ORIGINAL ARTICLE

Pattern of Presentation of Primary Bone Tumors in Nnewi, South-East Nigeria

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Received: March 16th, 2018
Accepted: June 14th, 2018

DISCLOSURE
The authors declare no conflict of interest

ABSTRACT

Background: Primary bone tumors are rare and there is paucity of information on the pattern of its presentation in our environment. There is less thought given to it by the patients and sometimes medical personnel, leading to late presentation, late diagnosis and subsequent adverse sequelae.

Objective: The aim of this study was to determine the pattern of presentation of primary bone tumors in Nnewi South Eastern Nigeria

Methodology: This was a retrospective hospital based study. Records of patients with histological confirmed primary bone tumors seen between January 2012 and December 2016 were reviewed. Patient's bio-data, symptoms, time of presentation to hospital, anatomical sites involved and tumor histological types were obtained and analyzed.

Results: Thirty one (31) patients were studied. There were more males than females (1.1:1). The mean age of the patients was 38.8± 1.2 years with a range of 4-73 years. The most common malignant bone tumor seen was Osteosarcoma. Pain was the most common symptom and the interval between onset of symptom and presentation was 36.9 months with a range of 2-168 months. The distal femur is the most commonly involved anatomical site.

Conclusion: Primary bone tumors are not very common, but more patients with malignant tumors were seen in our environment. Most patients presented with pain and swelling. Medical personnel are advised to have a high index of suspicion when evaluating patients with these symptoms.

Key words: *Primary bone tumors, Epidemiology, Bone lesions, Histologic types, Nnewi.*

INTRODUCTION

Primary bone tumors are relatively uncommon, accounting for about 0.2% of all malignancies diagnosed in the USA and Italy.[1, 2] Data from Nigeria put the incidence at 0.53% of all malignancies.[3] However, the incidence of bone tumors has been noted to be on the rise in Africa and other parts of the world in the recent past.[3,4,5] Primary bone tumors can be benign or malignant. Though the malignant ones are rare compared to the benign types, the malignant bone tumors are typically associated with high morbidity and mortality.[6]

Bone tumors have varied pattern of presentation ranging from swelling, pain, pathological fractures and restriction of joint

movement. Some are discovered incidentally during investigation for other diseases.[7] Like in most tumors, early diagnosis and treatment will lead to improved prognosis. In our environment with poor health seeking behavior occasioned by poverty, ignorance and traditional superstitious beliefs, there is a tendency for late presentation of patients. This will in turn lead to delayed diagnosis and late treatment with its adverse consequences.[8]

The aim of this study is to determine the pattern of presentation of bone tumors in Nnewi, South-East Nigeria, with a view to identifying the most common symptoms, most involved body sites, age of presentation and the histologic types.
The knowledge of these will help to educate and enlighten the public on its symptoms, in other to improve on its early presentation and diagnosis. It will also guide clinical evaluation of the patient by medical personnel leading to early diagnosis and treatment, and thus, to improved prognosis of the condition in our environment.

METHODOLOGY
This is a hospital based retrospective study carried out in Nnamdi Azikiwe University Teaching Hospital Nnewi, South-East Nigeria between January 2012 and December 2016.

Records of the patients seen at the Orthopaedic Department of the hospital within the study period were reviewed. A total of fifty eight (58) patients with a diagnosis of primary bone tumor were seen. Out of these, thirty one (31) patients with histological confirmed diagnosis of primary bone tumor were included in the study. The excluded patients had no histology reports and incomplete documentation.

Data extracted from the patients' record included: age, sex, level of education, presenting symptoms, duration of symptoms before presentation and histological diagnosis.

Patients with secondary bone tumors and those with soft tissue sarcoma were excluded from the study.
The results were analyzed as mean, percentages and ratios using Statistical Package for Social Sciences version 20.0 (SPSS Inc. Chicago, Illinois USA) and presented as tables and charts.

RESULTS
A total of thirty one (31) patients were included in the study. The male to female ratio was 1.1:1. The mean age at presentation was 33.8yrs ± 1.2yrs with age range of 4years to 73yrs. Malignant bone tumors were more in number accounting for 18 (58.1%) of the primary bone tumors while the benign ones were 13 (41.9%).

The most common malignant bone tumor found in this study was Osteosarcoma 9(44.4%) followed by Fibrosarcoma 5(27.7%), Chondrosarcoma 3(16.7%), Ewing's Sarcoma 1(5.6%) and malignant Osteoclastoma 1(5.6%). The most common benign tumor was Osteochondroma 4 (30.8%), followed by giant cell tumor 3 (23.1%), Aneurysmal bone cyst 2 (15.4%), Collagenous Fibroma 1 (7.7%), Fibrous dysplasia 1(7.7%), Haemangiopericytoma 1 (7.7%) and Osteoid Osteoma 1 (7.7%).

The most common symptom at presentation was pain in 29 (93.5%) cases, followed by swelling in 27 (87.1%) cases, restriction of joint movement in 14 (45.2%) cases and pathological fracture in 6 (19.4%) cases.

