

An Unusual Acute Presentation of Lung Malignancy in Antenatal Female

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Running title: *Cystic Adenocarcinoma in a young pregnant female*

Abstract: Lung adenocarcinoma is the most common primary lung cancer. It falls under the umbrella of non - small cell lung cancer (NSCLC) and has a strong association with previous smoking. While incidence and mortality have declined, it remains the leading cause of cancer deaths. [1] Lung cancer is widespread globally despite new treatment, the 5 yr survival is less than 12 - 15 %. Over the past 4 decades, there has been a marked increase in lung adenocarcinoma in women and this has been linked to smoking. The mean age of diagnosis of lung adenocarcinoma is 20. In the last two decades adenocarcinoma has replaced squamous cell carcinoma of lung as most prevalent non - small cell carcinoma. Adenocarcinoma of the lung usually evolves from the mucosal glands and represents about 40% of all lung cancers. It is the most common subtype to be diagnosed in people who have never smoked. Lung adenocarcinoma usually occurs in the lung periphery, and in many cases, may be found in scars or areas of chronic inflammation. [2] Local spread may occur in the pleura, diaphragm, pericardium or bronchi with advanced disease spreading to mediastinal structures.

Keywords: Lung carcinoma, adenocarcinoma, NYHA

1. Introduction

It is well known that, lung cancer can manifest itself as solid and subsolid nodules or masses. However, in this era of interventional radiology lung cancer is increasingly being recognized, presenting as malignancy in relation to cystic airspaces. Cavitation is relatively common in lung cancer, occurring in 2 - 16 % cases. Typically, the cysts have thick walls. A cyst is defined as air containing space surrounded by a thin wall (4mm or less), while a cavity is defined as a space with a wall at least 5 mm thick. A typical lung cancer presenting as solitary thin wall cyst may occasionally occur.

Here we present a case of young antenatal female with acute onset breathlessness having a large cystic mass, later diagnosed as adenocarcinoma lung.

2. Case Report

A 30 yrs female six months ANC, non smoker, presented with complaints of acute onset breathlessness since fifteen days which progressed from NYHA Grade 1 to Grade 4 with a period of two weeks, cough predominantly dry not associated with any hemoptysis, low grade fever on and off since fifteen days, loss of appetite and loss of weight (unquantified) since fifteen days, complains of Right sided chest pain since five days. There was no history of pulmonary tuberculosis, diabetes and hypertension. Patient was not on any long term medications. There was no history of prior pleural effusion in the patient. Patient was resident of west Bengal was used to have close contact with dogs and sheep. She was nonsmoker and denies any addictions and also no biomass fuel exposure. There was no pallor, icterus, clubbing, lymphadenopathy. Examination of Respiratory system revealed reduced breath sounds on Right side of chest with dull note on percussion. The complete blood

counts, renal and liver function tests were within normal limits. The chest radiograph AP view taken revealed right sided massive pleural effusion? Cavity. Subsequently ultrasonography was done which revealed "A large anechoic lesion with moving internal echoes of maximum thickness measuring 5.9 cm is noted in right hemithorax, from which basal segments of right lung are appreciated separately. The lesion measuring approximately 14.8*14.3 cms, these could likely infective cystic lesion likely hydatid cyst. Repeat USG scan revealed 15*12*11cms anechoic cystic lesion in Right hemithorax with maximum thickness of 7.5mm likely suggestive of hydatid cyst in Right lung.

As patient is ANC with five months amenorrhea MRI imaging done, suggestive of "Large cystic lesion in the Right thoracic cavity measuring 22*14*13cm in size. Findings suggestive of infective etiology, needs correlation with fluid cytology. In view of altered marrow signals in the vertebrae, possibility of malignancy should be ruled out." Under cover of inj. Pheniramine and Hydrocortisone USG guided pleural fluid tapping was done approximately 25 cc hemorrhagic fluid was tapped and sent for cytological examination report. Fluid cytology report suggestive of No Atypical cells seen, no evidence of malignancy. Sputum studies revealed insignificant growth no atypical cells. The final diagnosis remained unclear.

Patient went into respiratory distress and so was intubated and mechanically ventilated successively we inserted Intercostal drainage tube in right chest wall cavity. Patient succumbed the next day of mechanical ventilation. Autopsy revealed the diagnosis of Adenocarcinoma of Lung.

Histopathology

Right Lung - section showed tumor cells arranged in glandular pattern, with areas of extensive necrosis and ischemic infarct are seen. Individual tumor cells are round to oval with increased (nuclear: cytoplasmic) N: C ratio, nucleoli with vesicular cytochromatin and prominent nucleoli. Areas of fibrosis are present.

IMPRESSION - Mixed Invasive Adenocarcinoma

Left Lung - Alveoli are filled with edema fluid. Small deposits of similar tumor cells are seen in few places. Lymphovascular emboli are seen.

Hilar Lymph Nodes - Lymph node architecture is distorted and is completely replaced by tumor cells with tumor cells arranged in glandular and micro papillary pattern at places intracytoplasmic mucin is seen.

