Case Report

DOI: NJLM/2012/5919:1985

Cytopathology Section

Pleomorphic Lipoma – A Cytologic Diagnostic Dilemma

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ABSTRACT

Pleomorphic lipoma is a rare benign tumor that most commonly present as subcutaneous mass lesion in neck, shoulder and back of middle aged men. Fine needle aspiration (FNA) of these lesions can present a diagnostic challenge. Its large, hyperchromatic cells and multinucleated forms (floret) can be easily mistaken for malignancy. Due to rarity of this tumor, few cases diagnosed by cytology have been reported in English literature. Here, we report a case of pleomorphic lipoma, the diagnosis of which was suggested on FNA and subsequently confirmed by surgical excision.

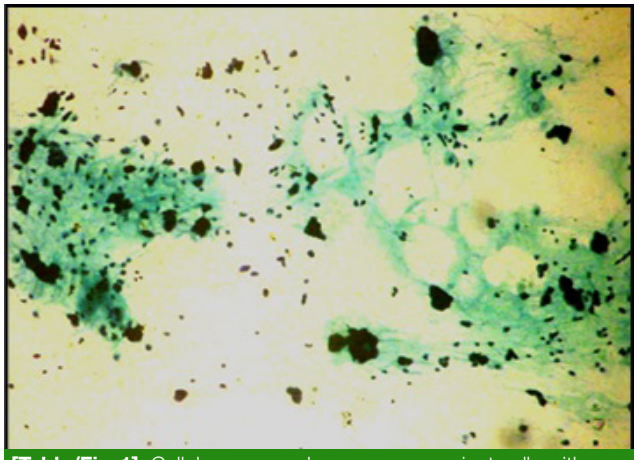
Key Words: Pleomorphic lipoma, FNAC, Multinucleated giant cells (floret cells)

INTRODUCTION

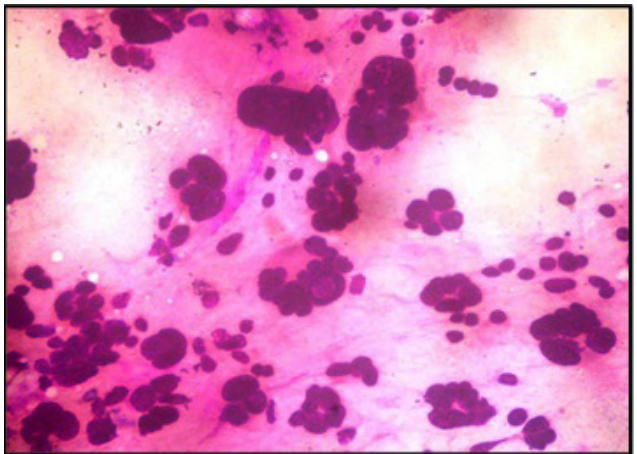
Lipomas are common soft tissue lesions with annual incidence of at least 1 per 1000 in general population. Although spindle cell and pleomorphic lipoma were grouped under the term "atypical lipoma" by some authors, however this family of tumor is sufficiently characteristic to justify as a distinct entity [1]. Pleomorphic lipoma is a rare variant of lipoma, seen typically in men in age group of 45-60 years and arise in neck and shoulder region. FNA smears show admixture of atypical cells and multinucleated giant cells (floret cells) characterised by multiple, pleomorphic, hyperchromatic nuclei arranged in peripheral wreath like fashion around dense cytoplasm. These floret cells can easily be mistaken for malignant neoplasm [2]. However, despite its pleomorphic appearance, this tumor is benign and does not recur or metastatise if excised completely.

CASE REPORT

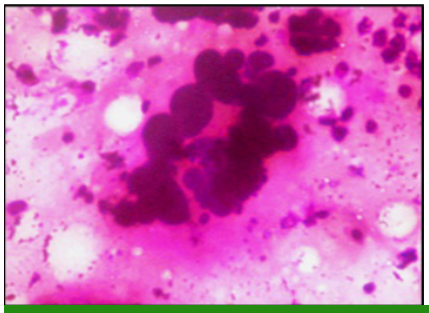
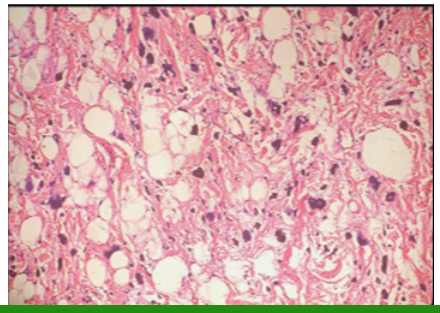
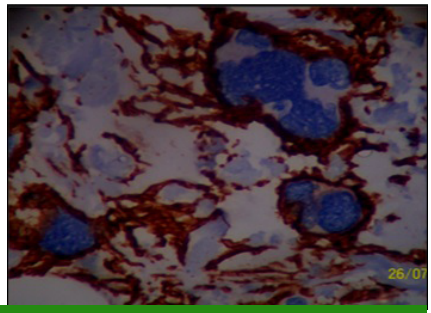
A 45-years-old male presented with gradually increasing swelling over back since 6-7 years with history of recurrence. Local examination showed a subcutaneous soft to firm nodular mass measuring 12x10 cm with restricted mobility. Systemic examination did not reveal any abnormality. FNA was done using 23 gauge disposable needle and 10cc syringe. Slides were prepared and stained with Papanicolaou, May-Grunwald Giemsa stain. Smears were cellular showed atypical cells, multinucleated giant cells [Table/Fig-1]. The nuclei of giant cells were arranged in peripheral wreath like fashion (floret cells – [Table/Fig-2]) in the background of mature fibro-adipose tissue. Few mast cells were noted. Mitosis or necrosis was not seen. FNA diagnosis of pleomorphic lipoma was offered with the advice of wide local excision of the



