

# A Case of Adenocarcinoma of lung – Primary Versus Secondary

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## ABSTRACT

**Introduction:** Adenocarcinoma is the most common form of lung cancer. It is a type of non small cell carcinoma of lung, most commonly seen in women. Adenocarcinoma occurs in more peripheral lung location and may be associated with the history of smoking.

**Case report:** A 54 year old female caretaker presented with cough with expectoration since 1 month, gradual in onset, non progressive, scanty in amount associated with decreased appetite since 1 month and breathlessness on exertion since 1 week. She had a history of exposure to tuberculosis patient and was diagnosed with meningioma. There was history of passive smoking. General examination showed right supraclavicular lymph node enlargement. Respiratory examination showed decreased chest movements bilaterally along with coarse crepitation all over lung fields along with decreased intensity of breath sounds bilaterally. Chest x-ray was suggestive of metastasis. HRCT chest also suggested metastasis. FNAC lymph node and sputum of cytology suggestive of metastatic adenocarcinoma. USG abdomen and pelvis as well as CECT abdomen was done to rule out primary lesion

**Conclusion:** As survival rates vary significantly depending on the type of adenocarcinoma, the survival rate after five years depends on the stage of cancer. So early detection is critical for better outcome. The prognosis for different metastatic pattern of intrathoracic metastasis of Lung distinct in EGFR mutant lung adenocarcinoma patient. Early diagnosis and prompt initiation of treatment is key for the prognosis.

**Keywords:** Adenocarcinoma, EGFR, Metastasis, Female, Supraclavicular

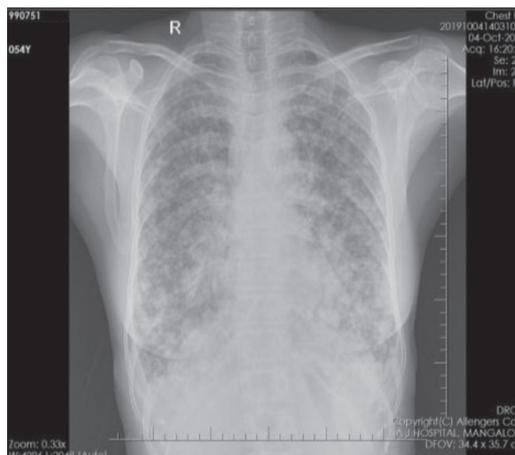
## INTRODUCTION

Lung cancer is one of the most common cause of death all over the world. Adenocarcinoma of lung is one of the most common form of lung cancer. It is a type of non small cell carcinoma of lung. Most commonly seen in women.<sup>1</sup> Adenocarcinoma occurs mostly in the peripheral lung location and may be associated with the history of smoking. They are the most common type of lung cancer occurring in non smokers

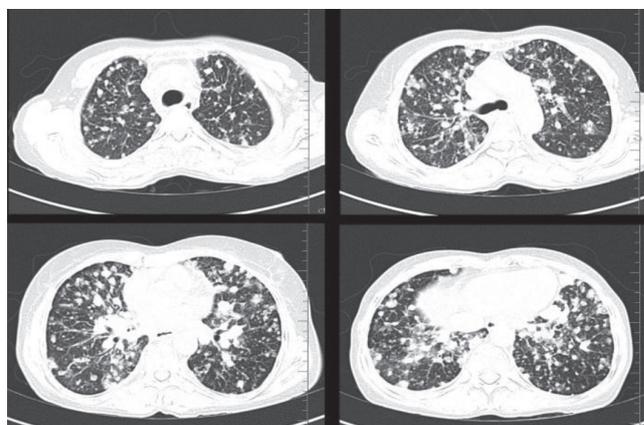
## CASE REPORT

A 54 year old Rajeshwari who is a caretaker by occupation came with complains of cough with expectoration since one month, gradual in onset, non-progressive, scanty in amount, yellowish to white in color, associated with decreased appetite since one month, also gives history of breathlessness on exertion since one month, gradual in onset. She also gives complaints of vomiting. She was diagnosed with meningioma. She had a history of exposure of tuberculosis six years ago as a caretaker to a TB patient and has history

of passive smoking. On examination right supraclavicular lymph node was palpable. Respiratory examination showed decreased chest movements bilaterally and coarse crepitation all over lung fields. Chest x-ray showed cannon ball appearance suggestive of metastasis as shown in figure.<sup>1</sup> She was initially started on oxygen supplementation and IV antibiotics and nebulization. Pulmonary medicine



**Figure-1:** chest x ray shows cannon ball appearance suggestive of bilateral lung metastasis



**Figure-2:** HRCT chest shows multiple randomly distributed nodules in bilateral lung fields with mediastinal necrotic lymphadenopathy suggestive of metastasis

