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# SACRUM - A RARE BONY SITE FOR TUMORS - A REVIEW OF OUR CASES

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## Abstract :

Background and Objective - Tumors of the sacrum are rare and they comprise 10 percent of all benign bone tumors and 6 percent of all malignant tumours. Primary benign and malignant tumors of the sacrum constitute fewer than 7 percent of all intraspinal tumors and may arise from bone, neural elements or bonemarrow. As in any other bone, metastases are the most common malignant tumors of sacrum with primary tumors located in lung, breast, kidney, prostate, head and neck, gastrointestinal tract and skin. This study analyses the clinical and pathological findings of sacral tumors reported in our institution in fused both anteriorly and posteriorly. A the past 6 years. Materials and methods -The clinical and pathological materials of 8 patients diagnosed as sacral tumors from Jan 2007 to Dec 2012 were considered for the study. The clinical and pathological findings were evaluated. Results - A total mors comprise a variety of tumors like of 8 cases were reported and they in- chordoma, chondrosarcoma, osteosarcluded 3 cases of chordoma (37 percent), 3 cases of osteoclastoma (38 percent) and mors are osteoclastoma, aneurysmal 2

cases of metastatic deposits (25 percent). Conclusion - Tumors of the sacrum can be derived from bone, bone marrow and hematopoietic elements. Metastatic deposits involving the sacrum are more common than primary tumors. Diagnosis of these neoplasms by morphological features is very important as the treatment and prognosis is different for different neoplasms.

Keyword :Sacrum - Bone Tumors - Chordoma - Osteoclastoma

## Introduction:

Sacrum consists of 5 vertebrae that are wide variety of neoplasms can involve the sacrum. Metastatic tumors are more common than primary sacral tumors. Metastatic tumors may be from lung, breast, kidney, prostate etc. Primary malignant tucoma and multiple myeloma. Benign tu-

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bone cyst, osteoid osteoma and osteoblastoma.

#### Materials and Methods:

A retrospective study of sacral tumors reported in our Institute for a period of 6 years (2007 – 2012) was undertaken. Clinical details including age, sex, presenting complaints and radiological findings were evaluated. The specimens of the cases comprised both wide local excision specimens and trucut biopsies. The specimens were routinely fixed in 10 % neutral buffered formalin, decalcified and embedded in paraffin wax. A 5  $\mu$  tissue sections were made and the slides were stained with Hematoxylin & Eosin as a routine procedure.

#### **Results:**

A total of 8 cases of sacral tumors were reported. The common presenting symptoms were low back pain, palpable mass and neurological deficit. CT scan and MRI features were taken into account for histological diagnosis. Out of 8 cases, 3 cases were chordoma (37%), 3 cases were osteoclastoma (38%) and 2 cases were metastases (25%) as depicted in chart 1. All the three cases of chordoma occurred in males as depicted in chart 2. The peak incidence was seen in the age group of 50-70 years. Grossly all were solid, grey white friable masses with haemorrhagic areas. Out of three, one was a recurrent chordoma. All the three cases of osteoclastomas and secondary deposits were small biopsies. The age group of osteoclasfrom 20-35 tomas ranged years. Male:Female ratio was 2:1. Metastatic deposits occurred commonly in the age group of 40- 50 years. Both the cases were females. One was a known case of breast carcinoma and the other one was an ovarian carcinoma.



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Fig.1: Chordoma.	100xH&E.	Fig.2
Large, oval,		

doma. 400xH&E.

Characteristic physaliferous cells

vacuolated cells arranged in which are large with bubbly lobules in a myxoid matrix. cytoplasm and vesicular nuclei.



paramedian position. It is the most common primary malignant sacral tumor and accounts for 2-4% of all primary malignant osseous neoplasms<sup>(1)</sup> and 40% of all primary sacral neoplasms. It is most common in the fifth and sixth decades of life<sup>(2)</sup>. Males are more commonly affected than females. Fifty to sixty percent involve

the sacrococcygeal region, 35% in the 2: Chor- sphenooccipital region and 15% in the cervico-thoracic and lumbar spine<sup>(3)</sup>. It is a slow growing neoplasm. Radiology may show an osteolytic or osteoblastic lesion. Symptoms of spinal cord compression and constipation can occur due to destruction of nerves. Spheno-occipital tumors present as nasopharyngeal mass with cranial nerve involvement. Grossly, they are seen as soft, gelatinous masses and contain areas of haemorrhage. Microscopically, the tumor cells are arranged in lobules in a myxoid matrix separated by fibrous septa. The tumor cells are large with bubbly cytoplasm and vesicular nuclei and they are called as physaliferous cells.

> Immunohistochemically, chordomas are positive for epithelial membrane antigen and cytokeratin<sup>(4)</sup>. Differential diagnosis includes chondrosarcoma, signet ring cell adenocarcinoma of rectum and myxopapillary ependymoma. Treatment includes surgery and radiotherapy. Adverse prognostic factors are large tumor size, positive surgical margins, tumor necrosis and high proliferative activity. It is characterized by repeated episodes of local recurrence.

## Osteoclastoma:

It is the most common benign sacral tumor in adults. Only 3-7% of osteoclastomas involve spine but with respect to spinal involvement sacrum is the most common site<sup>(5)</sup>. They are most common in the second to fourth decadeFemales are more commonly affected. Pain and neurological deficit is the most common presenting symptom.Radiology shows expansile lytic lesion. Grossly, the cut surface is solid and tan or light brown with haemorrhagic areas. Microscopically, two components i.e., osteoclast type of giant cells and stromal cells are seen.

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The giant cells are large containing 20-30 nuclei esembling osteoclast. The differential diagnosis includes giant cell reparative granuloma, giant cell tumor of tendon sheath, metaphyseal fibrous cortical defect.Treatment is surgery.It is locally aggressive and rarely may metastasize.

#### Metastases:

Metastases are the most common sacral neoplasms with lung, breast, kidney and prostate as the most frequent sites of primary malignancies. Metastatic lesions are usually osteolytic although sclerotic lesions can be seen.

## **Conclusion:**

Tumors of the sacrum can be derived from bone, bone marrow and haematopoietic elements. Metastatic deposits involving the sacrum are more common than primary tumors. Diagnosis of these neoplasms by morphological features is very important as the treatment and prognosis is different for different neoplasms.

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