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Research article

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### A study of morphological variants of bone tumors in correlation with pathological, clinical and radiological findings

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#### ABSTRACT

Among the primary bone tumors, the incidence of benign tumors are more than malignant tumors. Osteochondroma was the commonest of all benign tumors. Osteosarcoma was the commonest of all malignant bone tumors.

**Keywords:** Bone tumors, Histopathology, Radiological finding.

#### INTRODUCTION

Tumors of the bone represent an interesting and challenging histopathological problem to a pathologist as well as the surgeon and radiologist. Bone tumors still constitute the most important single group of tumors in patients under the age of 20 years, excluding that of leukemias and lymphomas. Roentgenographic pictures play a very important role in the diagnosis of bone tumors. Many bone tumors are sometimes over diagnosed and treated more radically than is necessary. Instance being chondroblastoma and chondromyxoid fibroma may be mistaken for chondrosarcoma, being osteoblastoma may be overdiagnosed as osteosarcoma solitary fibrous dysplasia of bone may readily be mistaken for a benign neoplasm or even over-diagnosed as osteogenic sarcoma. Biopsy remaining the main stay of study of bone neoplasms even today, inspite recent advances in the diagnostic field such as a immunohistochemistry, FNAC, DNA, cytometry, C.T. Scanning, M.R.I.,

#### MATERIALS AND METHODS

The retrospective & prospective study with regard to be primary neoplasm of bone was done in a detailed manner taking in to account.

1. Clinical details like age, sex, symptoms and signs
2. Radiological picture where ever available.
3. Gross appearance of the tumor
4. Histopathological features
5. Histochemistry where ever necessary

1. Material fixed in 10 % formal saline for 24 hours.
2. Tissue blocks taken from bony area were fixed in 10% formal saline for 24 to 48 hours.
3. Sub sequently subjected to decalcification
4. Section thickness 3 to 4 microns
5. Stains with hematoxylin and eosin

#### SPECIAL STAINS

1. Periodical acid Schiff stain

2. Gordon & Sweets silver impregnation stain for reticulin.

### **CLASSIFICATION BONE TUMORS**

A classification based on histologic criteria (W.H.O Publication)

1. Bone forming tumors
2. Cartilage forming tumors
3. Giant Cell Tumors
4. Marrow Tumors
5. Vascular Tumors
6. Other connective tissues tumors
7. Other tumors
8. Unclassified tumors
9. Tumor like conditions

### **OSTEOMA**

It may be considered to be hamartoma of bone

### **OSTEOID OSTEOMA**

A case of two osteoid osteomas occurring in the same patient, the second presenting 13 years after the first has been reported.

### **OSTEOBLASTOMA**

A study of 306 cases of osteoblastoma was undertaken.

### **OSTEOSARCOMA**

A study of 345 cases of Osteosarcoma. 30 patients are surviving longer than 10 years after treatment of Osteosarcoma. Survival of more than 12 months for 103 patients with metastatic osteosarcoma who were treated with aggressive multimodal therapy.

### **CHONDROSARCOMA**

280 cases were studied, 31 cases are treated by radiotherapy. Giant cell tumor of bone: Should be regarded as potentially malignant because as many as 30% to 50% of them recur after curettage and approximately 10% metastasize.

### **EWINGS SARCOMA**

251 cases are reported and observed that the commonest cause of death in ewings tumors is pulmonary metastasis.

### **GIANT CELL TUMOR**

**CLINICAL** – Occurred between the ages of 20 and 50 years

**GROSS** –The tumor tissue solid, grayish red & haemorrhagic areas in curretted specimens.

### **MICROSCOPIC**

Well vascularized tissue made up of plump, spindle (or) ovoid stromal cells, in addition to numerous multinucleated giant cells uniformly dispersed throughout tumor tissue.

**RADIOGRAPHIC** –Soap bubble appearance.

### **ANALYSIS AND RESULTS**

Period of study – 2008-2014 (6 years)

Total no Tumors – 2572

Total no Bone tumors – 70 (2.72%)

### **GENERAL**

Out of 70 bone tumors in this study, 68 were primary neoplasms of bone – incidence 97.15%

Remaining 2% secondaries – 2.85%

Most common tumors – Giant cell tumors

Bone forming tumors – 22.05%

Connective tissue tumors – 8.82%

Marrow tumors – 4.41%

**Sex:** Out of the 49 benign tumors

27 occurred in men

22 occurred in women

Out of 19 cases malignant tumors

10 occurred in men

9 occurred in women

### **DISCUSSION**

Immuno histochemical study of bone GLA Protein (BGP) in primary bone tumors is useful for the differential diagnosis. CT Scanning and MRI are complimentary in defining the extent of the region. Distant spread of malignancy can be documented by radionuclide scintigraphy. Magnetic resonance spectroscopy is used to evaluate tumor response following therapy. Incidence of primary bone tumors – 2.72% Incidence of secondary bone tumors – 2.85 %.

### **AGE INCIDENCE**

The age range of from 10-70 years.

### **SEX INCIDENCE**

Males are more commonly affected.

## CONCLUSIONS

Neoplasms of bone were more prevalent in men: females in 1.2:1, 13% bone tumors were diagnosed

only by histopathology our study is correlative with NAYAR et. al. (1979).

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