CARCINOMA OF THE URINARY BLADDER IN MAIDUGURI, NIGERIA: A RETROSPECTIVE HISTOPATHOLOGICAL STUDY OF 100 CASES.

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ABSTRACT.

AIMS:

This study was conducted with the aim of determining the histopathological pattern, age and sex distribution of 100 cases of carcinoma of the urinary bladder in Maiduguri as well as highlight some of the associated aetiological factors.

METHODS:

One hundred urinary bladder biopsies were received in the department of histopathology of the U M T H, Maiduguri. The specimens were previously fixed in 10% formalin. They were processed, sectioned and stained with standard haematoxylin and eosin stains. The records of patients were collected from our surgical daybooks. Patients with incomplete demographic data as well as Metastatic carcinomas were excluded from the study. Simple statistical analysis was used in analyzing the cases.

RESULTS

Squamous cell carcinoma was the commonest tumour and accounted for 70% of the cases. Transitional cell carcinoma constituted 22%. The least common tumours were embryonal rhabdomyosarcoma and carcinosarcoma contributing one case each.

Of the 70 cases of squamous cell carcinoma, 41 cases (58.6%) had associated vesical schistosomiasis. Fifty nine percent of cases were in the fifth and sixth decades of life. The tumour is three times more common in males than in females.

CONCLUSION

The high frequency of association of carcinoma of the bladder with schistosomiasis in our environment calls for serious attention by our clinicians to the eradication of schistosomiasis. This will by far reduce the number of cases of urinary bladder carcinoma associated with schistosomiasis.

KEY WORDS: **Carcinoma of the urinary bladder; Histopathological pattern; Squamous cell; Schistosomiasis.**

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INTRODUCTION

Fergusson first suggested the causal relationship between carcinoma of the urinary bladder and schistosomiasis in 1911[1]. Subsequently similar reports came from various parts of the world especially areas of bilharzial endemicity such as Egypt, Sudan, Uganda, Iraq and Malawi.[2, 3,4] In some parts of Nigeria, there are areas of schistosomal endemicity and high frequency of squamous cell carcinoma in bladder cancer has been reported[5,6]. Reports from Sudan and Egypt show a definite association between squamous cell carcinoma and S. haematobium infection.[7,8] The predominant bladder cancer in the Western countries is the transitional cell carcinoma and squamous cell carcinoma contributes less than 2% of all bladder malignancies[9]. The aetiology of bladder cancer in these countries is found to be due to exposure to benzidine and 2-naphtylamine, which are thought to increase the risk of bladder cancer up to, 30 times greater than the general population[9]. In these countries,

Schistosomiasis is virtually non-existent except possibly among emigrants from endemic areas of other parts of the world. Maiduguri North-Eastern Nigeria is within the zone of schistosomal endemicity and patients coming to medical attention with terminal haematuria are not uncommon. Observations all over the world show that the differences in the histopathological patterns of bladder cancer are due to the differing aetiological factors[5,7,8,9,10]. The University of Maiduguri Teaching Hospital (U M T H) serves as a referral centre to the north-eastern region of the country and has many pockets of schistosomal endemicity (Lake Chad and Upper Benue river basin). In view of these, we reviewed all histologically diagnosed cancers of the urinary bladder at the U M T H, Maiduguri during a 12-year period, January 1989 to December 2000.

MATERIALS AND METHODS

Records of patients with urinary bladder cancer registered in our surgical daybooks of the Department of Pathology, U M T H, Maiduguri between January 1989 to 2000 were retrieved. Histologically diagnosed cases of bladder cancer were studied. The specimens were previously fixed in 10% formal saline embedded in paraffin wax and sections were stained with routine haematoxylin and eosin. The lesions were classified according to the W H O histological classification[10]. Demographic data of the patients were extracted from histopathology register and reports, request forms and patients case files. The results were analyzed using simple statistical methods.

All cases that did not have complete demographic data were excluded from the study. Metastatic carcinomas were also excluded.

RESULTS

During the study period (1989 to 2000), 100 cases of histologically confirmed cancers of the urinary bladder were registered and constituted 5.9% of all histologically diagnosed cancers (1700 cases) seen in the Department of Pathology of the U M T H, Maiduguri.

