Pattern of primary bone tumours in Irrua

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Abstract

OBJECTIVE: To describe the pattern of primary bone tumours seen in Irrua Specialist Teaching Hospital, Irrua, Edo State, Nigeria. This is a retrospective review of all the histologically confirmed primary bone tumours seen in Irrua Specialist teaching Hospital over a 10 year period. A total of 26 cases were studied. They were aged 5 to 66 years with a median age of 25 years. Sixteen (61.5%) were males and ten (38.5%) were females. The peak age incidence was recorded in the second and third decades. Fourteen (53.9%) cases, were primary malignant bone tumours, out of which Osteosarcoma accounted for 13 cases (93%) and Ewing's tumour, 1 case (7%). Twelve (46.1%) of the bone tumors were benign; among these, Osteochondroma was the commonest accounting for 6 cases (50%), followed by simple bone cyst, 3 cases (25%). Twelve patients with malignant bone tumours presented with rapidly growing masses around the knee, seven on the distal femur and five on the proximal tibia. The humerus was the anatomical site in two cases. Those with benign bone tumours presented with slow growing masses; two were on the humerus, three on the proximal tibia and seven on the distal femur. The Complications recorded in this series included pulmonary metastases (3), anaemia (11) and pathological fractures (4) for those with malignant bone tumours and paraesthesia (1) for those with benign bone tumours. Osteosarcoma and Osteochondroma were respectively the common primary malignant and benign bone tumours seen in Irrua affecting mainly males in the second and third decade of life.

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Key Words: Primary bone tumours, pattern, benign, malignant, Irrua.

Introduction

There is a dearth of information on tumours of bone. Tumours of the skeleton are rare, accounting for only a small fraction of neoplastic lesions in the body. There are two varieties, primary and secondary.

Benign primary bone tumour significantly out number malignant lesions and primary malignant bone tumours are only approximately 1% as common as metastatic lesions of the bone[1].

Predisposing factors to primary bone tumours include trauma[2] irradiation[3], foreign bodies [4] and mutation[5]. However, the precise causes are not known.

Bone tumours affect females less than males, [6,7,8] and occur more in the second and third decades [6,9].

Benign bone tumours occur more frequently than primary malignant tumours [5,6,7,9,10]

Lack of diagnostic and therapeutic facilities and ignorance remain the root cause of the high morbidity and mortality associated with primary malignant bone tumours.

Tremendous progress is already being made in the developed climes in the management of bone tumours. In the USA, there are about 3000 new cases of bone tumours annually[11].

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In Nigeria, statistics are unreliable as many of such patients die without Orthodox medical care or definitive diagnosis made. No properly kept tumour registry for appropriate documentation and records.

This study was done to determine the pattern of primary bone tumours as seen in Irrua Specialist Teaching Hospital Irrua, Edo State of Nigeria.

Materials and Methods

This is a retrospective review of all cases of histologically confirmed primary bone tumours treated in Irrua Specialist Teaching Hospital Irrua, Edo State from January 1st 2003 - December 31st, 2012.

Data were retrieved from the case records in the Morbid Anatomy and Medical information departments of the hospital for review. The demographic patterns of patients, clinical features, complications, treatments and outcomes as well as patterns of the primary bone tumours were analysed using simple statistical method of percentages.

Results

Twenty-six patients were studied, out of these, 16(61.5%) were males and 10 (38.5%) were females. This gave a male to female ratio of 1.6:1. The age range of cases was from 5 to 66 years with a median age of 25 years. Table 1 shows crowding of cases of primary bone tumours in the first four decades of life which accounted for 88.5% of the cases studied. Second and third decades recorded the peak frequency of 34.6% each.

In table 2, benign bone tumours accounted for 12 cases representing 46.1% while primary malignant tumours were 14 cases (53.9%). Table 3 shows the predominance of Osteosarcoma as the commonest primary malignant bone tumour while Osteochondroma ranked the highest among the benign bone tumours as shown in table 4.

Five of the six cases of osteochondroma were in the femur and tibia while one was on the humerus. In the benign tumour group, all patients presented with painless slow growing masses with 10 cases on the lower limb and 2 cases in the upper limb. Only one patient in this group had paraesthesia on the medial 3 digits of the right foot. All patients had excision and curettage with good outcomes.

Ten cases of those with malignant tumour presented with painful rapid growing masses, three patients had clinical evidence of pulmonary metastases on presentation, eleven had anaemia and four had pathological fractures.

Five of the patients with malignant tumours had amputation with Adriamycin based adjuvant multiagent chemotherapy, two had amputation without chemotherapy because of lack of fund. Five patients refused amputation and discharged against medical advice. One patient was referred on request due to proximity to place of abode. One patient who had osteosarcoma of the humerus with metastases to the lungs died after 27days on admission.

Duration of hospital stay was 3-14days for those with benign tumour and 7-120days for those with malignant tumour. Follow up period ranged from 2 weeks to 2 years only for few patients as the majority were lost to follow up after discharge from the hospital. Only one patient had documentary evidence of prosthetic fitting after the amputation.

