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TESTICULAR TUMORS IN PORT HARCOURT (A ten-year review)

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ABSTRACT

Background: Primary testicular tumours are rare in this environment, affecting mainly children and are associated with maldescended testis, mumps infection and trauma. There is no obvious association with gas flaring and fumes emitted by industrial machines or occupational exposure.

Objective: Highlighting the pattern of testicular tumours in Port Harcourt based on age of patients and histological types.

Design: A retrospective descriptive study.

Method: Twelve testicular tumours diagnosed in ten years (1991 - 2000) were studied in the University of Part Harcourt Teaching Hospital (UPTH) Port Harcourt. Histology slides previously stained with haematoxylin and eosin stains were used for the study. Special stains like phosphotongstic acid hematoxylin (PTAH) were also used to confirm diagnosis.

Result: The tumours are rare in this environment as it accounted for 0.7% of total malignancies during the study period. The youngest was 3 years old while the eldest was 48 years old. Majority of (33.3%) cases occurred in the age group of 0-9 years and the least occurred in 40-49 years age group (8.3%). Germ cell tumours were commonest (75%) while the sexcord-stromal tumours, adnexial tumours and the lymphoid tumours were the least together accounting for 25% in equal proportions. There is an average distribution of 3 tumours in 2 years in this study and the tumour is commoner in the children of school age.

Conclusion: Pattern of testicular tumours in Port Harcourt, correlates well with the pattern in other parts of the world.

Key word: Testicular tumours, patterns, age, Port Harcourt.

INTRODUCTION:

Testicular tumours are rare everywhere in the world[1] and particularly rare in Africa and black population of other continents. [2-7] The aetiology of the tumour is unknown but can be associated with maldescended testis. Five factors may feature prominent in the increased frequency of testicular tumours which included abnormal germ cells, elevated temperature, and interference with blood supply, endocrine disturbances and gonadal dysgenesis.[1]

Most testicular tumours occur in infancy, late adolescence and young adults.[7,1] Seminoma, embryonal carcinoma and teratoma are mainly childhood tumours with a better prognosis than the corresponding tumours in adults.[1]

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Testicular tumours are associated with trauma.[8] A heavy and dragging tumour of the testis may be susceptible to trauma and this also aggravate and facilitate the spread of the existing tumor.[1] Many patients with testicular tumours have history of mumps orchitis which may trigger up carcinogenesis.[1] The frequency of the tumour increases with high androgenic activity and in fact, the tumour itself secrets gonadotropins and/or estrogen in other cases.[7] High incidence of this tumour has been reported in brothers, identical twins and other members of the family.[1] The incidence is also high in dysgenetic testes.[1]

Clinically, the right maldescended testicle is more frequently affected. It present as enlarged painless or heavy testis in 80% of patients, secondary hydrocele and sometimes acute pain simulating acute

epididymo-orchitis in other patients.[9] Most of the tumours are germ cell tumours with elevated alpha-feto protein levels (AFP)[11] and in some cases with high levels of human chorionic gonardotrophin (HCG).[11]

This study tends to highlight the frequency and pattern of testicular tumours in Port Harcourt with reference to age and histological types; because there is no report of such in this environment as at the time of this communication.

MATERIALS AND METHOD

A total of twelve testicular tumours were retrospectively reviewed in the University of Port Harcourt Teaching Hospital (UPTH) for the ten years (1st January 1991 - 31st December 2000). Only five (41.7%) were UPTH specimen while the remaining seven (58.3%) were referrals from other hospitals in Rivers and neighbouring states diagnosed by the authors.

Paraffin sections of all these tissues, stained with haematoxylin and eosin were retrieved and reviewed individually. In some cases of extra testicular tumours, special stain like phosphotungstic acid haematoxylin (PTAH) was used to demonstrate striation of muscle tissues to confirm diagnosis. Reticulin and mason trichrome stains were also used for accurate diagnosis of the tumours.

These tumours were classified according to the World Health Organization (WHO) classification of testicular tumors.[12]

RESULTS

A total of twelve testicular tumours were reviewed. The youngest patient was 3 years old while the oldest was 48 years old.

Table 1 shows the distribution of testicular tumours in UPTH with reference to age groups. Most of these tumours are malignant and 33.3% of the whole tumours occur in the age group 0-9 years whereas 25% was recorded for the age group 20-29 years. A 16.7% each was recorded for the age groups 10-19 and 30-39 years, leaving the remaining 8.3% for the age group 40-49 years

Table II Shows the distribution of histological subtypes of testicular tumours based on WHO classification. Germ cell tumours in this study is composed of tumours of one histologic patterns constituting 66.7% and those of more than one histologic pattern representing 8.3% of cases. Sex cord-stromal tumours, the adnexal tumours (Para testicular tumours) and lymphoid tumours accounted for 8.3% each.

Table III shows the yearly distribution of testicular tumours in UPTH. The highest frequency was in 1991 (25% of cases) which is followed in decreasing order of frequency by 1992 and 2000 (16.7% cases each) and 1993, 1995, 1997, 1998 and 1999 (8.3% cases respectively). None was recorded in 1994 and 1996 in this study. This gives an average frequency of 3 tumours in two years.