Of the 100 histologically diagnosed cancers of the bladder, 76 were males and 24 were females giving a male to female ratio of almost 3:1. The histological types were distributed as follows; squamous cell carcinoma-70%; Transitional cell carcinoma-22%; Adenocarcinoma-3%; Anaplastic carcinoma-3%; embryonal rhabdomyosarcoma-1% and Carcinosarcoma-1%. Cases of prostatic carcinoma metastasising to the urinary bladder were excluded.

Of the 70 cases of squamous cell carcinoma 41% cases had associated vesical schistosomiasis which was confirmed by the presence of embryonated and or calcified schistosome ova. Twenty seven percent males and 14% females had squamous cell carcinoma with schistosomiasis respectively (Table 1). Transitional cell carcinoma was seen in 18% males and 4% females. The age range of all the cases was 10 to 80 years. Fifty nine percent of all the cases were between the 5th and 6th decades (Table 2).

One case showing schistosomiasis, squamous metaplasia and dysplasia was excluded from the study for lack of stromal invasion.

Table 1. Histological distribution of 100 cases of urinary bladder cancer.

Histological type	Male	Female	No. of Cases (%)
Squamous cell Carcinoma With schistosomiasis	27	14	41 (41%)
Squamous cell carcinoma Without schistosomiasis	24	5	29 (29%)
Transitional cell carcinoma	18	42	2 (22%)
Adenocarcinoma	3	0	3 (3%)
Anaplastic carcinoma	2	1	3 (3%)
Embryonal rhabdomyosar-Coma	1	0	1 (1%)
Carcinosarcoma	1	0	1 (1%)
Total	76	24	100 (100%)

Table 2. Age distribution of 100 cases of urinary bladder cancer.

Age group (Years)	No. of cases	Percentage
10-20	1	1
21-30	7	7
31-40	14	14
41-50	32	32
51-60	27	27
61-70	14	14
71-80	5	5
Total	**100**	**100**

Table 3. Frequency of bladder cancer in Maiduguri in relation to other urological cancers

Urological organ	**No. of cases**	**Percentage in relation to all malignancies**
Bladder	100 (47.8%)	5.8%
Prostate	90 (43.1%)	5.2%
Kidney	16 (7.7%)	0.9%
Testis	3 (1.4%)	0.2%

DISCUSSION.

Cancer of the urinary bladder in Maiduguri constitutes up to 5.8% of all histologically diagnosed malignancies in the U M T H, Maiduguri from 1989 to 2000. This is very much higher than what was observed in Ibadan (1.25%) and Jos (3.45%), southwestern and middle belt regions of Nigeria respectively[5,6]. This is not suprising because of the abundant habitat in the Lake Chad and Upper Benue river basin for the snail hosts (Bulinus truncatus and Biomphalaria feifferi) associated with the transmission of schistosomiasis. This is also much higher than what is seen in Europe and America, but can only be compared to what obtains in Egypt, Mozambque and Malawi[7,8,11].

The peak age incidence for bladder cancer in this study is the fifth decade of life, which contrasts with the findings in Jos where the tumour shows two peaks[5] and in the 6th decade of life in an Ibadan study[6]. The youngest of our patients was an 18-year old male.

Seventy percent of our specimens had squamous cell carcinoma and up to 41% of them are associated with chronic vesical schistosomiasis (Table 1). This was determined by the presence of embryonated and or calcified schistosome ova within the biopsy material. This is in sharp contrast to what was observed in other parts of Nigeria such as Jos (9%) and Ibadan (12%)[5,6].Our finding is similar to the observations in Egypt, Mozambique and Malawi with whom we have similar habitat for the snail host.

