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CASE REPORT

Chondrosarcoma of Rib on Fine Needle Aspiration Cytology – A Rare Site

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Abstract:

Background: Fine needle aspiration cytology (FNAC) is effective in the diagnosis of bone tumors when combined with careful radiologic and clinical evaluation. Chondrosarcomas often arise in the pelvis or bones of the trunk, but primary chest wall (rib) chondrosarcomas are relatively rare. *Case Reports:* This is a case of a patient with a chondrosarcoma arising in the left lower rib who underwent resection. The patient was a 30-year-old man with a 10x8x6cm tumor in the anterior chest wall of the left side lower rib. On Fine Needle Aspiration Cytology (FNAC) of the mass on the anterior chest wall, a diagnosis of a low grade chondrosarcoma was made. This was confirmed histopathologically as a dedifferentiated chondrosarcoma. Macroscopically on excision of gray to pink lobulated mass with adjacent soft tissue and bone with foci of hemorrhage and necrosis the mass measured (M) 10x 8x 6 cm. Incidence of chondrosarcoma peaks in the 5th to 6th decade and most commonly involves the femur, humerus, pelvis, and scapula. It rarely involves rib.

Key words: FNAC, Chondrosarcoma, chest wall tumor, rib

Introduction:

Chondrosarcomas are malignant tumors of cartilaginous origin comprising about 10– 15% of all the bone tumors. They arise either as primary tumors or secondary to underlying neoplasm [1] such as enchondroma or osteochondroma. The incidence of chondrosarcoma peaks in the 5th to 6th decade. It involves most commonly the femur, humerus, pelvis, scapula but rarely involves rib [2]. Chondrosarcomas are classified as dedifferentiated, mesenchymal, myxoid and clear cell overt cellular tumors. Pleomorphism is generally not a feature of chondrosarcoma except in dedifferentiated tumors [3, 4]. The dedifferentiated is a variant of chondrosarcoma. The term dedifferentiated refers to the presence of poorly differentiated sarcomatous component at the periphery of an otherwise central typical low-grade chondrosarcoma [5]. The dedifferentiated chondrosarcoma is usually of the central type, but it can also be peripheral. A differentiated tumor can be found in the initial lesion but more often it is seen in specimens from recurrent tumor. The microscopic appearance of this component may be that of rhabdomyosarcoma, fibrosarcoma, osteosarcoma or pleomorphic sarcoma with Malignant Fibrous Histiocytoma (MFH) like features [2].

Case Report:

A 30 year male patient presented with anterior chest wall mass of left lower rib since 8 months. The mass was initially of a lemon size but gradually progressed to 10x8x6cm. FNAC was performed; the aspirate was thick and gelatinous. Further excision biopsy was performed and studied histopathologically.

Macroscopy: Grossly gray to pink lobulated

mass with adjacent soft tissue and bone with foci of hemorrhage and necrosis measuring 10x 8x6cm.

Microscopy: Microscopic examination revealed abundant chondroid matrix with plenty of tissue fragments. The tumor cells had a well defined cytoplasm with round to oval nuclei and moderate degree of pleomorphisim and mitoses were present.

A diagnosis of chondrosarcoma was made and was confirmed by histopathological examination which showed chondroid tissue, cells surrounded by pleomorphic spindle shaped cells and tumor giant cells. The diagnosis was confirmed as dedifferentiated chondrosarcoma.

Discussion:

Chondrosarcomas are malignant tumors of cartilaginous origin comprising of about 10–15% of all primary bone tumors [1, 2]. It usually occurs in 5th to 6th decade of life and it is rare

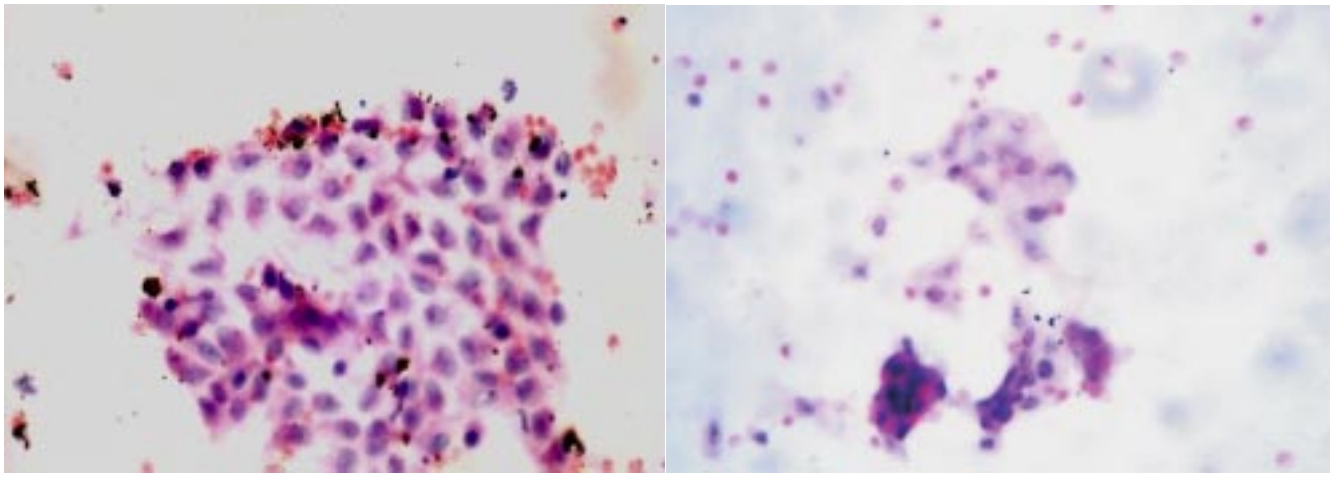

Fig (1&2) Fine needle aspiration cytology- 40X& 10X. Cytological examination revealed abundant chondroid matrix with plenty of tissue fragments . The tumor cells have a well defined cytoplasm with round oval nuclei and moderate degree of pleomorphisim and mitoses are present.