Table IV shows the frequency of testicular tumours in various occupations. Schooling children had the highest frequency 66.7% preschool age group and drivers had 16.7% each.

Table I: **Age distribution of patients with testicular tumours**

Age group in years	Number	Percent
0-9	4	33.3
10-19	2	16.7
20-29	3	25.0
30-39	2	16.7
40-49	1	8.3
TOTAL	**12**	**100.00**

Table II: **Histologic types of Testicular Tumours**

Tumor type	Number	Percent
GERM CELL TUMORS		
Tumors of one histologic pattern		
Seminomas	3	25.0
Endodermal sinus tumors	2	16.7
Choriocarcinma	1	8.3
Teratomas	2	16.7
Tumors of more than one histologic pattern		
Seminoma with teratoma	1	8.3
SEX CORD-STROMAL TUMORS		
Leydig cell tumor	1	8.3
ADNEXAL TUMORS		
Paratesticular rhabdomyosarcoma	1	8.3
LYMPHOID TUMORS		
Lymphoma	1	8.3
Total	**12**	**100.00**

Table 111: **Yearly distribution of Testicular tissues received in UPTH**

Year	Number	Percent
1991	3	25
1992	2	16.7
1993	1	8.3
1994	-	-
1995	1	8. 3
1996	-	-
1997	1	8. 3
1998	1	8. 3
1999	1	8.3
2000	2	16.3
TOTAL	**12**	**100%**

Table IV: **Distribution of testicular tumours based on patient's occupation**

Occupation of patients	Number	Percent
Preschool	2	16.7
Schooling	8	66.7
Drivers	2	16.7
TOTAL	**12**	**100.00**

DISCUSSION

Developmentally, each testicle. together with the nerves, blood and lymphatic vessels descend along a tortuous path from the posterior walls of the peritoneal cavity to the scrotum.[13] It is covered by the tunica albuginea and fibrous connective tissues. Tumours develop primarily due to alteration in this developmental movement of the testicle into the scrotum. Genetic predisposition and environmental factors also play dominant role in testicular tumorigenesis.[14]

Tumours of the testicle are rare in Port Harcourt as observed in other studies.[1-7] The observation in this study averaged 3 tumours in 2 years which is lower than that recorded in Ibadan[2] but higher than the 1 per year in Lagos[3] all in Nigeria. The difference is even more remarkable when compared to that reported in industrialized countries. For example Mostofi 1973[15] recorded over 7000 testicular tumours over 25 years period in USA giving a very high yearly frequency which may be attributed to the geographic differences and the frequency of exposure of affected patients to carcinogens in both areas. Testicular tumours were more frequent between the ages 4-40 years in this study. This observation is similar to Mostofi et. al. 1973[7] where the tumours occurred more frequently in the ages 3-50 years. Unlike Scrotal Cancers that is associated with occupational exposure of soot and other carcinogens[16]. one may blame the increased frequency of testicular tumours to gas flaring and oil spillages in this environment. Our result showed no association with these since 83.4% of cases are preschool and students that presented with maldsecended testis or mumps orchitis or enlarged testis of whatever form. The remaining 16.6% were drivers who are by no means exposed directly to these carcinogens.

Germ cell tumours were more common. accounting for 75% of the total testicular tumours in this study of which tumours of one histologic pattern recorded 88.7% leaving the remaining 8.3% to tumours of more than one histologic pattern. The figures obtained for germ cell tumours are similar to an Ibadan study[2] and other African Studies.[17,18] where 7.6%. 64.45 and 75% were recorded respectively; whereas values as high as 93% was recorded in USA.[7] Seminoma alone was responsible for 25% of the total testicular tumours and 33.3% of germ cell tumours of this study Endodermal sinus tumours and teratomas came second with equal numbers leaving the remaining for choriocarcinoma in that order. These findings are in keeping with the Ibadan study[2] though these numbers are fewer.

Germ cell tumour of more than one histologic pattern was diagnosed in a case only where seminoma and teratoma were co-existing. This was the first of its kind in this hospital to the best of our knowledge. The same proportion (only one case) was also diagnosed for sex cord stromal tumors. These values are at variance with a USA study[15] were 3% was recorded for each of the tumors. Para testicular rhadomyosarcoma was the only adnexal tumour seen in this study. The recorded frequency (8.3%) of rhabdomyosarcoma is higher than that of U.K study[13] where 4.7% was recorded but lower than the 12.5% of an African study[17] and the 17.5% of a Nigerian study.[2] The high value recorded in this study may be attributed to sample size when compared to studies elsewhere.[2,13,18] Similarly, lymphoma is also very rare (8.3%) and may likely be a metastatic lesion. This figure seemed to be high when compared to the 1% recorded in USA [7,15] In contrast to germ cell tumors, which rarely involve the negro population. lymphoma occurs in both races.[15]

There is an increase in the incidence of testicular neoplasm in the western world which was highlighted by a USA study[19] but this increase has not been documented in African. The results of this study suggest the need to do a national review of

testicular tumors in Nigeria. This type of review may shed more light on the various factors that affect the epidemiology of testicular tumors in Nigerians.

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