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Metaplastic Thymoma – A Rare Case Report

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Abstract: *Metaplastic thymoma or Biphasic thymoma is a rare primary thymic epithelial tumor. It is characterized by histologic biphasic growth pattern. It is important to diagnose metaplastic thymoma, because it has benignclinical course. Here we report a case who presented with mediastinal mass, microscopy and immunohistochemistry showed features of metaplastic thymoma.*

Key words*: Metaplastic thymoma, Mediastinal mass, Biphasic growth pattern.*

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I. Introduction

Metaplastic thymoma is a rare primary epithelial tumour.[1]It is accepted in World Health Organization 2004 scheme as circumscribed biphasictumor of thymus in which islands of epithelial cells are admixed with spindle cells [2,3]. It is important not to mistake metaplastic thymoma with aggressive tumor having biphasic morphology such as carcinosarcoma.

II. Case Report:

A 55yrs old male who came with history of pain in the chest wall since 3 month. The patient was found to have an mediastinal mass on routine chest radiograph and were furtherevaluated. CT chest showed a well-defined enhancing soft tissue density lesion with broad base towards chest wall of size 11x9.3x12cm causing compression of superior venacava. Initially patient was subjected to CT guided biopsy from lesion. Small biopsy was subjected for histopathological examination,microscopic features were consistent with spindle cell neoplasm further, patient underwent thoracotomy andintraoperatively revealed a well encapsulated fibrous mass arising from anterior mediastinum abutting lung,with no adhesion to it and other mediastinal structures, following which the mass was excised.

We received a single soft tissue mass measuring 22x17x8cm , with a bosselated external surface and cut surface showed fully encapsulated , soft to firm in consistency with solid grey white , focal friable ,necrotic and hemorrhagic areas. (Fig 1)

Fig 1: Circumscribed ,encapsulated ,grey white mass

Microscopic findings showed a neoplasm arranged in storiform pattern, nests and sheets.Composed of cells which are round to oval with moderate eosinophilic cytoplasm and vesicular nuclei showing mild to moderate nuclear atypia interspersed with spindle shaped cells.,Fig (2,3,4,5) mitosis <2/10high per field.

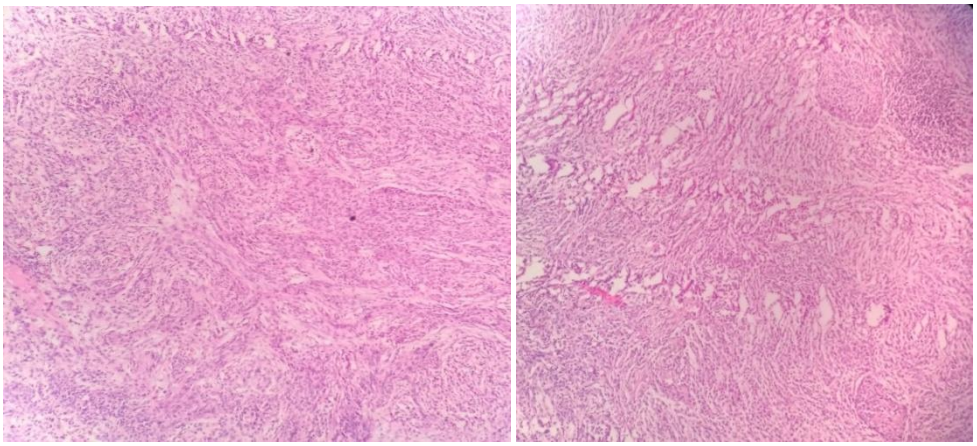

Fig 2&3: (H&E) 100x neoplasm arranged in sheets and storiform pattern

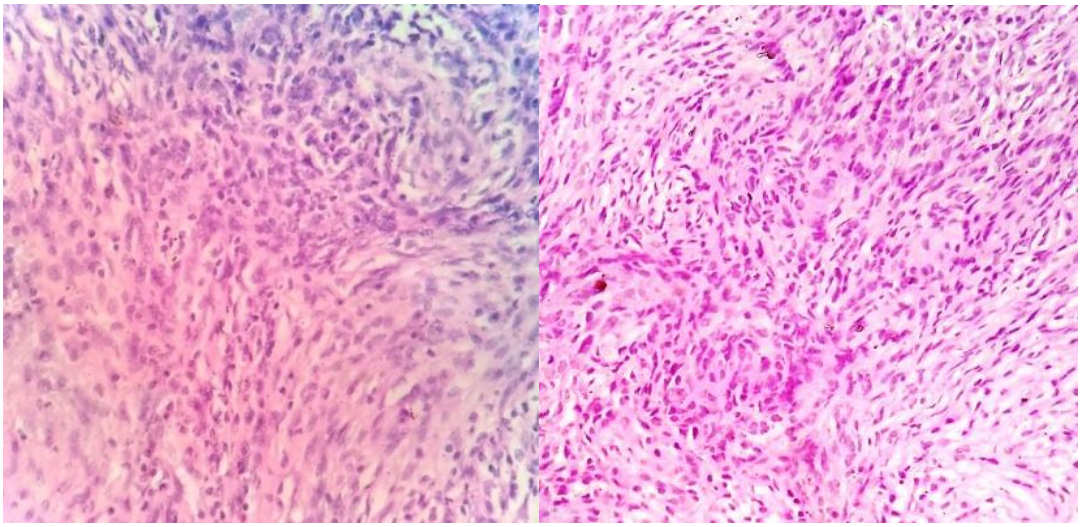

Fig 4 &5:(H&E)400X Neoplasm composed of epithelial cells and spindle cells

Immunohistochemistry was done on small biopsy and excision biopsy both showed positive for CK in epithelioid cells and positive for vimentin in spindle shaped cells -figures(6&7),