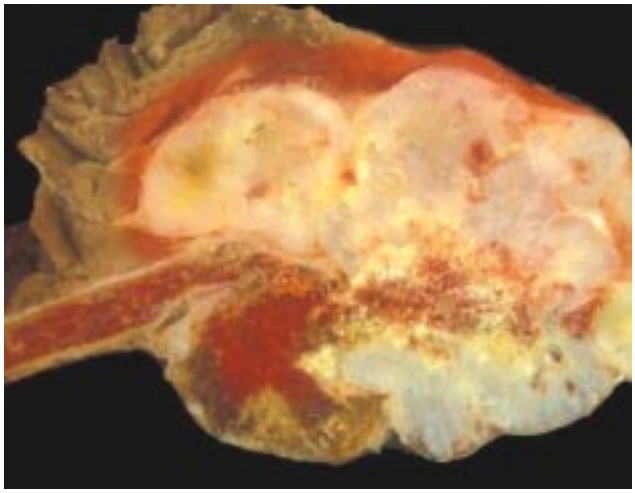

Fig.3. GROSSLY- Gray to pink lobulated mass with adjacent soft tissue and bone with foci hemorrhage and necrosis.

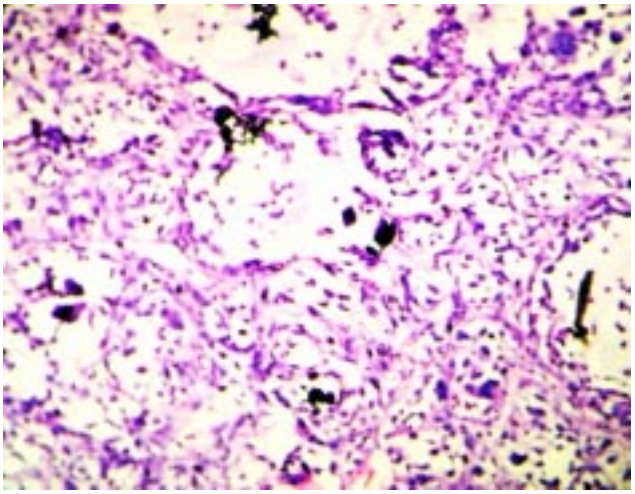

Fig. 4. HPR 10X examination shows chondroid tissue surrounded by pleomorphic spindle cells.

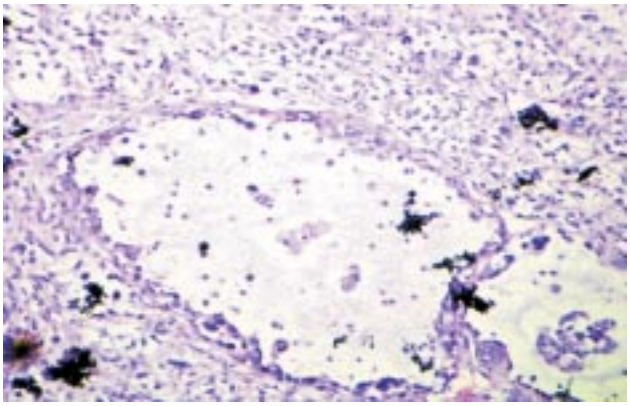

Fig (5) HPR-40X shows chondroid cells and tumor giant cells surrounded by pleomorphic spindle cells.

in 3rd decade and rarely originates from a rib [2]. In this case the diagnosis of low grade chondrosarcoma was made which is difficult to distinguish from chondroma on fine needle aspiration [3]. In dedifferentiated chondrosarcoma classic low-grade elements are seen intermixed with undifferentiated sarcomatous elements. An FNAC may only yield the cells of poorly dedifferentiated sarcoma and the diagnosis may be missed. The features of dedifferentiated chondrosarcoma on cytology are presence of undifferentiated sarcomatoid elements, classic low-grade elements and variable cellularity [4]. Simultaneous Cytogenetic and Immunophenotyping studies indicate both differentiated & the dedifferentiated components originate from a common primitive mesenchymal cell progenitor & that the term differentiated may be an inaccurate designation [5, 6]. The development of dedifferentiated component in chondrosarcoma is accompanied by a marked acceleration of clinical course & worst prognosis. The overall 5 year survival is quoted at 10%, but in pelvis it is in the neighbourhood of 35% [7].

Conclusion:

This case is reported because diagnosis of chondrosarcoma on FNAC greatest diagnostic challenge. Chondrosarcoma of rib in 30 years old is rare and FNAC may only yield cells of poorly differentiated sarcoma and diagnosis may be missed.

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