

Pattern and Distribution of Primary Bone Tumours in Jos Nigeria

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Abstract: Bone tumours have been noticed to be on the increase Africa. The incidence of these tumours initially thought, to be uncommon in our environment has been on the rise. These tumours like those in any other part of the body are better managed with early diagnosis and subsequent treatment. The study was aimed at determining the pattern of presentation of bone tumours, with a view to determining the commonest types, the most involved sites of the body and the age of presentation of these tumours. This was a retrospective study carried out at the Jos university teaching hospital. The study covered a period of ten years from 2000 to 2010. From the cancer registry at the hospital, and case folders of the patients information of patients as regards the histological type of the bone tumour, the age and sex of the patients and the site of involvement were obtained. A Total of 103 bone tumours were seen over the study period. The mean age of presentation was 29.4years+/-16.9 years with an age range of 3 to 75 years. Benign bone tumours accounted for 67(66.3%) of the tumours while malignant tumours were 36(33.7%) of the tumours. The benign tumours consisted of, osteochondroma 12(17.9%), Giant cell tumour 12(17.9%), fibrous histiocytoma 11(16.4%) and osteoid osteoma 7 (12%), while the malignant variety were osteosarcoma 17(50%), fibrosarcoma 10(29.4%) and Chondrosarcoma 4 (11%). The anatomical regional location of the benign tumours were; tibia 13(19.4%), femur 13 (19.4%). While that of the malignant variety were; femur 10(29.4%), tibia 9(26.4%). Benign bone tumours make up about two thirds of the bone tumours in our environment while the rest are malignant, with osteochondroma and giant cell tumours making up the bulk of the benign tumours and osteosarcoma the most common malignant type. The femur and the tibia were the sites mostly affected by bone tumours.

Keywords: Bone tumours, Distribution, Nigeria, Primary.

I. Introduction.

Bone tumours have been identified to be on the rise in Africa and other parts of the world(1-3). In these parts of the world where a large part of the health budget is targeted towards the prevention and care of infectious disease, not much emphasis is given to the management of tumours. In such an environment with limited health care resources and poor health seeking behavior of the populace mainly from ignorance, poverty and cultural beliefs,(4) there is the tendency for delayed presentation in patients with tumours.(5, 6). Some bone tumours have typical pattern of occurrences, well described clinical courses as well as clear treatment protocols with satisfactory outcomes. Knowledge of the pattern of occurrences of bone tumours would serve as a guide to be used in clinical evaluation of patients. Bone tumours as with tumours in other parts of the body have better prognosis with early diagnosis and treatment.(5, 7) This information would also aid in public awareness to the population on the presence and the occurrences of such conditions in our environment as a tool to encourage prompt hospital presentation and improve the stage of presentation of these tumours. The limited health resources for the care of bone tumours can thus be channeled in a more targeted fashion towards their management. Majority of Primary bone tumours have been found benign rather than malignant(8, 9). This in our setting tends to delay the presentation as patients assume the tumours to be benign only presenting when the sheer size of the tumour impairs functionality and is cosmetically unappealing(10). This study was aimed at determining the pattern of presentation of bone tumours, with a view to determining the commonest types, the most involved sites of the body and the age of presentation of these tumours.

II. Materials And Methods

This was a retrospective study carried out at the Jos university teaching hospital from January 2001 to December 2010. Data was obtained from the cancer registry at the hospital, and case folders of the patients. Patient's case notes with incomplete data entries were excluded from the study. Information of patients as regards the histological type of the bone tumour, the age and sex of the patients and the site of involvement were obtained. The data was analyzed for simple means and percentages using Epi-Info statistical software.

III. Results

A Total of 103 bone tumours were seen over the study period. The mean age of presentation was 29.4yrs +/- 16.9 with age range of 3years to 75years.