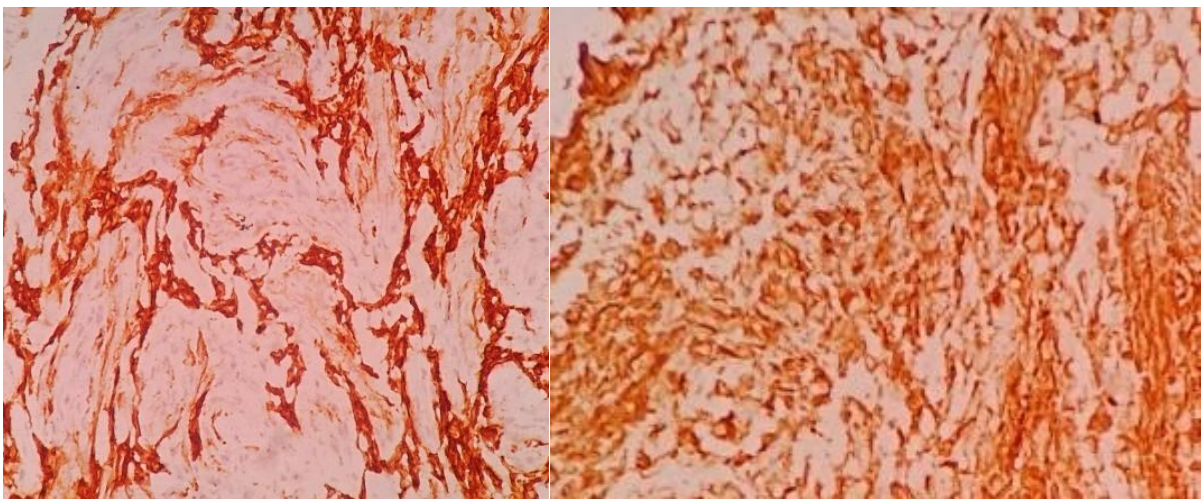

Fig 6&7: 400X CK Positive in epithelial cells and vimentin positive in spindle cells

EMA showed scattered positivity in epithelial cells,CD3 showed positivity in lymphocytes and CD99 showed diffuse positivity Calretinin was negative .The impression was given as Metaplastic thymoma

III. Discussion

Thymoma Is a neoplasm arising from epithelial cells of thymus .WHO classification of Thymoma in 1999 and according to modified WHO classification in 2004 ,thymoma is classified into 5 subtypes including A,AB,B1,B2 and B3 and histologic behavior ranges from benign to low or moderate grade malignancy. The WHO histologic classification is a reliable prognostic indicator[4].

Metaplastic thymoma also included in World Health Organization 2004 scheme Metaplastic thymoma, are known as ‘’thymoma with pseudosarcomatous stroma’,lowgrade metaplastic carcinoma’’ , ‘’biphasic thymoma’ ’mixed polygonal and spindle cell type[5].It is characterized by spindle cell component and epithelial islands. The spindle cells component was reactive rather than neoplastic proliferation of stromal cells arising from connective tissue in thymus[6].The spindle cell occurs as a resultof epithelial –mesenchymal transition [7] which is characterized by theloss of E-cadherin in spindle cells.Though metaplasticthymoma has a benign course, local recurrence and malignant transformation can occur [8].

Grossly the tumours were well circumscribed or encapsulated, and lacked distinct fibrous septation or cystic change that can be seen in conventional thymoma.Microscopic features will show biphasic morphology composed of epithelial cells and spindle cells .Metaplastic thymoma should be differentiated from highly malignant spindle cell neoplasms of thymus such as thymic carcinosarcoma or sarcomatoid carcinoma which has significant atypia in spindle cell component, mitosis ,necrosis and aggressive behavior helps in distinguishing from metaplastic thymoma .Other differentials are type A /AB thymoma if spindle cell components predominant, but lack of tumour lobulation,perivasular spaces ,and loss of E-cadherin expression helps in diagnosis. Ectopic thymoma(EHT) is a benign tumour of the lower neck composed of epithelial islands with spindle cells and adipose cells , but in contrast with metaplastic thymoma the spindle cell component will show positive for both vimentin and cytokeratin.

Immunohistochemistry epithelial cells are positive for cytokeratin and spindle cells were strongly positive for vimentin.Molecular studies have shown no or few geneticalterations.

IV. Conclusion:

Metaplastic thymoma is a rare thymic tumor. It is characterized by biphasic morphology. It should be differentiated from other aggressive biphasic tumours because it has benign clinical course.

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