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Dual Lung Pathology in Young Male

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ABSTRACT

Mucoepidermoid carcinomas (MECs) of the lung is a tumor of lowmalignant potential of bronchial gland origin. We recently encountered a case of this type of lung cancer along with MDR TB. A 15 year old male who presented with productive cough,haemoptysis,loss of appetite and loss of body weight. Imaging studies revealed a enhancing lesion in right Main Stem Bronchus.Bronchoscopy revealed lobulated mass in lower end of trachea,carina not visible and histopathology report suggestive of Low grade mucoepidermoid carcinoma and BAL CBNAAT have rifampicin resistant tuberculosis.

Key Words: Mucoepidermoid carcinoma (MEC), Multidrug-resistant tuberculosis (MDR-TB), Cartridge based nucleic acid amplification test (CBNAAT).

I. INTRODUCTION

Mucoepidermoid carcinomas (MECs) primarily occur in the major and minor salivary glands. Pulmonary MECs are rare, and primary endobronchial MECs (EMEC) account for 0.1–0.2% of all pulmonary neoplasms[1].The tumor arises from sub-mucosal glands of the tracheobronchial tree in the lung. It is usuallyslow growing and presents with symptoms related to bronchial obstruction. Symptoms may include cough, hemoptysis, shortness of breath, wheezing, and signs of post obstructive pneumonia[2]. The clinical and radiological findings are nonspecific and can lead to a diagnostic dilemma and therefore, a considerable delay before correct diagnosis is not uncommon[3].

Multidrug-resistant tuberculosis (MDR-TB) is defined as *Mycobacterium tuberculosis* resistant to isoniazid and rifampicin with or without resistance to other first-line drugs .

II. CASE REPORT

A 15 year old male presented with complaints of productive cough, haemoptysis, loss of appetite, loss of body weight, fever since 2.5 years but increased from past 15 days. He was nonsmoker and nonalcoholic. Diagnosed with Pulmonary Tuberculosis in April 2016 (clinically) and was given Anti tubercular therapy for 6 months. There was no similar illness in family.

On examination,there was no axillary or cervical lymphadenopathy. His blood pressure was 100/60 mm Hg, pulse 104/minute,respiratory rate 26/minute,temperature 98.6^{0}F and oxygen saturation 95%,while breathing ambient air.

On Respiratory system examination there was asymmetrical chest with flattening on right side on inspection. On Palpation,trachea was shifted to right, right side was flattened and decreased movement of right side of chest. On Percussion,Dull note was present on right side of chest in all regions and resonant on left in all regions & on Auscultation, air entry was decreased on right side and vesicular breath sounds were present in left side in all regions.

Laboratory investigations revealeda haemoglobin level of 8.8gm/dL,white blood cell count 18700/uL,platlet count 5.10lac/cumm,Erythrocyte sedimentation rateof 26 at the end of one hour, HIV and HBsAG are non reactive, Protein-6.80/2.69/4.11/0.6, urea 18, creatinine 0.50, sgot 155, sgpt 111, Bilirubin 1.86 (direct 1.01 and indirect 0.85), PT/INR- 15/14/1/1

Sputum for AFB was Negative

CHEST X-RAY suggestive of non-homogenous opacity in right hemithorax ,trachea shifted to right side.(Figure 1)

Bronchoscopy was done which showed lobulated mass lesionat the lower end of trachea completely obstructing right main stem bronchus and extending into left main stem bronchus, carina not visible.(Figure 4)

BAL R/M, C/S shows no growth,BAL cytology was negative for malignancy.**BAL CBNAAT–MTB detected, Rifampicin resistance.**

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CECT CHEST suggestive of intraluminal irregular heterogeneously enhancing lesion mesuring 3.2 * 4.6*3.9 cm in AP, TR, CC axis seen in right main bronchus / hilar region extending up the carina. There is resulting partial collapse of the right lungs. Multiple cavitatory lesions with air fluid levels and surrounding consolidation seen in entire right lung suggestive of post obstruction cystic bronchiectasis. Multiple enhancing lymphnodes seen right high / low paratracheal , pre / sub carinal and right hilar region with maximum short axis diameter of 11 mm.(Figure 2 and 3)

