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Low Grade Chondrosarcoma on FNAC: A Diagnostic Dilemma

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Abstract: ***Chondrosarcomas are malignant tumors of cartilaginous origin & is the 2nd most common primary malignant tumor of bone. It usually occurs in Lower extremities & pelvis & after 4th decade of life. Its incidence in the 1st& 2nd decade of life is only 3.8%. A 28 years old male patient presented with a Large swelling measuring (7 x 6cms) on the chest wall (right side). Chest Xray& CT scan showed cortex and soft tissue masses. FNAC of the Chest lesion shows ChondromyxoidStroma, Chondroid fragments & benign Chondrocytes. A diagnosis of Low Grade Chondrosarcoma was made.HPR Showed Spindle shaped Cells arranged in Storiform pattern. The cells Shows marked Pleomorphism, Nuclear atypia, Hyperchromasia, Mitosis&Tumour giant cells (MFH Pattern). A Diagnosis of De-Differentiated Chondrosarcoma was made. Chondrosarcoma on Thorax/chest wall in a 28 year old patient is very rare in terms of Age & location. Also cytological differentiation between Enchondroma, Low Grade Chondrosarcoma& High Grade Chondrosarcoma is very difficult. Clinico-Radiological and Pathological correlation is essential in Reporting Bone and Soft tissue tumours. THE VERY RARE NATURE OF THIS DISEASE MERITS ITS REPORTING***

Keywords: FNAC, MFH, Pleomorphism, De-Differentiated Chondrosarcoma, Enchondroma

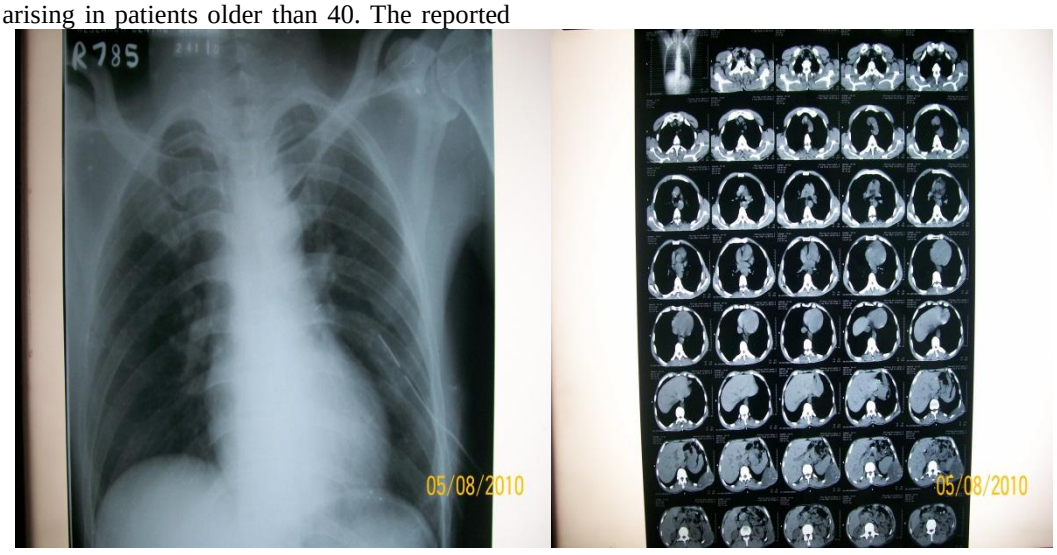
1. Introduction

Chondrosarcomas are malignant tumors of cartilaginous origin &it is the second most frequent primarymalignant tumor of bone. They can arise as primary tumorsor secondary to underlying neoplasms such as an enchondroma orosteochondroma.[1]

Conventional intramedullary chondrosarcoma is the most frequent primary type. It most commonly involves the femur, humerus, pelvis, scapula, but rarely in the neck, thorax or craniofacial region.[2]The incidence of chondrosarcoma peaks in the 3rd -6th decade of life, with most tumors arising in patients older than 40. The reported incidence in the first or second decade of life is only 3.8% [2].Chondrosarcomas often arise in the lower and upperextremities and the pelvis, but rarely originate in the rib[1] .We report an uncommon case of low-grade chondrosarcoma arising from the ribs in a 28 year old man.

