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Histopathological Spectrum of Neoplastic and Nonneoplastic Bone Lesions

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Abstract

Background: To study the histopathological spectrum of bone lesions.

Methods: This hospital based cross-sectional study conducted 50 histopathological reports and slides of patients who had bone tissue biopsies were reviewed to provide relevant information on age, sex, histopathological interpretation, and the anatomical site of occurrence.

Results: Benign lesions constituted 39 cases(100.00%) and malignant lesions were 11 cases(100.00%).Out of 39 neoplastic lesions, most common benign lesion was found to be osteochondroma 13 cases and most common malignant was osteosarcoma 6 cases. Primary malignant bone tumors were found to be more common than metastatic tumors.

Conclusion: Among the bone tumours, osteochondroma was the commonest benign and osteosarcoma was the most commonmalignant bone tumours

Keywords: Bone Tumours, Histopathology, Osteosarcoma

Introduction

Neoplasms and tumour like conditions of bone are rare. Thus, orthopaedic surgeons, radiologists, and pathologists generally have little experience with these lesions. Bone tumours also tend to affect young children and adolescents.[1]

Bone tumours are relatively uncommon constituting only 0.5% of all types of cancers. Bone consistsof cartilaginous, osteoid,fibrous tissueand bone marrow elements. Each tissue can give rise to benign or malignant tumors.[2] The histopathologist plays a vital role to guide anorthopaedic surgeon for the treatment of patient with bone tumors.Some relevant demographic features like age, gender and skeletal sites are important factors while makingdiagnosis.[3] Morphological diagnosis of bone tumours and tumor like lesions is highly challenging which has to have simultaneous data of clinical and radiological features[4]

Material and Methods

This hospital based cross-sectional study conducted 50 histopathological reports and slides of patients who had bone tissue biopsies were reviewed to provide relevant information on age, sex, histopathological interpretation, and the anatomical site of occurrence.

All tumours of hematopoietic and odontogenic origin were excluded in this study. Bony along with soft tissue biopsy or in some cases amputated limb was received, and thorough gross examination of each lesion was done. Soft tissue of each biopsy was immediately fixed into 10%

formalin and processed by paraffin embedding. Bone from each biopsy was kept for decalcification in 10% nitric acid. After that, fixation in 10% formalin, processing, section cutting and haematoxylin and eosin staining was performed.

Results

Table 1: Socio-demographic profile of patients

Mean age in yrs	20.31±7.23
Male : Female	29 : 21

Mean age patients was 20.31±7.23 yrs and 60.00% patients were male.

Table 2: Histopathological distribution of benign tumor

Osteochondroma	13(33.33%)
Chondroblastoma	9(23.07%)
Aneurysmal bone cyst	8(20.51%)
Giant cell tumour	9(23.07%)
Total	39(100.00%)

Table 3: Histopathological distribution of malignant tumor

Osteosarcoma	6(54.54%)
one secondaries	3(27.27%)
Chondrosarcoma	2(18.18%)
Total	11(100.00%)

Benign lesions constituted 39 cases(100.00%) and malignant lesions were 11 cases(100.00%).Out of 39 neoplastic lesions, most common benign lesion was found to be osteochondroma 13 cases and most common malignant was osteosarcoma 6 cases. Primary malignant bone tumors were found to be more common than metastatic tumors.

Discussion

This study was done to study the spectrum and relative frequency of various bone lesions lesions were found to be more common than the non-neoplastic lesions as done in their study by Dr Anita B sajjanar et al in 2019.[5] The peak incidence of primary bone tumours in our study was seen in second and third decade. Similar to study done by Yopovinn Rhutso etal in 2013. [6] In our study male were commonly affected . Similar study done by JayaramM etal found the similar results. [7] Neoplastic lesions are more common than non-neoplasticlesions confirming to study done by Settakom etal. [8] Chronic osteomyelitiswas the most common non-neoplastic lesion affecting 12 cases (21.4%) similar to a study done by Saroj B Deoghare etal in 2017 who also found chronic osteomyelitis as the most common non-neoplasticcondition affecting 16 cases. [9] Benign cases were more common as compared to malignant cases similar studies done by Rao etal. [10] Osteosarcoma was the most common primary malignant tumours and affected femur in 75% and Osteochondroma was the most common neoplastic benign condition similar to a study done by Dr Deval Patel et al in 2015 [11] and also in a study by Nidhi Verma. [12]

Conclusion

Among the bone tumours, osteochondroma was the commonest benign and osteosarcoma was the most commonmalignant bone tumours

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