On**HISTOPATHOLOGY** the section show bits of tumor tissue,lining stratified squamous epithelium shows hyperplasia, subepithelial tissue shows tumor composed of cuboidal to round cells with monomorphic vesicular nuclei,moderate to abundant eosinophilic to clear cytoplasm,forming ducts,lobules. Stroma shows myxoid change. Mitotic figures not identified; suggestive of **Low gradeMucoepidermoid Carcinoma.** (Figure 5)

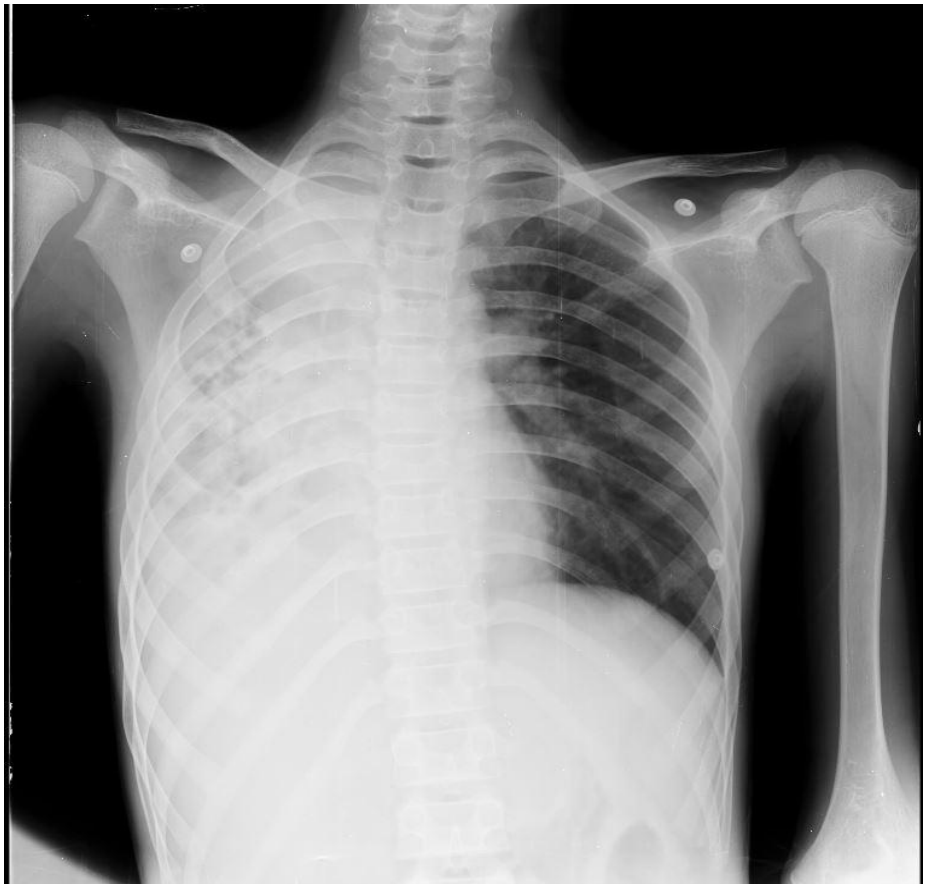

Figure 1

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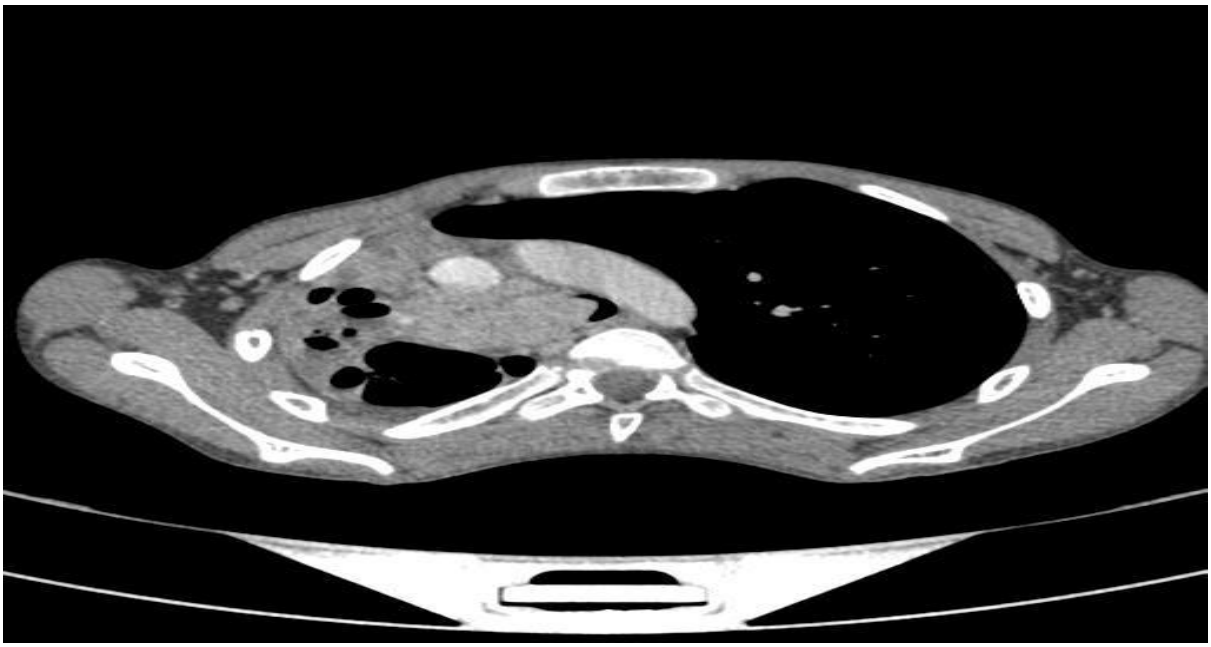