2. Case Report

A 28 years old male patient presented with a Large swelling measuring (7 x 6cms) on the chest wall (right side). Initially it started with an orange sized swelling which abruptly increased to present size in 2 months period. The patient has no complaints of Pain, tenderness & Dyspnea.

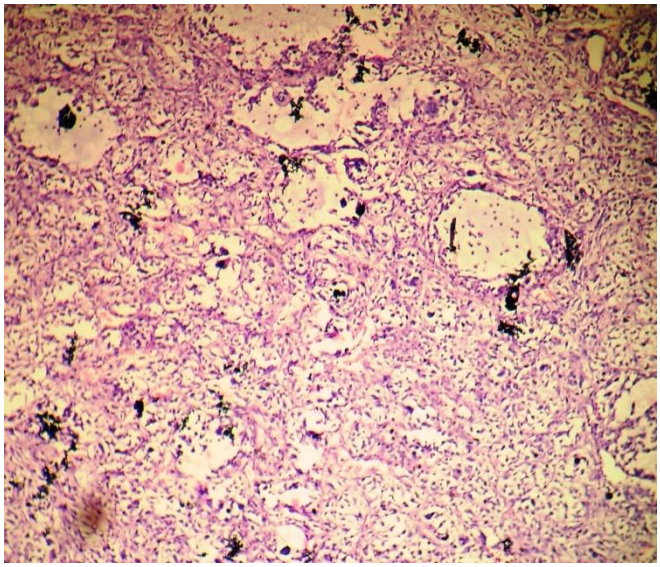


X ray shows Mottled Calcification &CT Scan shows Endosteal Scalloping Mixed Osteolytic + Osteosclerotic lesion of Cortex & Soft tissue Mass

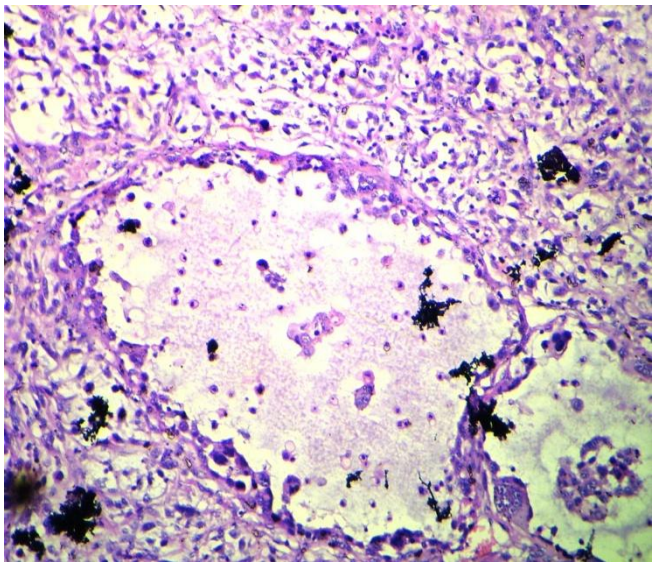
FNAC of the Chest lesion shows Mild hypercellularity, abundant ChondromyxoidStroma & Chondroidfragments. The Chondrocytes shows mild Pleomorphism with plump Vesicular nuclei & small nucleoli. Nuclear atypia, Mitoses & tumour giant cells were not Seen. A diagnosis of Low Grade Chondrosarcoma was made.