Tumor cells are also seen in lymphatic sinuses and in perilymphatic tissue.

Liver - section studied shows metastasis of tumor with glandular and micro papillary pattern with large central areas of necrosis.

Kidney - Metastasis of tumor cells seen in Renal Cortex in glandular pattern. Along with areas of necrosis are seen. Sections from renal capsule shows fibrosis and tumor deposits.

Peri - pancreatic Nodes – shows metastasis of tumor. Sections from flap like structure below the diaphragm shows fibrous tissue, congested blood vessels and deposits of tumor cells.

Impression: Mixed Invasive Adenocarcinoma

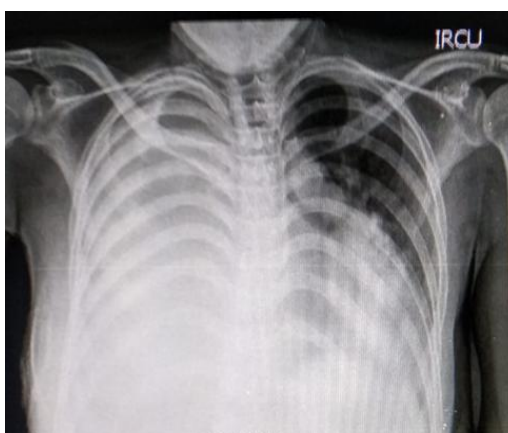


Figure 1

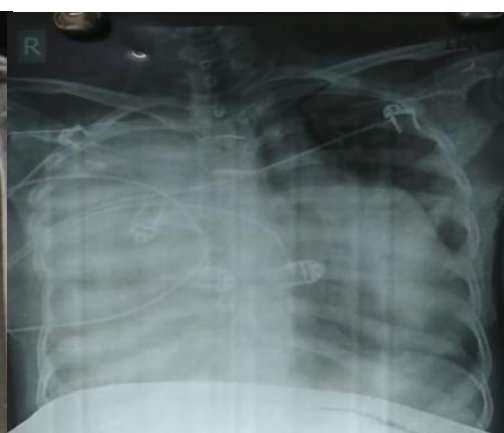


Figure 2

CXR (Fig.1, 2) suggestive of large cystic mass in Right lung parenchyma, shifting the mediastinal structures to left side



Figure 3

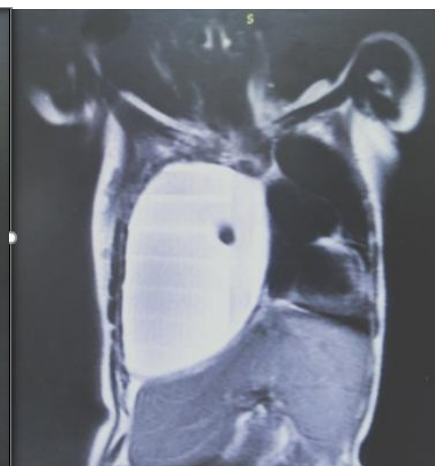


Figure 4

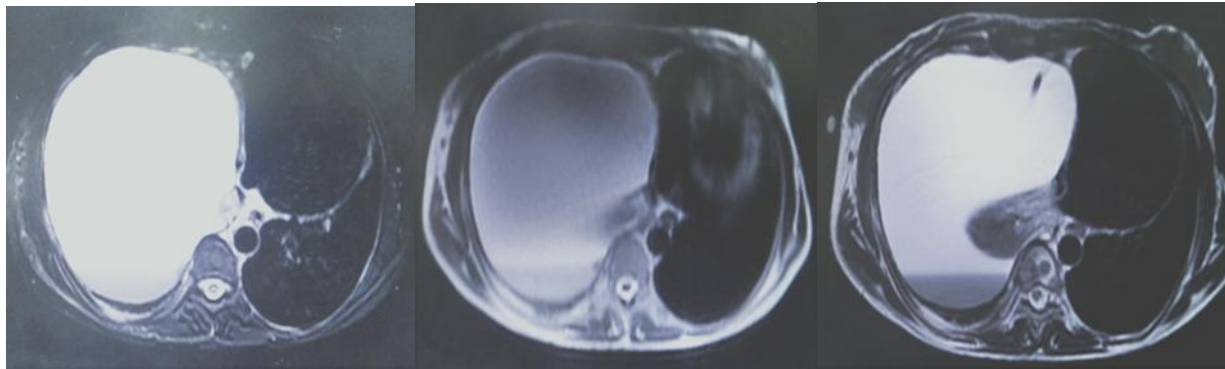


Figure 5

MRI Chest (Fig.3, 4, 5) –Largecystic lesion/ collection is noted in Right thoracic cavity, compressing and displacing lung parenchyma posterosuperior and displaced the cardia to left side. It measures about 22*24*11 cm in size. No septations and intracavitary nodules are seen.

Findings suggestive of infective etiology, needs correlation with fluid examination though fluid cytology reported as no atypical / malignant cells seen.