Seeing that 70% of cases with bladder cancer show squamous cell carcinoma, and 41% show associated schistosomiasis in our study conforms to the usual pattern of the aetiopatiopathogenesis of squamous cell carcinoma of the urinary bladder. It is well known that S. haematobium does predispose to bladder squamous cell carcinoma[11]. This may explain why most our patients that have squamous cell

Carcinoma fall within the age range of 40-60 years with a peak age incidence much lower than what obtains in other parts of Nigeria. This is suggested to be due to childhood and early adulthood exposure to vesical schistosomiasis which gives enough time for all the required inflammatory, metaplastic and dysplastic changes to occur as the predisposing factors to bladder carcinoma. It is known that chronic vesical schistosomiasis predisposes to squamous metaplasia and dysplasia, which may subsequently lead to squamous cell carcinoma. This has been observed in many parts of Africa where schistosomiasis is endemic. Although excluded from this study for lack of stromal invasion, our records contain a case showing this continuum (chronic vesical schistosomiasis-squamous metaplasia-epithelial dysplasia). The pathogenesis may be related to the following-reduction of mucosal barrier to carcinogens, the longer urinary stasis in fibrotic bladder, reduced immune surveillance due to chronic infection, liberation of carcinogenic amines from B-glucoronide in urine, disordered tryptophan metabolism with increased production of carcinogenic metabolites and foreign body tumourigenesisi[11]. Probably these factors act in concert to produce squamous cell carcinoma.

The male to female ratio in this study was 3:1 and is not unconnected with the cultural factors in our environment where the male usually cultivates the land, and goes to the river more frequently and that is where the infection is picked. This is also in agreement with the Jos study[5].

Transitional cell carcinoma occurred in 22% of our patients and over 81% of these occurred in the males. In Jos, Enugu and Ibadan, Nigera, transitional cell carcinoma occurs slightly more frequent than squamous cell carcinoma[5, 6]. Our findings are similar to earlier Ibadan observations[12]. The changing pattern in Ibadan was thought to be due to new cottage industries emerging in their environment as well as the greater awareness of the local populace to the dangers of schistosomiasis[6].

Our study revealed that squamous cell carcinoma of the urinary bladder is the most frequent urinary bladder malignancy in Maiduguri, Nigeria. This is much higher than what was seen in other Nigerian hospitals, Europe and America[5,6,9].

Adenocarcinoma, anaplastic carcinoma, rhabdomyosarcoma and carcinosarcoma were seen in our hospital but they are not common in our environment.

CONCLUSION

In conclusion squamous cell carcinoma is the commonest histological type of urinary bladder malignancy seen in our hospital, and this may be related to chronic vesical shistosomiasis similar to what is seen in other schistosomiasis endemic areas.

REFERENCES

1. Fergusson, A R. Associated bilharziasis and primary malignant diseases of the urinary bladder, with observation on a series of forty cases. J. Path. Bact. 1911; 16:76-94.
2. Makar, N. "Urological aspects of bilharziasis in Egypt." S O P Press. Cairo, 1955, pp 51-83.
3. El-Sebai, I. Cancer of the bladder in Egypt. Kasr-El-Aini J. Surgery, 1961; 2:183-241
4. Abdel Tawab, G A. Study on the aetiology of the bilharzial carcinoma of the urinary bladder. Int. J. Cancer, 1966; 1:377-389
5. Mandong B M. Carcinoma of Urinary Bladder in Jos, Nigeria, Nig. Med. Pract. 1997; 33(3/4): 33-34.
6. Thomas J T, Onyemenem N T. Bladder carcinoma in Ibadan Nigeria: A changing trend? East Afr. Med J. 1995; 72(1):49-50.
7. Malik, M O A, Verss B, Daoud E H, El Hassan A M. Pattern of bladder cancer in Sudan and its relation to schistosomiasis: A study of 255 vesical carcinomas. J. Trop. Med. Hyg. 1975; 78:219-223
8. El-Boulkany, M N, Ghoneim M A Mansour M A. Carcinoma of the bilharzial bladder in Egypt. Clinical and pathological features. Brt. J Urol. 1972; 44:561-570.
9. Dennis K Burns, Vinay Kumar, In Cotran R A, Kumar V and Robbin S L. Pathologic basis of disease. Publish, S W Saunders Philadelphia, 5th edit, pp468-469.
10. Mostofi F K, Sobin L H, Torloni H. Histology of bladder tumours. Int. hist. Classification of tumours. Geneva: W H O, 1976.
11. Lucas S B. Squamous cell carcinoma of the bladder and schistosomiasis. East Afr. Med. J. 1982; 59(5):345-351.
12. Attah, Ed'B, Nkposong E. O. Schistosomiasis and carcinoma of the bladder. A critical appraisal of causal relationship. Trop. Geog. Med. 1976; 20:26.