TABLE 1: AGE AND SEX DISTRIBUTION OF PATIENTS

	Male		Female		Total	
Age (yrs)	#	%	#	%	#	%
1-10	1	3.85	0	0	1	3.85
10-20	5	19.23	4	15.38	9	34.61
21-30	4	15.38	5	19.23	9	34.61
31-40	3	11.54	1	3.85	4	15.38
41-50	1	3.85	0	0	1	3.85
51-60	1	3.85	0	0	1	3.85
61-70	1	3.85	0	0	1	3.85
Total	16	61.55	10	38.45%	26	100

TABLE 2: **PATTERN OF TUMOURS**

	#	%
Malignant Bone Tumour	14	53.9
Benign Bone Tumour	12	46.1
Total	**26**	**100**

TABLE 3: **PATTERN OF MALIGNANT BONE TUMOURS ACCORDING TO TUMOUR TYPE**

Tumour	Males	Females	Total	%
Osteosarcoma	10	3	13	92.9
Ewing's sarcoma	1	0	1	7.1
Total	**11**	**3**	**14**	**100**

TABLE 4: **PATTERN OF BENIGN BONE TUMOURS ACCORDING TO TUMOUR TYPE**

Tumour	Males	Females	Total	%
Osteochondroma	4	2	6	50
Cystic bone tumour	1	2	3	25
Synovioma	0	1	1	8.3
Giant cell tumours	1	1	2	16.7
Total	6	6	12	100

Discussion

This retrospective study describes the pattern of primary bone tumours, as seen in Irrua Specialist Teaching Hospital, Irrua, Edo State of Nigeria.

A total of twenty six cases had histologically proven cases of primary bone tumours over a ten year period. This gave an annual average of 2.6 cases per year. This is less than annual average of 10 cases per year and 16.5 cases per year as recorded at similar centres in Lagos [12] and eastern Libya respectively. This is much less than 3,000 new cases per year in the united State of America (USA).

This low incidence may be a function of several factors. One important factor is the fact that majority of patients report to the traditional healers, probably as a result of the rising cost of modern medical care, although in some cases, the choice is dictated by traditional beliefs. In most of these cases, their records are unobtainable and almost impossible to access the diagnoses made.

There is no doubt that in this series, males are more affected than females.

The male preponderance found in this study had been reported in other Nigerian and foreign studies. [6,7,8,9,10,12]. The male to female ratio of 1.6:1 is similar to 1.5:1 by mohammed et al [6] in Zaria but slightly higher than ratios reported by Odetayo [7] of NOH. Lagos and Omololu et al [8] in Ibadan.

Second and third decades of life were the peak age groups. Seventy three per cent (73%) of patients were less than 30 years of age. Peak age group of 11-20 years had been reported by other authors [6,9]. Primary bone tumours are seen relatively more commonly in younger individuals compared to older patients amongst whom secondary tumours predominate.

Primary malignant bone tumours accounted for the majority (53.9%) of primary bone tumours in this study. This is in sharp contrast with previous reports [6,7,8,9,10,12,13]

Several factors may be responsible for this. A number of benign tumours are asymptomatic and can only be identified during routine screening, which some of our patients are not familiar with. Some may not require treatment beyond NSAIDS which they procure from chemist shops and never come to hospital. The cases that eventually present to the hospitals are those alternative care givers were unable to handle. They present late with complications and poor outcomes.

The most common primary malignant bone tumours was osteosarcoma in young patients; this is similar to reports from America, Japan and Scandinavia[16,17]. In England and Wales, however, reports indicate that older age groups are also affected by osteosarcoma because of its association with Paget's disease[18]- a disease which is rare in Nigeria. Ewing's sarcoma has been reported to be rare and, infact, many pathologists have denied its existence in African children[19,20] The low incidence of Ewing's sarcoma in our environment has been reiterated by this study.

Majority of the patients with malignant tumours presented with painful swelling around the knee. This is in agreement with studies in different parts of the world.

Three of the patient with malignant tumours presented with features of pulmonary metastases, eleven had clinical anaemia while four had pathological fractures. This underscored the fact that most of our patients present late to hospital. They would have sought medical attention from traditional and spiritual healers before coming to the tertiary centre.

One of them died from metastases while still on admission. This loss would have been devastating to the family as he was an only child.

The traditional beliefs of reincarnation with a missing part or living after death with a deformity make it extremely difficult for surgeons to get some patients to accept amputation. This could explain the refusal by five patients to accept amputation even after exhaustive counselling. Two patients had amputation without adjuvant chemotherapy due to financial constraints. Majority of the patients in our environment are poor and unable to afford common drugs, let alone the relatively more expensive cytotoxic chemotherapy.

Osteochondroma constituted the majority of benign bone tumours in this study.

This pattern is consistent with result of other studies[7,10,21]. Only one patient had paraesthesia complicating the benign bone tumour. This is a sharp contrast with the several and more serious complications associated with malignant variety in this series.

The femur, tibia and humerus were the principal bones affected. Senac et al [22] reported a similar finding, although, Mgbor in 2005 reported ameloblastoma as the commonest benign bone tumours[23]

Conclusion

Males were more commonly affected by primary bone tumours with a peak in the second and third decades of life. Osteosarcoma and osteochondroma were the commonest malignant and benign bone tumours in this study respectively.

Public awareness should be raised on the need for early presentation to hospital. This would significantly improve outcome. A properly kept tumour registry is also advised.

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