[Table/Fig-1]: Cellular smears show numerous giant cells with hyperchromatic pleomorphic nuclei, round cells and few spindle shaped cells. Lipoblasts not seen. (Papanicolaou stain, x40)



[Table/Fig-2]: Cellular smears showing cluster of multinucleated Floret-like giant cells and round cells. (Giemsa stain, x100)

[Table/Fig-3]: Floret cell. Hyperchromatic nuclei arranged at the periphery of the cell in a wreathlike fashion. (Giemsa stain, x400)
[Table/Fig-4]: Predominantly lipomatous tumour with numerous Multinucleated floret- like giant cells along with ropey collagen bundles. Lipoblasts not seen. (Hematoxylin and eosin stain, x40)
[Table/Fig-5]: CD34 immunoreactivity in multinucleated floret-like giant cells and atypical mononuclear cells of pleomorphic lipoma. (x40)

Sr No.	Author/year	Site	Cytologic diagnosis	Histologic diagnosis	Correlation
1	Akerman/1987	Superficial (unspecified)	Pleomorphic lipoma	Pleomorphic lipoma	Yes
2	Rigby/1993	Supraclavicular region	Anaplastic carcinoma	Pleomorphic lipoma	No
3	Dundas/1995	Neck mass	Metastatiaic anaplastic, large cell carcinoma	Pleomorphic lipoma	No
4	Veiga/1998	Back of neck	Pleomorphic lipoma	Pleomorphic lipoma	Yes
5	Lopez-Rios/2000	Breast	Suspicious for malignancy	Pleomorphic lipoma	No
6	Thirumala/2000	Back of neck	Suspicious for malignancy	Pleomorphic lipoma	No
7	Yencha/2000	Neck mass	Suspicious for malignancy	Pleomorphic lipoma	No
8	Mona Yong/2005	Neck mass	Consistent with pleomorphic lipoma	Pleomorphic lipoma	No
9	Present case	Mass over back	Pleomorphic lipoma	Pleomorphic lipoma	Yes

[Table/Fig-6]: Correlation of cytology and histopathology diagnosis between different studies

lesion. We received a well circumscribed nodular tan coloured mass. Histopathology sections show floret cells interspersed between ropey collagen bundles [Table/Fig-3]. Scanty mature adipose tissue was present. No mitosis, necrosis or increased vasculature was identified. Immunohistochemistry (IHC) was done. The atypical and multinucleated giant cells showed strong cytoplasmic positivity for CD34.

DISCUSSION

Pleomorphic lipoma is a rare soft tissue tumor with less than 150 reported cases in world literature [3]. Shmookler and Enzinger first described pleomorphic lipoma in 1981 in a series of 48 patients [4]. A year later Azzopardi et al., reported on nine similar cases [5]. In a typical clinical presentation, it occurs in men beyond the fourth decade of life and has a predilection for superficial and subcutaneous areas of the neck and upper back. Rare sites include tongue, [6] bulbar conjunctiva, [7] breast, [8] parotid gland [9] and retroperitoneum [10]. Histologically these tumors have pleomorphic pattern characterised by intricate mixture of large atypical hyperchromatic cells including multinucleate forms (floret cells), ropey collagen bundles and mature fibroadipose tissue. These floret cells are large, bizzare cells with multiple hyperchromatic nuclei arranged in peripheral wreath like fashion. FNA smears of pleomorphic lipoma show round to oval cells with hyperchromatic nuclei and scattered giant cells (floret cells), which can masquerade as a malignant neoplasm, a potential pitfall in diagnosis.

To the best of our knowledge, FNA of pleomorphic lipoma has been described only in eight other cases in worldwide literature with only three cases were diagnosed correctly as pleomorphic lipoma. The other five cases were diagnosed as either anaplastic carcinoma or suspicious for malignancy [Table/Fig-6].

The differential diagnosis of pleomorphic lipoma in cytology includes anaplastic carcinoma, sclerosing liposarcoma, malignant fibrous histiocytoma and pleomorphic liposarcoma. Anaplastic carcinoma is characterised by highly pleomorphic cells in isolated forms as well as in small, dyscohesive clusters with mitotic activity. The aspirates from malignant fibrous histiocytoma are generally cellular show pleomorphic spindle cells with pronounced nuclear atypia, bizzare nuclei and numerous mitosis. They may have tumor tissue fragment with a myxoid background. Although above one quarter of pleomorphic liposarcomas develop in skin and subcutaneous tissues, the overall cytologic appearance is similar to that of malignant fibrous histiocytoma. Cells with obvious lipoblastic features are difficult to identify in smears because the multi-

vesicular cytoplasm of lipoblasts is frequently destroyed during aspiration and smear preparation. Sclerosing type of well differentiated liposarcoma unlike pleomorphic lipoma are more common in groin and retroperitoneum. Cytologically they are quite cellular and contain numerous fat cells of variable sizes and characteristic lipoblasts.

CONCLUSION

Fine needle aspiration is an effective tool in evaluation and diagnosis of soft tissue masses as in our case. Pleomorphic lipoma presents a smear pattern that can cause diagnostic difficulty. However awareness of the clinical presentation and cytomorphology of this unusual entity will help to avoid diagnostic pitfalls. Knowledge of this rare but not uncommon entity and its benign outcome is critical to make the accurate diagnosis in order to avoid unnecessary workup and radical/ disfiguring surgery.

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FINANCIAL OR OTHER COMPETING INTERESTS: None.

Date of Publishing: **Aug 30, 2013**