Histopathological slides Showed Spindle shaped Cells arranged in Fascicles in Interlacing bundles intersecting each other at right angles (STORIFORM PATTERN).The cells Shows marked Pleomorphism Nuclear atypia, Hyperchromasia, Mitosis &Tumour giant cells **(MFH**

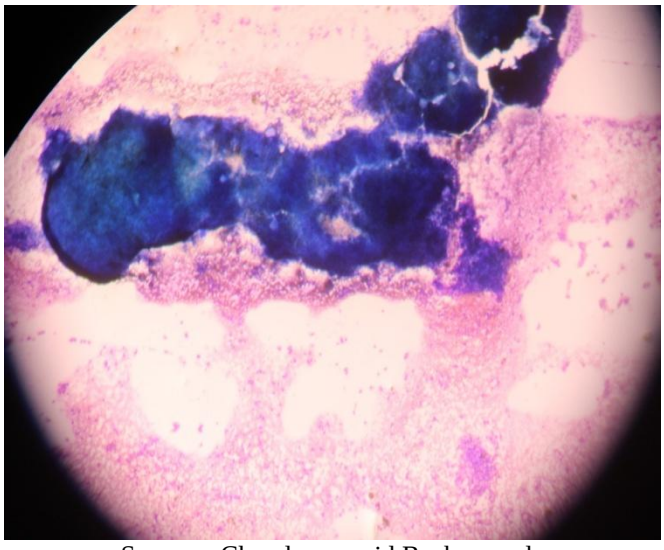
Pattern). A Diagnosis of **DE-DIFFERENTIATED CHONDROSARCOMA** was made



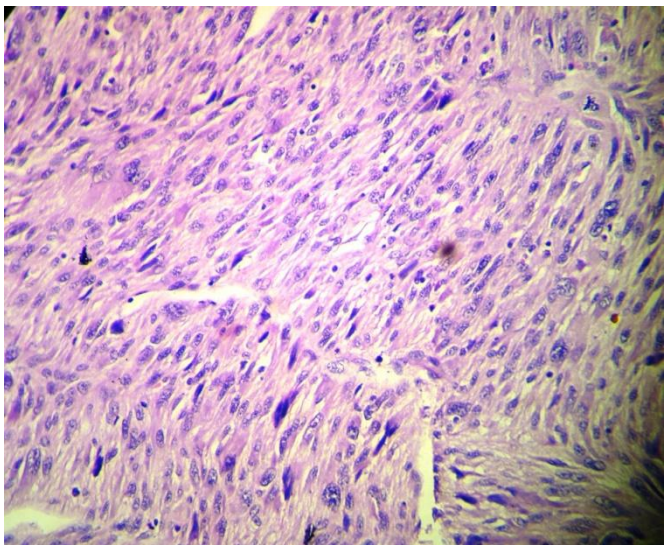
LP: Chondroid tissue & Chondrocytes with no CytologicAtypia



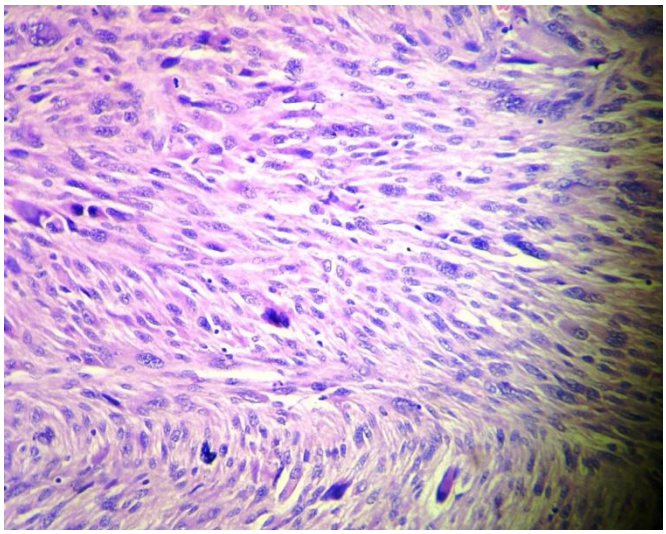
HP : Benign Chondrocytes &Chondroid tissue



