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A STUDY OF PROGNOSTIC FACTORS OF TRANSITIONAL CELL CARCINOMAS OF URINARY BLADDER

Pathology

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ABSTRACT

Aims and objectives: The aim of this study is to study the clinical and histo-morphological features of transitional cell carcinomas of urinary bladder that carry prognostic significance.

Materials and methods: This is a descriptive study of 101 transitional cell carcinomas that were submitted for histopathological examination in the Government General hospital, Chennai over two years. Detailed history of the cases was obtained and the histological features were assessed.

Results: Transitional cell carcinomas had a peak incidence in 61-70 year males in the right lateral wall. 95 tumours were single with the mean size of 4.1 cm. Most of the cases were low grade with Stage I being the commonest stage. 21 cases were associated with recurrence.

Conclusion: The study assesses the prognostic factors of bladder carcinoma. This study showed a reduced rate of recurrence than the western population.

KEYWORDS

INTRODUCTION

Bladder cancer is the sixth common cancer in developed countries[1]. It is more common in westernised countries. The two main causes of bladder cancer have been smoking and industrial exposure. Transitional cell carcinoma is the commonest carcinoma in urinary bladder. The clinical and histomorphological prognostic factors of transitional cell carcinomas of urinary bladder are assessed in this study. The clinical factors[2] include patient age with younger ages having better prognosis and recurrence having poor prognosis. The pathological factors play more useful role in assessing prognosis. It includes size (>4 cm having poor prognosis),[3] location (lateral walls good prognosis),[4] Number (Multiple tumours poor prognosis)[5] Histological type (Non-papillary TCCs poor prognosis,[6] Stage and grade (Higher bad prognosis) [7,8] and Squamous metaplasia(poor prognosis).[9]

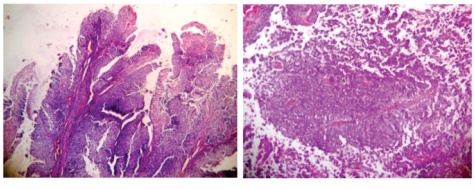
MATERIALS AND METHODS

This study is a descriptive study of 101 transitional cell carcinomas that were submitted for histopathological examination in the Government General hospital, Chennai over two years. Detailed history of the cases regarding age, sex, history, type of procedure, site, size, stage, previous surgery details and urinary cytology were obtained and the histologic features like papillary/non-papillary, invasive/non-invasive, squamous metaplasia, necrosis and sarcomatoid component were noted. Depth of invasion was assessed: T1 (invasion of mucosa and submucosa), T2 (invasion of muscle layer in which T2a is invasion of superficial muscle and T2b is invasion of deep muscle), T3 (invasion of perivesical tissue in which T3a means microscopic involvement and T3b means macroscopic involvement) and T4 (invasion of adjacent organs in which T4a is invasion of prostate, uterus and vagina and T4b is involvement of pelvic and abdominal wall), and according to grade the carcinomas were divided into 3 groups: PUNLUMP, low grade urothelial carcinoma and high grade urothelial carcinoma and staging was done. The tumours were evaluated for the presence of infiltration, necrosis, squamous metaplasia. The statistical analysis was performed using statistical package for social science software version 11.5 which consisted computing the frequency counts and percentages for qualitative variables and mean for the quantitative variables.

OBSERVATION AND RESULTS

In the study period of 2 years, 101 transitional cell carcinomas were received. They had a peak incidence in the age group of 61-70 years. The youngest age of presentation of bladder cancer was at 22 years in this study. The mean age was 58.74. Among the 101 cases of transitional cell carcinomas, 79 cases were reported in males and 22 cases in females.

In this study, 38 cases involved the right lateral wall, 30 cases involved the left lateral wall, 4 involved the posterior wall, 6 involved the base, 7 involved the dome, 10 involved the entire bladder and in 6 cases the tumour was multiple. 95 tumours were single and 6 tumours were multiple. The mean size of the tumours which ranged from 0.5 to 10 cm was 4.1 cm. 65 were ≤ 4cm and 36 were > 4cm. 83 cases were papillary and 18 cases were non-papillary. 74 cases were low grade and 27 cases were high grade. 71 cases were infiltrative and 30 cases were non-infiltrative. Out of the 71 infiltrative cases, 41 cases showed infiltration upto subepithelial connective tissue, 23 cases showed infiltration upto superficial muscle layer, 3 cases showed infiltration upto deep muscle layer, 1 case showed microscopic involvement of perivesical tissue and 3 cases showed involvement of prostrate. There were no cases with lymphnode involvement. 41 cases belonged to stage I, 26 cases belonged to stage II and 4 cases belonged to stage III. Squamous differentiation was seen in 15 cases, necrosis was seen in 19 cases and sarcomatous component was seen in 3 cases.