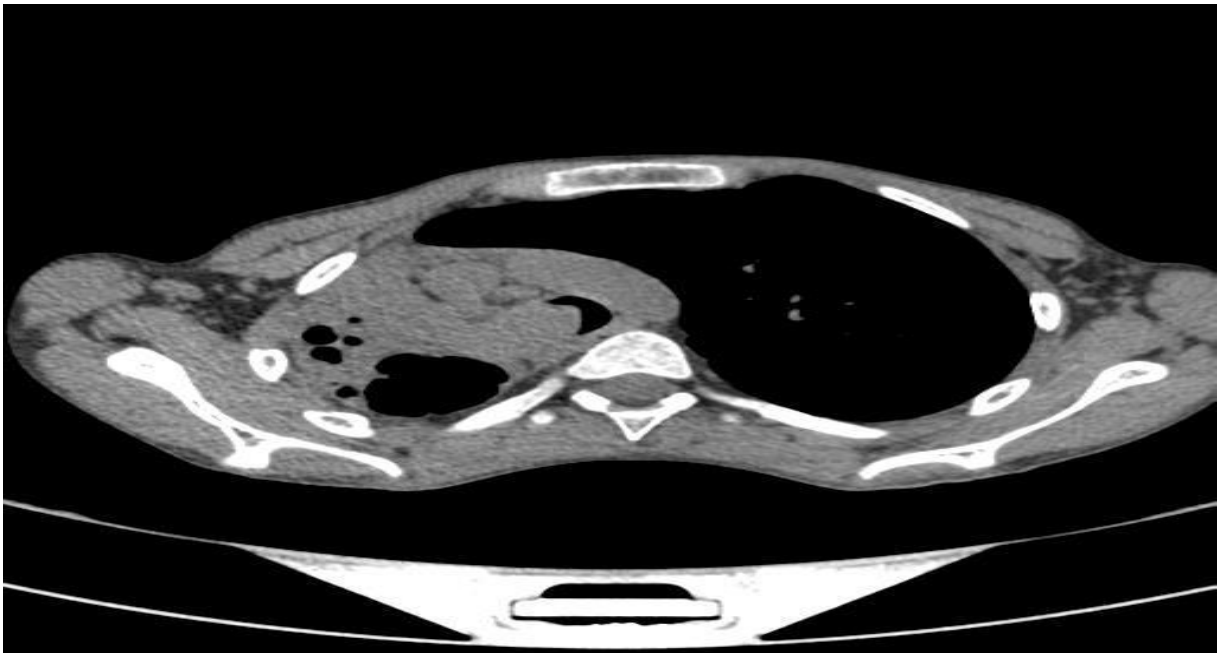

Figure 2 and 3

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