3. Discussion

Adenocarcinoma has replaced squamous cell carcinoma as the leading lung cancer cell type among both men and women in many parts of the world. The incidence of adenocarcinoma in India is also on rise. Adenocarcinoma naturally grows slowly and usually metastasize later in its course than small cell lung carcinoma. [1] Lung cancer presenting as thin wall cyst is unusual and may easily mislead clinicians to diagnose of other benign diseases, including infection, tuberculosis, emphysema.

Lung adenocarcinoma is classified into 4 types according to 2021 WHO classification of thoracic malignant epithelial tumors - 1) minimally invasive adenocarcinoma 2) invasive non mucinous adenocarcinoma includes - lepidic adenocarcinoma, acinar adenocarcinoma, papillary adenocarcinoma, micropapillary adenocarcinoma, solid adenocarcinoma 3) invasive mucinous adenocarcinoma 4) colloid adenocarcinoma 5) fetal adenocarcinoma 6) adenocarcinoma enteric type

A significant number of patients with lung adenocarcinoma will present with a loco regional spread that presents with symptoms like – superior vena caval obstruction, Phrenic nerve palsy, Horner's syndrome, Pericardial effusion.

If a lung nodule is found the next step depends upon the imaging characteristics of the lung nodule. If a nodule is suspicious for lung cancer PET/CT can be done followed by biopsy or surgical excision. [3] Sputum cytology is rarely helpful as most adenocarcinoma are peripheral lesions. Needle]. thoracentesis is done when as effusion is there which can be both diagnostic and therapeutic. [5] Staging of patient is mandatory before recommending any treatment.

Stage 1/2/3A – These are called as Limited invasive lesion or limited nodal disease. If operable surgical resection is recommended with lymph node samplinglobectomy or

pneumonectomy are performed. If not operable radiotherapy with adjuvant chemotherapy is performed.

Stage 3B/4 – These are unresectable and treated with chemo radiation. Some extra pulmonary sites may be treated for palliation. [6] Specimen needs to be tested for EGFR, ALK Mutation. Those positive for EGFR are treated with tyrosine kinase inhibitors, ALK Inhibitors as first line chemotherapy. [4]The EGFR and ALK negative tumors are treated with Platinum based drugs as first line chemotherapy bevacizumab as a possible agent.

Differentials of adenocarcinoma are benign lung lesions, granuloma, hamartoma, metastatic lesions and pneumonia.

Thin wall cystic lung cancer is most common in adenocarcinoma. Thin cystic wall cystic lesions were detected in 15/18 patients with moderately or well differentiated adenocarcinoma. Qt et al also reported 16 cases of adenocarcinoma.

In the present case, a young female presented with primary thin wall cystic mass. Looking at the acute onset, young age and exposure to dog n sheep, USG findings the initial diagnosis was hydatid cyst and so aspiration was not done. As computed tomography could not be done so as to avoid radiation exposure, MRI was done and showed altered marrow signals and so malignancy was also suspected.

We presented this case to conclude that adenocarcinoma and so other so other malignancies can present as cystic lesions. So all cystic lesions not completely satisfying clinical features and examinations of benign lesions like hydatid cyst, pulmonary tuberculosis etc. should be evaluated further.

4. Review of Literature

Adenocarcinoma of the lung usually present as a solid nodule. On the other hand, lung cysts are usually due to non - neoplastic process. However on rare occasion, lung cancers can present as cystic lesion. We present a case of 30 yrs antenatal female who presented with complaints of cough since 15 days, breathlessness since 10 days which progressed over time to NYHA Gr.3 and loss of appetite. As a primary investigation chest x - ray was done and a large cystic lesion noted on the right side in mediastinum causing mediastinal shift to the left side, MRI Chest showing large cystic lesion and collection is noted in Right thoracic cavity,

about 22*24*11 cm in size. Under all aseptic precautions diagnostic aspiration done which revealed no malignant cells in the fluid, so the other differential was hydatid cyst. By the time patient went into hypoxia and respiratory failure and got intubated, subsequently, ICD was inserted, unfortunately patient succumbed. Autopsy revealed the diagnosis of Adenocarcinoma of Lung with metastasis into liver, renal parenchyma and peripancreatic nodes.

References

- [1] Travis WD, Travis LB, Devasa SS Lung Cancer 1995; 75: 191 - 202
- [2] Brambilia E, Travis WD, Colby TV, Corrin B, The New World Health Organization Classification of Lung Cancer.
- [3] Basso SM, Mazza F. Marzano B et al - improved quality of life in patients with malignant pleural effusions following video assisted thoracentesis and talc pleurodesis.
- [4] Fishman's Pulmonary Diseases and Disorders – Fifth Edition
- [5] Tremblay A, Robbin's S, Berthiaume L, et al - Natural History Of Asymptomatic Pleural Effusion in Lung Cancer Patients. J Bronchology 2007, 14; 98
- [6] Li C, Li H. Adenosquamous carcinoma of the lung Onco targets The [Pubmed]
- [7] Hsia TC, Liang JA, Li CC - comparative effectiveness of concurrent chemotherapy versus EGFR - tyrosine kinase inhibitors for the treatment of Stage 3B lung adenocarcinoma patients. Thoracic cancer 2018

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