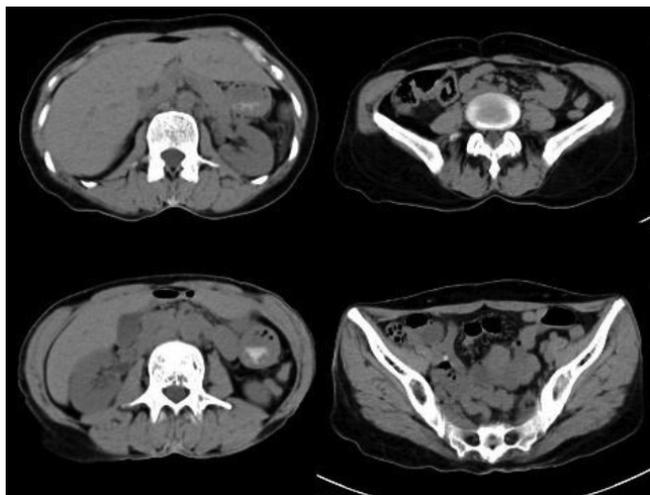
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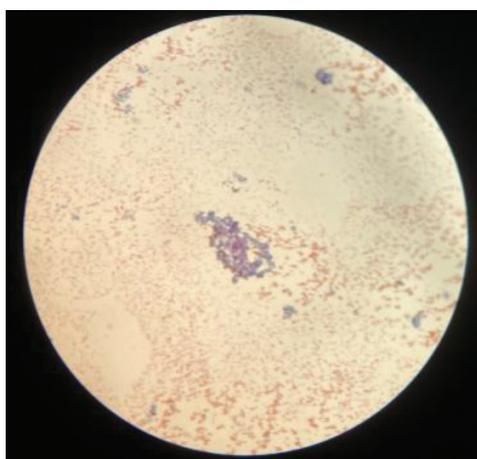
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**Figure-3:** CECT abdomen showing normal study



**Figure-4:** FNAC biopsy of right supraclavicular lymph node showed cluster, sheets, papillary clusters of tumor cells with high N:C ratio, pleomorphic nuclei with irregular nuclear membrane and multiple nucleoli and scant cytoplasm suggestive of adenocarcinoma cells

reference was sought and HRCT was advised as shown in figure<sup>2</sup>, which showed multiple randomly distributed nodules in bilateral lung fields with mediastinal necrotic lymphadenopathy suggestive of metastasis. In order to detect the primary lesion, usg abdomen and pelvis and CECT abdomen and pelvis figure<sup>3</sup> showed normal study. FNAC of right supraclavicular lymph node showed cluster, sheets, papillary clusters of tumor cells with high N:C ratio, pleomorphic nuclei with irregular nuclear membrane and multiple nucleoli and scant cytoplasm features suggestive of metastatic adenocarcinoma shown in figure.<sup>4</sup> As patient had persistent tachypnea, hypoxia, bronchoscopy procedure was withheld. Sputum for cytology revealed features suggestive of adenocarcinoma cells

## DISCUSSION

The lungs are the frequent metastatic targets for metastasis of extra pulmonary cancer with or without known primary tumor. Lung per se can be a primary lesion which can metastasize to lung. Metastatic carcinoma of unknown primary localization contributes to about 4% of all diagnosed

lung cancer.<sup>1</sup> Secondary lung tumors are neoplasms that spread from a primary lesion carcinoma. The primary tumor can arise within the lung or outside the lung through blood stream or lymphatic spread.<sup>2</sup> Within this group adenocarcinoma can be found in 60%. Adenocarcinoma is more common in patients with a history of cigarette smoking and is most common form of lung cancer in younger women and Asian population. A diagnosis of lung cancer may be suspected on the basis of typical symptoms such as coughing up blood and unintentional weight loss which may prompt further investigations, such as medical imaging such as chest x-ray being the first imaging. HRCT allows for evaluation of other relevant anatomic structures such as nearby lymph nodes, adrenal glands, liver and bones. Nuclear medicine imaging like PET –CT. A biopsy of any suspected lung cancer is performed in order to perform a microscopic evaluation of cells involved and ultimately required to confirm the diagnosis.<sup>3</sup> Immunohistochemistry is a very valuable and often tool in the differential diagnosis of lung carcinomas whether primary or secondary to the lung. Immunohistochemistry also aids in the separation of small cell carcinoma from non-small cell carcinoma.<sup>3,4,5</sup> Treatment of this lung cancer is based upon the specific subtypes and the extent of spread from the primary tumor. Surgical resection, chemotherapy, radiotherapy, targeted therapy and immunotherapy are used in attempt to eradicate cancerous cells.<sup>6</sup> A similar case report was studied in the Department of Respiratory Medicine, Tokyo Dental college in Japan published in January 2019-volume 98-issue 4 - showed that patient had survived for more than 11 years since the diagnosis of lung cancer. In this study, long term survival was implemented by actively repeating cytotoxic chemotherapy and EGFR-tyrosine kinase inhibitor administration. Due to overlapping histologic features of histopathological distinction of primary and secondary tumor might be difficult Points favoring primary lung tumor are

- Primary lung tumors are mainly localized in upper lobes as singular nodules
- Stromal and vascularization pattern of primary tumor are characterized by vascular infiltrates, destruction and occlusion. <sup>1</sup>
- History of passive smoking.<sup>7</sup>
- Involvement of subcarinal and right supraclavicular lymph nodes
- Mainly Broncho alveolar pattern
- Commonly seen in females. <sup>1</sup>

Points favoring metastasis or secondary

- It involves lower lobes as multiple lesions
- Secondary tumors, intravascular embolization. <sup>1</sup>

How to solve the dilemma

- PET-CT for unknown primary. <sup>3,8</sup>
- Immunohistochemistry like cytokeratin, neuroendocrine marker, TTF-1, vimentin, HMB-45 gives vital clue as to the origin of primary tumor.<sup>3,4,5</sup>
- Molecular genetics like EGFR and ALK suggestive of lung metastasis.<sup>9</sup>

## CONCLUSION

As survival rates vary significantly depending on the type of adenocarcinoma, the survival rate after five years depends on the stage of cancer. So early detection is critical for better outcome. The prognosis for different metastatic pattern of intrathoracic metastasis is distinct in EGFR mutant lung adenocarcinoma patient. Early diagnosis and prompt initiation of treatment is key for the prognosis

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