Scanner: Chondromyxoid Background



HP: Spindle cells arranged in Fascicles in interlacing bundles (Storiform Pattern)



HP: Spindle cells with Nuclear atypia, Hyperchromasia, Mitoses &Tumor giant cells
(MFH like Pattern)

3. Discussion

Chondrosarcomas are malignant tumors of cartilaginous origin& is the second most frequent primary malignant tumor of bone. They can arise as primary tumorsor secondary to underlying neoplasms such as an enchondroma orosteochondroma[1]

The usual age of presentation in Chondrosarcoma is 40 years or older. In this case it was reported in 28 years old male which is very rare. The reported incidence in the first or second decade of life is only 3.8% 2.Chondrosarcomas often arise in the lower and upper extremities and the pelvis, but rarely originate in the rib. The striking feature of this case is the young age of the patient and the site of origin(Rib). We report a case of rib chondrosarcoma in patient evidencing

Cartilaginous lesions of bone are relatively common and cover a large spectrum from latent enchondroma to aggressive dedifferentiated Chondrosarcoma. Differentiating

among these lesions particularly benign Enchondroma, Low Grade Chondrosarcoma & high Grade Chondrosarcoma can be challenging. Differentiating them involves assimilation and interpretation of clinical, radiographic and histologic criteria.[3]

In a study conducted by Francis & Lee et al in 227 patients showed that the majority of patients were older than 50 years. The most common locations of occurance of chondrosarcomawere Femur (40%) > pelvis >humerous> tibia and chest wall comprises only 02 % of all cases of chondrosarcoma[4]

Chondrosarcoma Histologically includes, conventional (hyaline and/or myxoid), clear cell, dedifferentiated, and mesenchymal variants. Conventional central tumors constitute about 90% of chondrosarcoma

The tumors vary in degree of cellularity, cytologicatypia, and mitotic activity. Low-grade or grade 1 lesions demonstrate mild hypercellularity, and the chondrocytes have plump vesicular nuclei with small nucleoli. Binucleate cells are sparse, and mitotic figures are difficult to find. By contrast, grade 3 chondrosarcomas are characterized by marked hypercellularity, extreme pleomorphism with bizarre tumor giant cells, and mitoses[5, 6]

Approximately 10% of conventional low-grade chondrosarcomas have a second high-grade component that has the morphology of a poorly differentiated sarcoma like MFH; this combination defines **dedifferentiated chondrosarcomas**.[1]

In this case FNAC of the Chest lesion shows Mild hypercellularity, abundant ChondromyxoidStroma & Chondroid fragments. Nuclear atypia, Mitoses & tumour giant cells were not seen. A diagnosis of Low Grade Chondrosarcoma was made. 0n reviewing Histopathological slides Showed Spindle shaped Cells arranged in Fascicles in Interlacing bundles intersecting each other at right angles (STORIFORM PATTERN).The cells Shows marked Pleomorphism Nuclear atypia, Hyperchromasia, Mitosis &Tumour giant cells (MFH Pattern). A Diagnosis of DE-DIFFERENTIATED CHONDROSARCOMA was made.

Thus on FNAC the diagnosis was missed & on HPR it turned out to be a high Grade sarcoma (MFH) and was reported as **DE-DIFFERENTIATED CHONDROSARCOMA**

4. Conclusion

Chondrosarcoma on Thorax/chest wall in a 28 year old patient is very rare in terms of Age & location. Also cytological differentiation between Enchondroma, Low Grade Chondrosarcoma & High Grade Chondrosarcoma is very difficult. Clinico-Radiological and Pathological correlation is essential in Reporting Bone and Soft tissue tumours. THE VERY RARE Nature of this Disease Merits its Reporting

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Ethical approval: Not required

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