Cytohistological Evaluation of Chest wall Nodules: A Series of Rare Entities from a Tertiary Care Centre

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Abstract

Chest wall is a complex system which provides rigid protection to the vital organs. Many pathologic processes such as congenital and developmental anomalies, inflammatory and neoplastic lesions involve the chest wall. Due to the wide spectrum of disease involvement it is quite challenging for the clinicians as well as pathologists for an accurate diagnosis of these lesions. In many of these cases, FNAC (Fine needle aspiration cytology) is not sufficient for exact categorization of these lesions for which histopathological evaluation along with special stains and IHC (Immunohistochemistry) plays important role. In the literatures, very few studies of cytohistological evaluation of chest wall nodules are described. In this case series, we described cytohistological evaluation of four rare entities of chest wall. We reported epithelioidhemangioendothelioma, Askin’s tumor, Pilomatricoma and Inflammatory pseudotumor one case each.

Key words: chest wall nodule, FNAC, Histopathology

Introduction

Chest wall is a complex system which comprises of muscles, bones, joints and soft tissues situated between the neck and the abdomen.¹ Chest wall harbors many pathologic entities such as congenital and developmental anomalies, inflammatory and infectious diseases, benign tumors, malignant tumors (epithelial/mesenchymal) or metastatic deposits.¹ Various diagnostic modalities to evaluate chest wall lesions include X-ray, CT, MRI, FNAC and biopsy. Since the various lesions of chest wall especially neoplastic lesions (nodules) differ in size, shape, rate of growth and histomorphology, the diagnosis of these entities are quite challenging for clinicians and pathologists many times.⁷ In many of the cases, cytological study alone is inadequate for a definitive diagnosis. For proper management of the patients, histopathological study is required. Only few studies on chest wall lesions are described in the literature.⁴,⁶ Scattered case reports of tuberculosis of chest wall,⁵ tuberculosis of ribs⁹ and sternum¹⁸, chondrosarcoma of chest wall³ and desmoid tumors are available in literature.⁸

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In this study, we have elaborately described uncommon cytological features of chest wall nodules and correlate with the histopathological diagnosis of the same.

Materials and Methods

The study was conducted in the Department of Pathology, College of Medicine and Sagore Dutta Hospital, Kolkata, West Bengal. In this case series, patients presented with nodules in the chest wall underwent FNAC followed by lumpectomy, core needle biopsy/ incisional biopsy for histopathological study and a final diagnosis was made.

Case presentation (findings):

We presented a series of cases of rare entities presenting as chest nodules.

Case-1:

76 yrs old male presented with subcutaneous nodule on posterior chest wall measuring 1.5 cm in maximum dimension. FNAC smears show high cellularity, predominantly round cells with large, hyperchromatic nuclei with occasional acini. Provisional diagnosis was given as malignant adnexal tumor and differential diagnosis was given as metastatic deposit. Excisional biopsy showed presence of tumor tissue comprising of small to medium sized distinct vascular channels lined by epithelioid endothelial cells and the diagnosis was given as Epithelioid Hemangioendothelioma. (Fig -1)

Case-2:

A 82 yrs old male presented with large, hard, irregular mass involving the left chest wall measuring 10x8 cm² in size. FNAC showed highly cellular smears comprising of small round cells singly and in occasional clusters. Provisional diagnosis was malignant round blue cell tumor. Core needle biopsy done and histopathology showed tightly packed small round cells with scanty cytoplasm in a lobular pattern. The final diagnosis was given as extraskeletal Ewing’s sarcoma or Askin’s tumor. (Fig-2)

Case-3:

A 32 yrs old female presented with a firm to hard swelling measuring 3 cm in dimension on left chest wall overlying left breast. Breast USG showed presence of a calcified cyst.

FNAC showed presence of anucleate squamous and calcium granules.

Histopathology showed features of Pilomatrixoma (Basaloid cells and shadow cells). Diagnosis was Pilomatrixoma of the breast. (Fig -3)
Case-4:

A 26 yrs old male presented with sudden onset of firm swelling measuring 4 cm in dimension over right posterior chest wall. FNAC showed fragments of spindle cells showing atypia. Provisional diagnosis was atypical spindle cell lesion. Histopathology of the excised mass showed presence of fascicles of spindle cells with mild atypia admixed with dense inflammatory cells. Diagnosis was given as inflammatory pseudotumor. (Fig -4)

Figure 4: showing cytological (Leishman stain, 100x) & Histological (H&E, 100X) [Inset] features of Inflammatory Pseudo Tumour

Discussion

In this case series of 4 cases, 1 case was of skin adnexal tumors i.e Pilomatricoma, one case of Inflammatory pseudotumor, one vascular tumor i.e Epithelioidhemangioendothelioma and one case of malignant tumor i.e extraskeletal Ewing's Sarcoma (Askin’s tumor).

Epithelioid hemangioendothelioma (EHE):

It is a rare vascular tumor with an epithelioid and histiocytoid appearance originating from vascular endothelial cells. The term EHE was introduced by Kleiss and Enzinger. The most common sites are liver, lungs and bone.

Chest wall is an uncommon site for this tumor as in our case. Recent WHO classification categorized EHE into a locally aggressive tumor with metastatic potential. 10-11

Askin’s tumor:

This is a primitive tumor described first time in 1979 by Askin et al in the thoracopulmonary region. It is rare malignant tumor characteristic histopathological features. We reported the case due to its rarity.

Pilomatricoma of the breast:

Pilomatricoma is a benign epithelial tumor of the skin originating from piliferous follicles. This is also known as ‘Calcific epithelioma of Malherbe’. Usually seen in head and neck and extremities. It is rarely seen on the trunk and presence in the breast is very rare and only few cases reported so far. It may simulate breast cancer both clinically and radiologically. We reported the case due to its rarity and clinical significance.

Inflammatory Pseudotumor (IPT):

It is a term used to describe a benign and rare process most commonly seen in the orbit and lungs. It can present as single or multiple masses with polymorphous inflammatory infiltrate, necrosis, fibrosis, spindle cells and fibrosis.

It is a great mimicker of various soft tissue malignancies histopathologically such as low grade fibrosarcoma.

So definitive diagnosis of these lesions preoperatively can prevent unnecessary surgical intervention. We reported the case due to its uncommon location and clinical significance.

Conclusion

Chest wall is a site for various non-neoplastic and neoplastic lesions. Though FNAC is a useful, safe and rapid diagnostic procedure, simultaneous histopathological evaluation bears an important role for exact categorization of the chest wall lesions for better patient management.

Conflicts of interest: Nil

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Patient consent: In all the cases consent was taken before performing the FNAC procedure.

Ethical clearance: was taken
**Author contribution:** All are having equal contribution

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**References**


