Conservative management of superficial papillary urothelial carcinoma (pTa)


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Key Words
Superficial urothelial tumor; Electrofulguration; Transurethral resection of bladder tumor; Survival; Mexico.

Abstract
Background: Superficial bladder tumors (pTa) have a 50% to 80% recurrence risk, depending on nuclear grade. Two treatment options remain controversial in relation to ideal management for this particular group.

Aims: The aim of the present study was to describe a sample of non-invasive urothelial tumors and to know the impact of transurethral resection of bladder tumor (TURBT) vs. electrofulguration as first recurrence treatment.

Methods: A retrospective review of the cases of urothelial tumor of the bladder from our institute’s database was conducted. Patients that underwent TURBT and were diagnosed with superficial papillary urothelial tumor (pTa) were selected and the cases of carcinoma in situ were excluded. Recurrence rate, first recurrence-free survival (RFS), and overall survival (OS) were analyzed according to nuclear grade.

Results: Ninety-one patients, 64 men and 27 women, were included in the analysis. Patients were classified according to nuclear grade; 39 patients were G1, 24 were G2, and 28 were G3. There were 6 deaths unrelated to bladder tumor. There was an overall recurrence rate of 58.2% (53/91). OS after the first TURBT was 272 ± 13 months, with no significant difference according to nuclear grade. RFS was 73 ± 10 months, and was significantly lower for the G2/G3 groups vs. the G1 group (p=0.047). There was a significant difference in RFS in the patients with G3 tumors, in favor of TURBT treatment, of 58 ± 20 months vs. 26 ± 13 months of electrofulguration treatment (p=0.04).

Conclusions: Superficial urothelial tumors (pTa) can be treated conservatively in patients with comorbidities or who are high surgical risks. The pTaG3 tumor group is benefited by TURBT vs. electrofulguration as recurrence treatment.
Introduction

The initial treatment and stage assignment of bladder tumors is carried out through transurethral resection of bladder tumor (TURBT). The majority are classified as superficial tumors (pTa) and they have a recurrence risk ranging from 50% to 80%, depending on the nuclear grade. This disease usually presents without distant metastasis and has little impact on patient survival. However, it can have an impact on quality of life because it requires numerous procedures for its diagnosis, treatment, and follow-up. Therefore, electrofulguration has been proposed as treatment for recurrences, reserving TURBT for multiple or large tumors. Currently there is controversy as to which of the two options is the ideal treatment in this particular group.

The aim of the present study was to describe a sample of superficial urothelial tumors and determine the impact of TURBT vs. electrofulguration as treatment of the first recurrences on survival in this group of patients, as well as to analyze overall survival (OS) and recurrence-free survival (RFS) in patients with superficial urothelial tumors that underwent TURBT or electrofulguration.

Methods

A retrospective review of our institute’s database on urothelial tumors of the bladder was conducted. Those patients diagnosed with non-invasive superficial papillary urothelial tumor (pTa) through TURBT were selected, excluding the patients that presented with carcinoma in situ. Demographic variables were included and the patient follow-up information was compiled; this consisted of rigid cystoscopy as an outpatient procedure, as recommended by the European Association of Urology. Recurrence rate, RFS, and OS were analyzed according to nuclear grade. The log-rank test and Kaplan-Meier curves were used and statistical significance was considered with a \( p < 0.05 \). The SPSS® version 19.0 statistics program was employed.

Cancer-specific mortality was not included because there were no deaths related to this pathology.

Results

Ninety-one patients with pTa tumors, 64 men and 27 women, were included in the study. They had a mean age of 70.6 ± 14.7 years and a body mass index (BMI) of 27.7 ± 5.8 Kg/m². The patients were classified according to nuclear grade: 39 patients with G1, 24 with G2, and 28 with G3. Six deaths unrelated to the bladder tumor were identified and 5 patients received treatment with postoperative intravesical mitomycin. There was a recurrence rate of 53.8% (21/39) for G1, 70.8% (17/24) for G2, 53.6% (15/28) for G3, and the overall rate was 58.2% (53/91).
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The calculated OS after the first TURBT was $272 \pm 13$ months. There were no statistically significant differences when the classification was by nuclear grade (table 1).

The calculated RFS after the first TURBT was $72 \pm 10$ months. There was a significant difference between the tumors classified as G1 and those classified as G2/G3, with a RFS of $91 \pm 17$ months vs. $59 \pm 12$ months, respectively (table 2) (fig. 1).