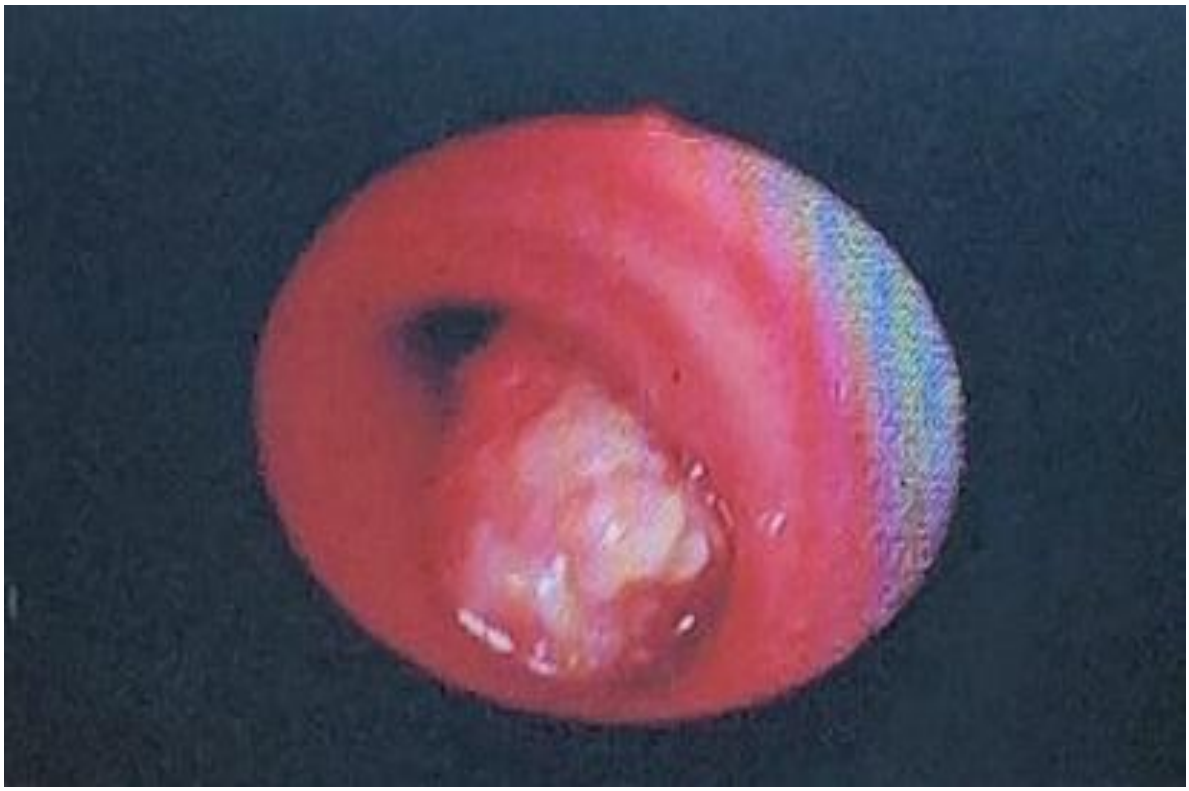
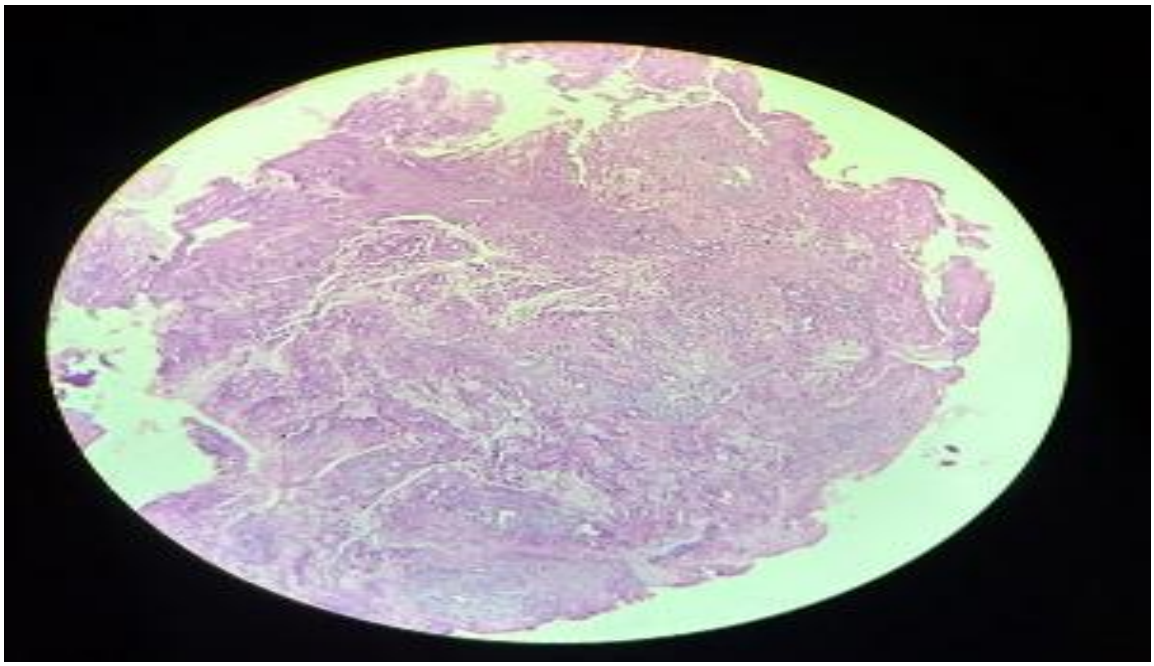