TABLE/FIGURE 1: Low grade and high grade transitional cell carcinoma with cells arranged in papillary pattern (100X)

In this study, 30 cases were associated with recurrence. Among these cases, 6 cases showed recurrence in 1 month, 6 cases in 2 months, 3 case in 3 months, 1 case in 4 months, 1 case in 6 months, 1 case in 8 months, 7 cases showed recurrence in 1 year, and 1 case in 2 yrs. 3 of the cases were late recurrences with previous tumour occurring in 3 yrs and 1 case recurring after 7 years.

TABLE/FIGURE 2: CLINICO PATHOLOGICAL FACTORS OF TRANSITIONAL CELL CARCINOMA

Clinico-pathological factor		No. of cases (%)
Age	<60	54 (53.5%)
	>60	47 (46.5%)
Sex	Males	79 (78.2%)
	Females	22(21.8%)
Site	Rt lateral wall	38 (37.7%)
	Lt lateral wall	30 (29.8%)
	Posterior wall	4 (3.9%)
	Base	6 (5.9%)
	Dome	7 (6.9%)
	Entire	10 (9.9%)
	Multiple	6 (5.9%)

Size	Mean size	4.1
Histological type	Papillary	83 (82.2%)
	Non-papillary	18 (17.8%)
Grade	Low	74 (73.3%)
	High	27 (26.7%)
Depth	Ta	30 (29.7%)
	T1	41 (40.6%)
	T2a	23 (22.7%)
	T2b	3 (3%)
	T3b	1 (1%)
	T4b	3 (3%)
Stage	0	30 (29.7%)
	I	41 (40.6%)
	II	26 (25.7%)
	III	4 (4%)
Squamous metaplasia	Present	15 (14.9%)
	Absent	86 (85.1%)
Necrosis	Present	19 (18.8%)
	Absent	82 (81.2%)
Sarcomatous component	Present	3 (2.9%)
	Absent	98 (97.1%)
Recurrence	Present	30 (29.7%)
	Absent	71 (70.3%)

DISCUSSION

In this study, the highest incidence of transitional cell carcinomas occurred in 61 to 70 year age group. The age of transitional cell carcinoma patients ranged from patients 22 years to 82 years with the mean age of 58.74 years. This had a concurrence with the study done by Mohammad Reza Jalali Nadoushan et al[10] and Surendra B Kolla et al[11]. The male:female ratio is 8:1 which was close to the study conducted by Matalka I et al[12].

The most common site of transitional cell carcinoma of bladder in this study was the right lateral wall (37.7%) followed by left lateral wall (29.8%). This was almost similar to the study by William T. Stephenson et al[13] who also showed the predominance of tumours arising from the lateral walls. This study showed 6% of multiple tumours which was lower than the study by Igor Frank et al[14] and L. Santos et al[15] who showed the incidence of multiple tumours to be 14%and 12% respectively. In this study, the mean size of tumour was 4.1cm which showed concurrence with the study conducted by Igor Frank et al(4.1).[14]

In this study, papillary tumours were more common than the non-papillary(solid) tumours which was in concurrence with the study conducted by Thomas Quentin et al.[16]. In the present study, low grade tumours were more common. This was in concurrence with the study conducted by Matalka I et al.[12]. This study showed a higher proportion of T1 tumours followed by Ta tumours similar to the study by Eun Yong Choi et al.[17] However this did not concur with the studies by others who showed a predominance of tumours of other stage. This study showed most of the cases in stage 1 which is concurrent with the study conducted by Khaled El Gehani et al[18] and E.A. Philp et al[19]

This study showed a recurrence of 29.7% which was concurrent with the study done by Matalka I et al[12] in Jordan, Asia. However, studies by Rawaa G Al-Tereihi et al[20] which was done in Iraq showed increased recurrence rate of 58.33%

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