Treatment of the first recurrence was with electrofulguration in 13/21 and with TURBT in 8/21 for G1, 10/17 and 7/17 G2, and 11/15 and 4/15 G3, respectively. Overall treatment was 34/53 with electrofulguration and 19/53 with TURBT.

There was a second recurrence rate of 66.6% (14/21) for G1, 52.9% (9/17) for G2, 60% (9/15) for G3, and an overall rate of 60.3% (32/53).

Afterwards, a second recurrence-free survival rate was calculated. The patients were classified according to nuclear grade and they were categorized as having undergone TURBT or electrofulguration and their second recurrence-free survival rates were compared (table 3). These overall rates were $57 \pm 19$ months for the patients treated with TURBT and $43 \pm 9$ months for those treated with electrofulguration, but there was no statistically significant difference. Nevertheless, in the G3 group, there was significant difference in the overall survival rate in favor of TURBT with $58 \pm 20$ months vs. $26 \pm 13$ months, respectively (fig. 2). No significant differences were identified in the other groups according to nuclear grade.

Risk score was calculated in accordance with the EORTC and compared in the patients treated with TURBT vs. electrofulguration. There was no significant difference between the treated patients according to the EORTC, after the first recurrence.

**Discussion**

Superficial bladder tumors have little impact on the OS of our patients. However, prolonged RFS is beneficial to patients because it means a lower number of surgical procedures, hospital stay, and resulting complications.

TURBT is the ideal treatment for any bladder tumor, but given the mild impact of the superficial tumors on OS and cancer-specific survival, the use of conservative therapy has been proposed, which includes watchful waiting and lesion electrofulguration.6 Soloway et al.6 observed a less than 10% progression rate in 32 patients with pTa or T1 tumors. These findings have been confirmed in other studies on superficial tumors by Pruthi5 and Gofrit7. The majority of these reports conclude that this therapy is ideal for patients with low-grade superficial tumors. In general, the high-grade tumors have a higher rate of greater recurrence and progression.

Donat et al.8 published a study on the treatment with electrofulguration of lesions under 0.5 cm in patients with superficial bladder tumor recurrence. They reported it as a safe therapy for small tumor recurrences. Interestingly, they did not identify an increase in high risk superficial tumor recurrence, contrary to what we found. However, their population included patients with pTa and pT1 tumors, suggesting that the results cannot be unreservedly extrapolated. On the other hand, that author frequently employed postoperative bladder therapy, giving pause for its scant use in our series.

Another study by Wedderburn et al.9 deals with the use of electrofulguration exclusively in patients with pTa superficial tumor recurrence. It refers to the procedure as being safe and causing few symptoms in the patients. In this study of 103 patients, approximately 50% required...
treatment for subsequent recurrences, but it does not specifically mention which ones.

The analysis proposed in the present study attempted to confirm the effectiveness of electrofulguration vs. the gold standard TURBT for the treatment of recurrences in tumors classified as pTa in the first TURBT. It is important to point out that progression rates were not analyzed due to the fact that there were no samples for histopathologic study in the electrofulguration cases. According to our analysis there was no impact on OS, as was to be expected. But it was observed that electrofulguration caused a decrease in second recurrence-free survival in patients with pTa G3 tumors in particular, compared with those treated with TURBT.

In general, electrofulguration is used in our institute in patients with important comorbidities, which conduces to a decrease in major surgical procedures, and can be safely performed on patients with pTa G1/G2 tumors. Taking into consideration the fact that this disease has a low impact on OS, it continues to be reasonable to use electrofulguration as treatment. Nevertheless, in patients with risk factors or high-risk disease, it is recommended to favor TURBT as the ideal treatment. Precisely, we identified the main weakness of our study as not having included tumor size and the number of lesions treated as additional factors. However, in the retrospective review there was insufficient information for the analysis, especially in those patients treated with electrofulguration. In order to reduce this bias, the EORTC score was calculated when available and no significant differences were found between the groups treated with electrofulguration and TURBT.

Conclusions

Superficial tumors (pTa) can be treated conservatively. The group of patients presenting with pTaG3 tumor recurrences benefits from TURBT.

Conflict of interest

The authors declare that there is no conflict of interest.

Financial disclosure

No financial support was received in relation to this article.

References