Figure 4



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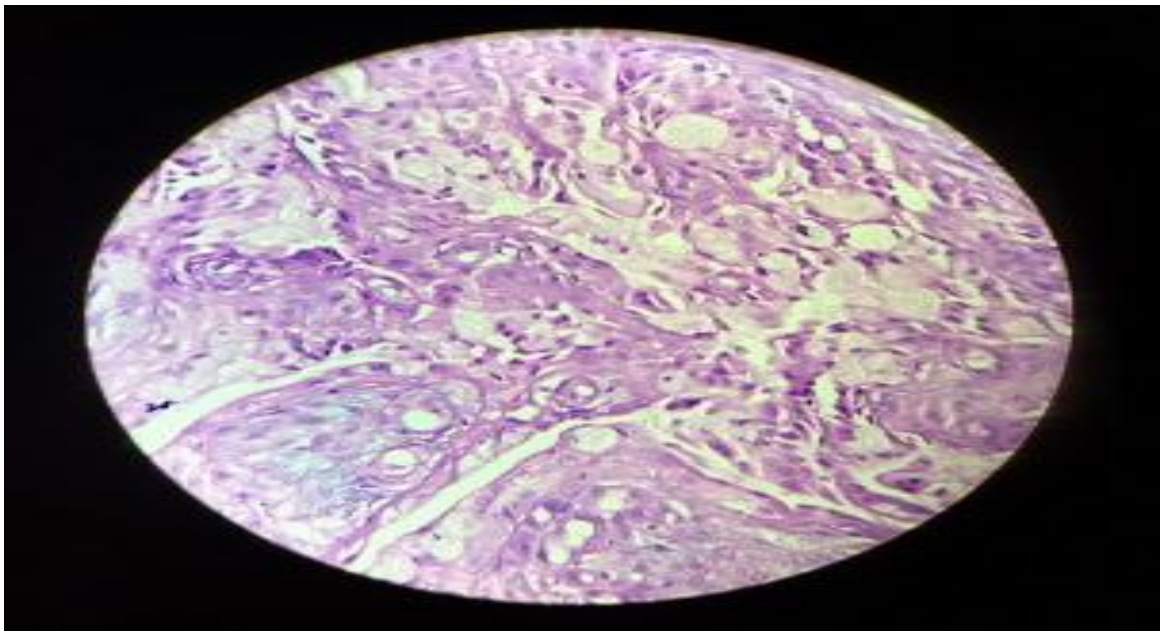