Figure 1: Age distribution

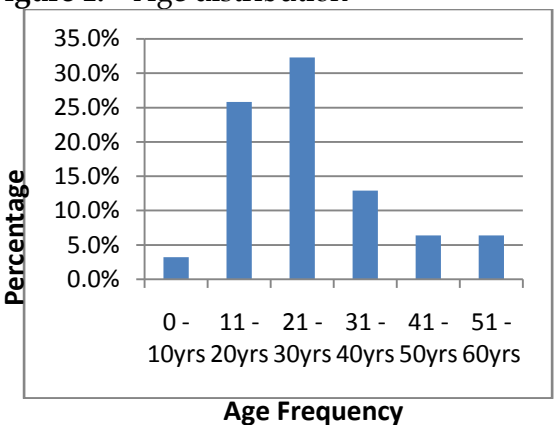
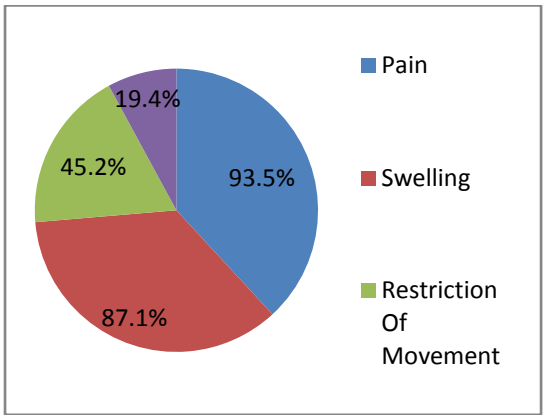


Figure 2. Symptom occurrence



The interval between the onset of first symptom and presentation of patient ranged from 2 months to 168 months with a mean duration of 36.9± 4.1 months.

Table 1. Histologic Types

Histologic types	Number (%)
Benign Tumors	
Osteochondroma	4 (30,8%)
Osteoclastoma	3 (23.1%)
Collagenous Fibroma	1 (7.7%)
Fibrous dysplasia	1 (7.7%)
Aneurysmal bone cyst	2 (15.4%)
Haemangiopericytoma	1 (7.7%)
Osteoid Osteoma	1 (7,7%)
Total	**13(100%)**
Malignant Tumors	
Osteosarcoma	9 (55.6%)
Ewing's sarcoma	1 (5.6%)
Fibrosarcoma	5 (22.2%)
Chondrosarcoma	3 (16.7%)
Total	**18(100%)**

Table 2. Anatomical sites affected

Anatomical site	Number (%)
Proximal femur	1 (3.2%)
Distal femur	10(32.3%)
Proximal tibia	9 (29.0%)
Distal tibia	1 (3.2%)
Proximal humerus	0 (0%)
Distal humerus	3 (9.7%)
Distal ulna	1 (3.2%)
Distal radius	2 (6.5%)
Mid shaft of femur	1 (3.2%)
Mid shaft of tibia	2 (6.5%)
Foot(cuboid bone)	1 (3.2%)
Total	**31(100%)**

DISCUSSION

Thirty one (31) cases of primary bone tumors were seen over a period of 5 years in this study. This gives an annual incidence of 6.2 cases per year. This is less than the annual average of 10 cases per year documented by Giwa *et al*. in Lagos, Nigeria.[9] It is also much less than annual average of 16.5 cases documented at a tertiary centre in Eastern Libya.[10]

The higher incidence in Lagos can be due to the cosmopolitan nature of Lagos and its large population size compared to the semi urban, less populated nature of the study area. Poor health seeking behavior and superstitious belief in spiritual causes of diseases among the populace in the study area may also be contributory. Most of the patients will prefer to go to herbalist and spiritualist healing homes than present to hospital for treatment.

The affectation of more males than females found in this study is similar to the findings by other studies.[10,11,12,13] However, the male to female ratio of 1.1:1 in slightly lower than 1.5:1 reported by Mohamed *et al*. in Zaria and Giwa *et al*. in Lagos.[9,11]

In this study there was a higher incidence of malignant bone tumors than benign tumors. This is not similar to the findings in other studies.[9,10,11,12,14,15,16] This may be due to the nature of presentation of benign tumors which are mostly asymptomatic, non aggressive and less incapacitating. In our environment, most patients will not present to the hospital for a lesion that is not causing symptoms.

The most common histologic type of malignant bone tumors seen in this study is Osteosarcoma followed by Fibrosarcoma, Chondrosarcoma and Ewing's sarcoma. This is similar to findings in other studies.[11,16,17] The most common benign bone tumor is Osteochondroma. This has been documented by other studies.[11,15,16,18]

The lower limb, especially around the knee(the distal femur and the proximal tibia) is the most common anatomical location of most of these tumors as seen in this study, 19(61.3%). This is similar in other studies.[19,20]
The most common symptom presentation is pain followed by swelling, restriction of joint movement and pathological fracture. This is similar in other studies. [9,11]

It is important for clinicians to always bear in mind a possible diagnosis of primary bone tumor when evaluating a patient with a symptom of musculoskeletal pain.

CONCLUSION

Primary bone tumors are relatively rare in our environment. Malignant bone tumors are more common in our environment. The most common malignant bone tumor is Osteosarcoma while Osteochondroma is the most common benign tumor in our environment.
Most of the patients presented with pain as the most common symptoms followed by swelling. It is important that clinicians should consider bone tumor as one of the possible differential diagnosis when evaluating patients with musculoskeletal pain and swelling.

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