable resection adequacy, recurrence, and progression outcomes. No clinical standard exists to determine the extent of resection. The successful treatment of bladder tumours (particularly nonmuscle-invasive tumours) is contingent on an adequate initial resection and an accurate histological diagnosis. A perfect TURBT would involve the complete removal of the visible tumour, the removal of up to 1 cm of healthy-appearing mucosa surrounding the tumour, and the removal of the detrusor muscle. Thirty participants who had undergone TURBT were enrolled in the present study to determine recurrence and complications.

The mean age of the study participants was found to correlate with studies conducted by Sureka et al. [4], Zhang et al. [9], Tang et al. [10], and Oh et al. [11], which included participants of a comparable age cohort. Similarly, the male predominance of NMIBC in our study paralleled that of Zhang KY et al [9], Tang Wet al [10], and Oh KJet al [11]. Comparable to the findings of Zhang KY et al. [9] and Oh KJet al [11], pedunculated tumour morphology was the most prevalent discovery in the present study.

76.67% of study participants had tumours smaller than 3 cm in size. The average tumour size among study participants was determined to be 2.7±0.6 cm. In a study conducted by Zhang et al. [9], 76% of participants had tumours smaller than 3 cm. In a study conducted by

Tang et al. [10], 62.26 percent of the participants had tumours larger than 2 cm. In a study conducted by Sureka et al. [4], it was determined that the average tumour size of the study participants was 3.3 cm.

In the current study, 30% of participants had tumours in the lateral wall, followed by 20% in the posterior wall. 10% of the participants in the study had tumours in multiple locations. In a study conducted by Zhang et al. [9], 44% of participants were found to have lateral wall tumours. In a study conducted by Oh KJet et al. [11], 36.8% of the participants were found to have lateral wall tumours.

The average post-operative hospital stay of the study participants was 4.62 ± 0.32 days, according to the present study. In a study conducted by Zhang et al. [9], it was determined that the average post-operative hospital stay of the study participants was 4.18 ± 0.59 days.

In the present study, 13.33% of participants were found to have tumour recurrence, and 10% of participants were found to have minor complications that were appropriately treated. Zhang KY et al. [9] discovered that 20% of study participants experienced complications. 7.55 percent of the participants in the study conducted by Tang et al. [10] were found to have complications. In a study conducted by Oh KJet et al. [11], 31.6% of the participants were discovered to have recurrent tumours. According to Gregg's research [12], cystospasm and postoperative infection are the most common complications in patients undergoing TURBT, with an overall complication rate of 8.1%, which is consistent with our findings.

Although the impact of TURBT on SBC is remarkable, there are a few operational considerations to bear in mind. Before surgery, the patient's urethra and bladder should be thoroughly flushed to assure the best surgical field of vision [13]. Second, normal bladder tissue should be protected as much as possible during lesion resection to avoid surgical trauma [14]. Third, when the lesion's extent is unknown, the resection should be as extensive as feasible to prevent postoperative recurrence [15].

Every three months, patients with low-risk Ta tumours should undergo a cystoscopy. If the test results are negative, a second cystoscopy is advised nine months later. Patients with high- and extremely high-risk tumours who are receiving conservative treatment must undergo a cystoscopy and urinary cytology after three months. Cystoscopy and cytology should be repeated every three months for the next two years if the results are negative.

The administration of NMIBC can implement a variety of quality enhancement strategies. The topic of recurrent TURBT is still under discussion. Nevertheless, the majority of methods for enhancing TURBT quality are acceptable and supported by EAU recommendations [16]. Evidence of repeated TURBT is provided by the incompleteness of the initial TURBT and the survival advantage of the recurrent TURBT. According to Dutta et al. [17], roughly forty percent of patients undergoing TURBT are at risk for under-staging, which is detected in radical cystectomy specimens. Nevertheless, another study utilising multi-centre cohort data suggests that recurrent TURBT is superfluous, as it provides no clinical benefit if the muscle layer is present in the primary TUR specimen [19]. Because repeated TURBT is relatively safe [20], it is recommended for patients at high risk for bladder cancer or who did not obtain a muscle layer during the initial TURBT.

Our research has some remaining limitations. It is possible to increase the sample size to enhance the reliability of the experimental results. Incorporating the evidence-based strategies outlined in this review and the recommendations of the main urological guidelines, the treatment of patients with NMIBC should be individualised and tailored to their specific requirements. To enhance the diagnostic staging of TURBT and reduce recurrences and progression of NMIBC, additional research is required.

CONCLUSION:

Transurethral resection of bladder tumours (TURBT) is the treatment of choice for non-invasive bladder cancer (NMIBC). When administered correctly, a high-quality, comprehensive TURBT is an essential skill for urologists that can influence diagnostic accuracy, recurrence, and disease progression. We demonstrated that TURBT is an efficacious treatment for SBC and can be recommended to patients as the treatment of choice.

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