



LIPOBLASTS ON IMPRINT CYTOLOGY: A HINT OR HINDRANCE TO DIAGNOSIS ?

Pathology

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ABSTRACT

Paratesticular liposarcomas (PLs) are rare tumors may arise from the adipose tissue around the spermatic cord or by malignant transformation of a pre-existing lipoma. Preoperative diagnosis is uncertain due to rarity of this tumor. Intraoperative diagnosis is very important because there are high chances of recurrence due to incomplete resection. Here we present a case of 57 year old male with paratesticular well differentiated liposarcoma which was diagnosed on imprint cytology (IC) almost with certainty and further confirmed on histopathology and immunohistochemistry.

KEYWORDS:

Paratesticular tumor, liposarcoma, imprint cytology, histopathology

57 year old male presented with history of swelling of right scrotal region for 6 months. Radiological examination revealed a paratesticular tumor. Testicular tumor markers were within normal limits. We received orchidectomy specimen (4.5x 4x 2.5 cm) with spermatic cord with well encapsulated paratesticular mass (9x 8.5x 4.5 cm), cut section of which was lobulated, translucent gelatinous with yellowish areas. IC showed spindle cells with occasional hyperchromatic nuclei with myxoid background with presence of typical lipoblasts. Keeping in view of these findings possibility of liposarcoma was suggested. On histopathological examination there were lobules of adipocytes, areas of sclerosis, blood vessels proliferation, myxoid areas with spindle cells with few showing nuclear atypia with presence of typical lipoblasts. Further S-100 marker supported the diagnosis. Hence diagnosis of well differentiated Liposarcoma was made.

Discussion:

Due to Increase in incidence of cancer in various organs, there has been need for rapid and accurate diagnosis of the tumors. Fine needle aspiration cytology (FNAC), Papanicolau stain (PAP) smear, IC, frozen section (FS), scrape cytology or combination of these methods are being used but each is having their advantages and disadvantages. For intraoperative diagnosis IC and FS are being used but FS is considered as standard technique.² FS has limitations like it needs costly machines, qualified technicians and small representative sample; thus increases the chances of errors. Imprint smears of fresh tissues was first described Dudgeon and Patrick in 1927.³ It has been used in evaluation of sentinel neuropathology, lymph node biopsy, breast cancers, tumor margins etc.⁴ IC can sometimes provide information on the histogenesis and histologic patterns of the tumor, but it cannot provide information on the depth of infiltration.²

Paratesticular liposarcomas (PLs) are rare tumors comprised of 3% to 7% of all paratesticular sarcomas and usually present in 50 to 70 years.¹ WDL is considered a low-grade malignancy that rarely metastasizes but should be carefully followed because recurrence or dedifferentiation may occur.¹

In this case IC showed spindle cells with occasional hyperchromatic nuclei with myxoid background with presence of typical lipoblasts. Keeping in view of these findings possibility of liposarcoma was suggested which was further confirmed on histopathological examination. This lesion need to be differentiated from all the spindle cell lesions like neurofibroma, schwannoma, solitary fibrous tumor but in all these lesions there will be absence of lipoblasts. The lipoblasts are the distinct type of mesenchymal cells that more or less recapitulate the differentiation process of normal fat. The morphologic criteria of lipoblasts are the cells having hyperchromatic indented or sharply scalloped nuclei and lipid-rich mono- or multivacuolated cytoplasm. Lipoblasts can be seen both neoplastic and non neoplastic conditions. Neoplastic conditions are spindle cell lipoma, pleomorphic lipoma and lipoblastoma, pleomorphic liposarcoma.^{5,6} The spindle cell

lipoma shows characteristic collagen bundles and blunt ended stout nuclei of fibroblasts which was not present in this case. The typical presence of floret cells seen in pleomorphic lipoma and marked nuclear atypia was characteristically absent in this tumor. Fat necrosis is comprised of lipophages whose cytoplasm is foamy and filled with small vacuoles whereas cytoplasm of adipocytes and lipoblasts is optically clear.⁶ Lipoblastoma usually occur younger than 3 years.

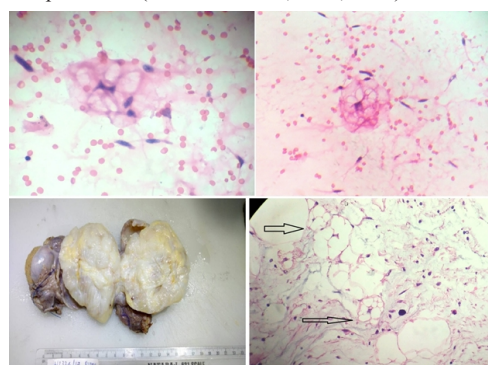
Pleomorphic liposarcoma contain highly pleomorphic cells which were totally absent in this tumor. Starvation, trauma, foreign body granuloma for silicone can also produce lipoblast like multivacuolated cells but they will not show typical hyperchromatic indented nuclei typical of lipoblasts.⁵

Based on histological appearance liposarcomas in general have been classified into myxoid (most common; 40%), round cell, well differentiated (subdivided into lipoma-like, sclerosing, inflammatory and dedifferentiated), and pleomorphic.⁷

The differential diagnosis from lipoma, spindle cell lipoma and dedifferentiated liposarcoma is based on light microscopy examination because immunohistochemistry is of little value in distinguishing among these neoplasms.¹

This case will emphasize the importance of imprint cytology in diagnosis of the tumors intraoperatively, like well differentiated liposarcomas which looks benign grossly but if removal is incomplete, then there will be high chances of recurrence.

Legends: Figure 1: 1a &b) Lipoblasts with typical indented hyperchromatic nuclei with multivacuolated cytoplasm in a myxoid background with few scattered spindle cells (IC, H&E, 400x), 1c) Well circumscribed, encapsulated paratesticular tumor with myxoid areas with focal yellow areas, 1d) Typical lipoblasts with spindle cells with mature adipose tissue (Paraffin sections, H&E, 400x)



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