Benign bone tumours accounted for 67(66.3%) of the tumours while malignant tumours were 36(33.7%) of the tumours. The benign tumours consisted of osteochondroma 12(17.9%), Giant cell tumour 12(17.9%), fibrous histiocytoma 11(16.4%) and osteoid osteoma 7 (12%) Table 1, while the malignant variety were osteosarcoma 17(50%), fibrosarcoma 10(29.4%) and Chondrosarcoma 4 (11%) Table 2. The anatomical regional location of the benign tumours were; tibia 13(19.4%) femur 13 (19.4%) while that of the malignant tumours were; femur 10(29.4%), tibia 9(26.4%). Tables 3 and 4

IV. Tables

TABLE 1 Benign bone tumours

Histologic variety	Number	Percentage(%)
Osteochondroma	12	17.9
Giant cell tumour	12	17.9
Fibrous histiocytoma	11	16.4
Osteoid osteoma	7	12.0
Hemangiopericytoma	5	8.0
Chondroma	5	8.0
Ossifying fibroma	3	5.0
osteofibroma	3	5.0
Fibrous dysplasia	3	5.0
Chondromyxoid fibroma	2	3.0
Enchondroma	1	2.0
chondroblastoma	1	2.0
Total	67	100

TABLE 2 Malignant bone tumours

Histologic variety	Number	Percentage(%)
Osteosarcoma	17	50
Fibrosarcoma	10	28
Chondrosarcoma	4	11
Plasmacytoma	2	6
Malignant fibrous histiocytoma	2	6
Ewings sarcoma	1	2
Total	36	100

TABLE 3 Anatomic location of benign tumours

Site of tumour	Number	Percentage(%)
Tibia	18	26.7
Femur	18	26.7
Phalanges	10	14.9
Clavicle	7	10.4
Pelvis	5	7.6
Humerus	3	4.6
Rib	2	3.0
Ulna	2	3.0
Metatarsal	2	3.0
Total	67	100

TABLE 4 Anatomic location of malignant tumours

Site of tumour	Number	Percentage(%)
Femur	11	30.6
Tibia	9	25.0
Pelvis	5	13.9
Humerus	3	8.3
Scapula	2	5.6
Metatarsal	2	5.6
Phalanges	1	2.8
Clavicle	1	2.8
Rib	1	2.8
Metacarpal	1	2.8
Total	36	100

V. Discussion

This study revealed that benign tumours made up two thirds(66.3%) of the primary tumours affecting the bone. This is in agreement with the study by Abdulkareem(11) where benign bone tumours made up about two thirds of all bone tumours. The commonest histological pathological variety of benign bone tumours in this study were osteochondroma (17.9%) and giant cell tumours (17.9%). Studies by Mohammed et al(12) from north western Nigeria and Abdulkarrem et al(11) from south western Nigeria, also showed these as being the commonest variant of benign bone tumours. It can be assumed then that this may be the pattern throughout the country. Herget et al(13) also found osteochondroma as the commonest benign bone tumour in Germany. These tumours typically affect individuals in the second and third decades of life, may thus occur as the predominant variety in Nigeria which has a life expectancy of approximately 47 years(14). The bulk of the population thus falling within the second and third decades of life may account for the preponderance of these benign tumours. The malignant bone tumours make up a third of the primary bone tumours with the most prevalent histological variant being osteosarcoma. This finding is similar to those in studies carried out by Mohammed et al.(12) Ferreira et al(5) Kalra et al and Duonget al(15). Osteosarcoma is also a tumour which commonly occurs in the second and third decades(16, 17) except for the variety in the elderly that is secondary to Paget's disease which is rare in Africa(18). The preponderance of this tumour may not be unconnected with the large proportion of the Nigerian population within this age bracket also. A case of Ewing's sarcoma was discovered in this study which is noteworthy as this malignant tumour is believed to be rare in Africa(19).

The tibia and the femur were noted to be the commonest sites of occurrence of tumours in both the malignant and benign groups. Gouin and colleagues(20) also had similar findings as well as Arora et al(17). This may be explained by the fact that the commonest tumours in both the benign and malignant groups (osteochondroma, giant cell tumour and osteosarcoma) have a predilection for these sites. There was a wide range of presentation of these tumours 3yrs to 75yrs showing that all age groups are susceptible to bone tumours. There is a need to carry out a multi centered prospective similar study in the future as the quality of health care gradually improves with a concomitant increase in the life expectancy of the population, to see if there is a change in the distribution of primary bone tumours in our environment which will also aid in targeting the scarce health resources towards the management of these tumours.

VI. Conclusion

Benign bone tumours make up about two thirds of the bone tumours in our environment while the rest are malignant, with osteochondroma and giant cell tumours making up the bulk of the benign tumours and osteosarcoma the most common malignant type. The femur and the tibia were the sites mostly affected by bone tumours.

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