A Rare Case Report of Dedifferentiated Chondrosarcoma Reported on Fine Needle Aspiration Cytology

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INTRODUCTION

- Dedifferentiated chondrosarcomas (DDCS) are highly malignant variant of chondrosarcomas.[1]
- The median age of patient is 59 years (range 15-89 years) with slight male predominance.[1]
- Dedifferentiation develops in 10-15% of central chondrosarcomas and rarely in peripheral chondrosarcomas.[1]
- Regardless of treatment, the prognosis is ominous with 90% patient dying with distant metastasis within 2 years.[2]

CASE REPORT

- We hereby report a case of DDCS diagnosed in 35yr old male involving upper end of the humerus. On FNAC the cytomorphological features were suggestive of chondrosarcoma which was later diagnosed as DDCS on histopathology (H/P).

CLINICAL PRESENTION

- A35 year old male presented with pain and swelling involving upper end of the right humerus since eight months.There was sudden increase in size since1 month.

RADIOLOGICAL INVESTIGATIONS

- **MRI**-It revealed a large heterogenous expansile osteolytic mass lesion, measuring 13.2X 12.2X10.8 cms involving the upper end of humerus with significant exophytic component. Post contrast images revealed moderate to intense heterogeneous enhancement of the lesion.

FNAC

- **Cytopathology:** revealed moderately cellular fragments of chondromyxoidmatrix, containing largemononuclear tumour cells with dense to vacuolated,pale blue,granular cytoplasm with defined cellular borders.The nuclei were eccentrically to subcentrically located,enlarged,round to oval,at places indented.They had fine chromatin with inconspicuous nucleoli.Some dissociated single cells and some binucleated cells were also seen.

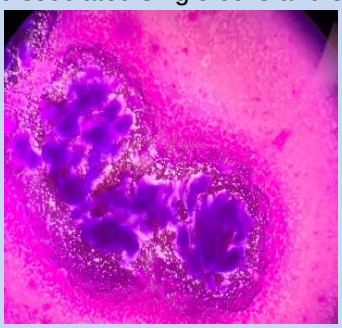

Fig:1 (MGG 10X)

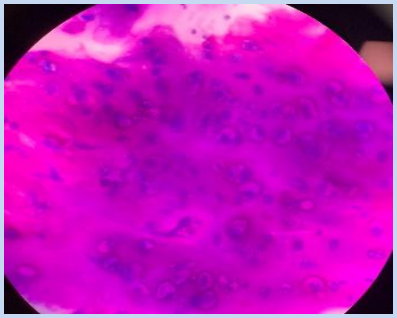

Fig: 2 (MGG 40X)

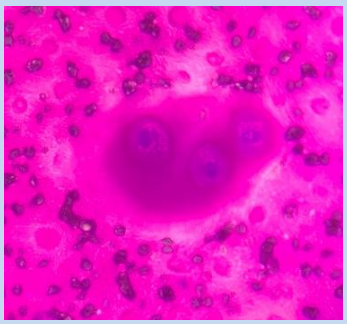

Fig: 3 (MGG 40x)

HISTOPATHOLOGY

- **Gross:**Aright fore-quarter amputation specimen was received.15 cm growth was identified on right shoulder.Cut surface was glistening white with areas of haemorrhage and necrosis.Growth seemed to infiltrate the adjoining muscle bundles.
- **Microscopic Examination**: Sections revealed a cartilaginous tumour infiltrating the bony trabeculae.Neoplastic chondrocytes with pleomorphic and hyperchromatic nuclei were seen.Areas resembling high grade spindle cell sarcoma were noted juxtaposed to the differentiated chondrosarcoma.

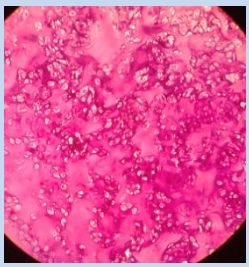

Fig: 4 (H& E 10X)

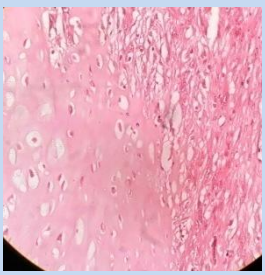

Fig: 5 (H &E 40X)

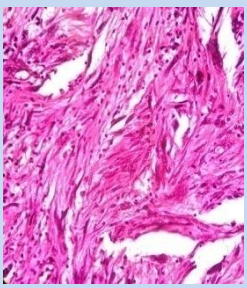

Fig: 6 (H& E 40X)

DISCUSSION

- DDCS was first delineated as a distinct clinicopathologic entity in 1971.[3]
- An essential histological feature of DDCS is an abrupt interface between the cartilaginous and noncartilagious components.[2]
- The high-grade sarcoma component is usually undifferentiated pleomorphic sarcoma, fibrosarcoma, or osteosarcoma. Rarely, it may show rhabdomyoblastic differentiation, angiosarcoma, or giant cell rich sarcoma.[4]
- It is important to keep dedifferentiated chondrosarcoma in the differential diagnosis of a biopsy sample in an adult patient that shows a high -grade sarcoma.[4]
- Most common sites of involvement are femur, pelvis and humerus.In the long bones, it occurs in metaphysis or diaphysis.[2]
- Most common clinical presentation includes pain,palpable mass and pathological fracture.[5]
- Radiographs are important not only for detection but also to decide on follow up analysis with MRI or histology.[6]
- MRI is used to depict the extent of intraosseous and soft tissue involvement.[6]
- For all nonmetastatic chondrosarcomas, surgery is the only effective form of treatment.[7]
- Chondrosarcoma in general, is resistant to chemotherapy, and anti-tumour drugs are rarely used in the treatment.[8]
- Radiotherapy can be considered in the case of incomplete resection or when resection is not feasible.[8]
- Metastases occur early and frequently involve the lungs, lymph nodes and viscera.[8]
- DDCS has a poor prognosis, reported survival rates at 5 years range from 7% to 24%.[4]

CONCLUSION

- DDCS are rarely diagnosed on FNAC due to sampling constraints.Correct H/P diagnosis requires adequate biopsies representative of the entire tumour to visualize both cartilaginous and non cartilaginous sarcomatous components. A high level of suspicion is necessary when investing and treating chondrosarcoma because the prognosis is improved by accurate preoperative diagnosis.

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