

Primary Giant Cell Tumour of Soft Parts - Report of a Case with Fine Needle Aspiration Cytology and Histology Findings

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Abstract

A cytohistopathological study of a rare case of giant cell tumour of soft tissues in a 30-year-old male patient is presented. The cytological features when evaluated in conjunction with clinical and radiological features are sufficiently diagnostic. The primary knowledge of its existence and knowledge of its cytological features are important for a correct preoperative cytologic diagnosis.

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Introduction

Primary giant cell tumours of soft tissues (GCT-ST) resembling osseous giant cell tumours are extremely rare soft tissue tumours, located in both superficial and deep soft tissues. They can be seen in all age groups and most of the reported cases have been in extremities, with thigh being the most common site.¹ These tumours have unpredictable behaviour. Some patients are cured with simple surgical excision whereas others develop metastatic disease within a relatively short interval. To date, there are no consistently reliable criteria, either clinical or pathological to separate the benign from more aggressive lesions. We describe the cytological and histopathological features of a case of GCT-ST.

Case Report

A 30 year old patient presented with a fungating skin and soft tissue mass on the dorsum of right hand over index finger. Plain radiograph revealed a soft tissue density over the middle and terminal phalanges of the right index finger. Underlying bones were within normal limits. Fine needle aspiration (FNA) of the tumour was done. The aspirates were cellular and contained a dual population of cells, consisting of mononuclear spindle cells and multinucleated osteoclast type of giant cells. The tumour cells were arranged as cohesive clusters, sheets as well as single cells. The attachment of osteoclastic giant cells to the periphery of cohesive groups of tumour cells was a prominent feature (Fig. 1). These cells were round to elongated exhibiting single bland nuclei and second group of multinucleated osteoclast type giant cells showed

dozens of round nuclei with occasional micronucleoli. Strands of collagen or basement membrane material were discernible in tissue fragments. Keeping in view cytologic findings as well as radiological findings, a diagnosis of giant cell tumour of soft tissues was made. The tumour was excised and sent for histopathological examination. Microscopic examination of the sections taken from the soft tissue mass showed a cellular tumour comprising of spindle to oval cells admixed with numerous multinucleated giant cells (Fig. 2). These giant cells were scattered uniformly and appeared to have a similar nucleus to that of the surrounding spindle cells. Mitotic rate was 1 per high power field and mostly in the stromal cells. There were areas of haemorrhage and haemosiderin deposition. Thus the histological findings were consistent with the cytodiagnosis of giant cell tumour of soft tissue.

Discussion

Giant cell tumour of soft tissue is a rare tumour first described in 1972 by Salm and Sissons,² followed shortly by Gruccion and Enzinger.¹ Although "giant cell tumours of the soft parts" has traditionally been considered a single entity as reflected in the original term "malignant giant cell tumour of soft parts" and later by the term "malignant fibrous histiocytoma of giant cell type", the degree of atypia and mitotic activity varies in this group, suggesting biologic heterogeneity.³ Folpe et al³ propose that these tumours should be termed "giant cell tumours of low malignant potential" and regarded as the soft tissue analogue of giant cell tumour of bone.

Giant cell tumour of soft parts can occur in patients

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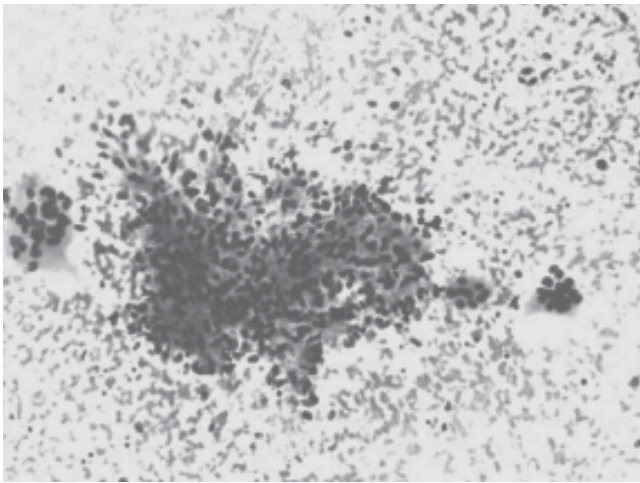


Fig. 1 : Cytology smear showing cohesive groups of mononuclear stromal cells with osteoclast like giant cells at the periphery (MGG, x 400).

ranging in age from 1 to 87 years. Approximately 80-90 % of the giant cell tumours are located in the extremities with about 80% of these in the lower extremity, the thigh being the most common site. Other sites include the face, abdominal wall, shoulder, neck and retroperitoneum.²

Kim et al⁴ described cytological features of giant cell tumour of soft tissue in a 58-year-old woman with a well-demarcated dermal tumour. Their case showed numerous osteoclast like giant cells and mononuclear cells with a bland nucleus. They concluded that primary giant cell tumour of soft tissues should be considered in the differential diagnosis of bland looking giant cell rich lesions. Galed-Placed et al⁵ have described cytodagnosis of giant cell tumour in soft parts in a patient with osseous Pagets disease. In their case, in addition to the two population of cells, numerous capillary structures surrounded by tumour cells was a prominent feature. Cytological features of malignant giant cell tumour of soft tissues have also been described by Angervall et al⁶ in their five cases. They found histiocytic cells, fibroblast like cell and multinucleated giant cells of both osteoclast like benign and pleomorphic malignant type in varying proportions. They concluded that finding of phagocytosing pleomorphic malignant cells and giant cells of osteoclast type in aspirated cytologic material strongly favour the diagnosis of malignant giant tumour of soft tissues. Giant cell tumours of soft tissues demonstrate a similar immunohistochemical staining profile as GCT of bone, exhibiting strong positive staining for CD 68 within multinucleated osteoclast like cells and focal staining of mononuclear

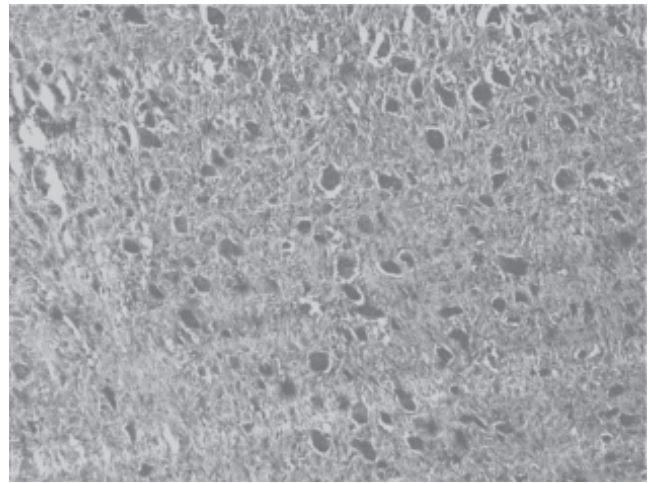


Fig. 2 : Histologic section showing numerous multinucleated osteoclast like giant cells distributed uniformly among stromal cells (H&E, x 100).

cells for CD6, Ham 56 and smooth muscle actin.

Thus, primary giant cell tumour should be considered in the differential diagnosis of a number of other neoplastic and reactive lesions in which giant cells might be abundant. The cytologic features of GCT- ST appear to be characteristic enough to allow a suggestive diagnosis. FNAC can be used as a diagnostic tool for an early and accurate detection of giant cell rich lesions since the cytological features when evaluated in conjunction with clinical and radiological features are sufficiently diagnostic. The primary knowledge of its existence and knowledge of its cytologic features are important for a correct preoperative cytologic diagnosis.

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