Figure 5

DIFFERENTIAL DIAGNOSIS

Benign	Malignant	Infective	Miscellaneous
Fibroepithelial polyp	Bronchogenic carcinoma	Tuberculosis	Mucous plugs
	Endobronchial metastasis	NTM*	Foreign body
Hamartoma	Bronchial carcinoid	Nocardia	
Lipoma	Mucoepidermoid carcinoma	Actinomycosis	
	Adenoid cystic carcinoma	Fungal infections	

*NTM: Nontuberculous Mycobacteria

III. DISCUSSION

Mucoepidermoid carcinomas usually occur in the major and minor salivary glands. Pulmonary MECs are uncommon, and primary endobronchial MECs account for 0.1–0.2% of all pulmonary neoplasms.It affects males and females equally with almost half of the cases of MEC occur in patients under 30 years of age. It is slow growing & patient may present with symptoms related to endobronchial involvement such as a cough, wheezing, hemoptysis or those related to post-obstructive pneumonia-like, fever and chest pain. Chest X-ray shows nonspecific features. Bronchoscopy and CT are required for diagnosis, assessment of the extent of involvement and for differentiation from other conditions.

On bronchoscopy, EMEC usually appears as an exophytic polypoid luminal mass. Distal to the lesion, bronchus is usually dilated, filled with abundant mucoid material and adjacent lung parenchyma generally demonstrates atelectasis or features of pneumonia.Confirmatory diagnosis is made on histopathology. EMEC is morphologically similar to MEC of major salivary glands. It

comprises mucus-secreting, squamous, and intermediate cells that can be organized into different patterns and are classified as low-grade and high-grade lesions. High-grade lesions usually demonstrate necrosis, mitosis, and nuclear pleomorphism, while low-grade lesions lack these features as was seen in the present case.

Surgical resection remains the standard therapy for patients with pulmonary MEC.The goal of surgery is to obtain a complete resection with negative surgical margins. Radiation therapy has been used to treat high-grade MECs with an inconclusive effect on patient survival. Low grade MEC have excellent prognosis with 5 year survival of 97.6%.

Multidrug-resistant tuberculosis (MDR-TB) is defined as *Mycobacterium tuberculosis* resistant to isoniazid and rifampicin with or without resistance to other first-line drugs . For the diagnosis of pulmonary tuberculosis including pulmonary MDR-TB, sputum smear and culture examination are the commonest tests to be performed, followed by drug sensitivity testing (DST) in the latter case. Currently, rapid diagnostic tests such as nucleic acidamplification tests (NAAT) are being frequently used for the diagnosis of MDR-TB.

Treatment of Multidrug-resistant tuberculosis is according to PMDT (Programmatic Management of Drug Resistant Tuberculosis) guidelines in India.

IV. CONCLUSION

This report highlights the importance of keeping a high index of suspicion of an endobrochial growth. Even in high TB prevalence countries, a thorough clinical and radiological assessment should be performed before treating a patient as sputum smear negative pulmonary tuberculosis. Any patient having radiological features suggestive of possible post-obstructive pneumonia should undergo prompt, flexible bronchoscopy to rule out endobronchial growth.

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