



Unusual Imaging Features with Poorly Differentiating Squamous Cell Carcinoma of Lung-A Case Report

Authors

Dr Shashank Saurav¹, Dr Chandra Bhushan Kumar², Dr Atul Aman³

¹Senior Resident, Department of Radiodiagnosis, All India Institute of Medical Sciences, Patna, Bihar, India

^{2,3}Senior resident, Department of Anesthesiology, All India Institute of Medical Sciences, Patna, Bihar, India

Introduction

Squamous cell carcinoma, one of the non-small cell carcinomas of the lung accounts for 30 to 35 percent of all lung cancers. Historically this was the most common type of lung cancer, however incidence has gradually declined in past few decades in many countries with increased incidence of adenocarcinoma of lung¹. Squamous cell carcinomas are often encountered in male smokers¹. The lesions are usually located centrally resulting in intraluminal obstruction and lung collapse². Peripheral squamous cell carcinoma may be seen as a solid nodule or a mass with or without a spiculated margin³. Presence of cavitation is a frequent finding in primary squamous cell carcinoma of lung⁴.

Keywords: Squamous cell carcinoma, Bronchial carcinoma

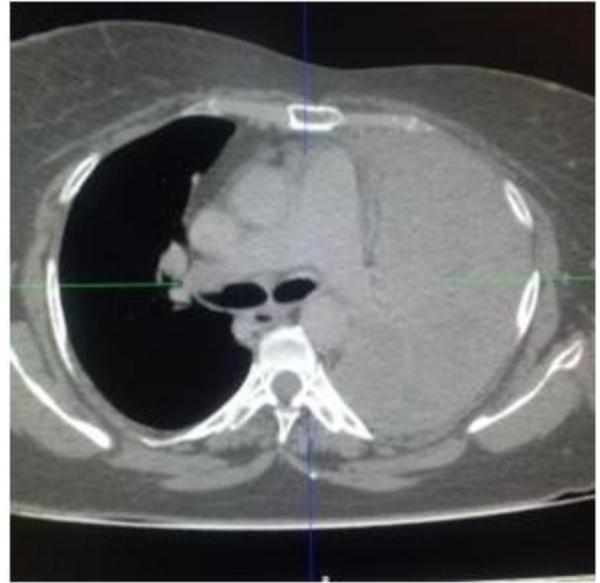
Case Report

A 58 year old female presented with a dry cough and chest discomfort for six months and had taken treatment intermittently from a general practitioner. She was admitted to the tertiary care hospital for two episodes of haemoptysis in two consecutive days. She did not have constitutional

symptoms such as loss of weight or malaise. Her initial biochemical tests were within normal range. Chest radiograph revealed complete homogeneous opacification of left hemi thorax mimicking a large pleural effusion (Fig. 1). Trachea was shifted towards right with evidence of mediastinal shift. Ultra sonography of chest revealed a large solid mass lesion, abutting pleura in the entire left hemi thorax, however there was no pleural effusion



A

**B****A****Figure 01:** Chest radiograph PA

(A) and lateral (B): homogeneously opacified left hemithorax.

The Contrast enhanced CT chest demonstrated a large soft tissue density (40- 50 HU) mass lesion occupying whole of left hemi thorax with significant contrast enhancement. Left main bronchus appeared to be completely cut off with total collapse of left lung (Fig. 2). The mass lesion showed homogeneous density with no necrosis or calcifications. The mass infiltrated down to the abdominal cavity via left diaphragmatic crus. However, there was no evidence of compression or infiltration of the distal oesophagus. A pleural effusion was not evident on CT thorax too. There were multiple enlarged lymph nodes in the mediastinum and left axilla with short axis diameter more than 10 mm. Ill-defined hypodense foci were seen in the left lobe of liver, the largest one measured at 1.5 x 2.1 cm in size which was later proved to be metastasis on liver biopsy. Rest of the abdominal organs were unremarkable and there were no bone metastasis.

**B**

Figure 02: Contrast enhanced CT of chest axial (A) and coronal (B): homogeneous contrast enhancing mass lesion completely occupying left hemithorax. Coronal view (B) reveals cut off of left main bronchus.

Initial tentative diagnosis was aggressive angiosarcoma completely occupying left hemi thorax. Since the patient did not consent for image guided biopsy, she was subjected to bronchoscopy and biopsy. It revealed infiltrating poorly differentiating squamous cell carcinoma of lung. Upper gastrointestinal endoscopy was not performed since there was no infiltration into the

distal oesophagus on CT thorax. The patient was referred to the oncologist for further management of this stage four bronchogenic carcinoma with chemo- radiation therapy.

Discussion

Squamous cell carcinoma is characterized by invasion of the bronchial wall by nests of malignant cells with abundant cytoplasm⁵. In most cases the tumour arises centrally within a lobar or segmental bronchus⁵. In Marshfield clinics study, 61% manifested as central mass, while 43% presented as peripheral lesions. These tumours are polypoid masses which grow into bronchial lumen with secondary invasion into bronchial wall infiltrating around the bronchi⁶. The mode of spread is direct extension into local lymph nodes. These tumours demonstrate slowest growth rate of all bronchogenic carcinoma. The central location and endobronchial component lead to common presenting symptoms such as cough and haemoptysis and frequent imaging finding of a hilar mass with obstruction. Evidence of bronchial obstruction is seen in 56% of affected patients⁶ as in our case. Central necrosis is a common manifestation of large tumours. Among all bronchogenic carcinomas, squamous cell is the most common type to cavitate⁷. However, in our case, there was no cavitation or central necrosis despite the large size of the tumour at the time of presentation. Squamous cell carcinoma is the most common tissue type manifest as superior sulcus tumour at lung apex which is a rare form of bronchogenic carcinoma⁸. These tumours usually lead to invasion of pleura and ribs causing shoulder pain and involvement of sympathetic ganglions contributing to Horner's syndrome⁹. Our patient did not have involvement of pleura or ribs. Chest radiograph is the most frequently used initial imaging modality of investigating a suspected lung pathology. However, the overlapping soft tissue shadows may hide small endobronchial lesions. Contrast enhanced CT is a valuable imaging modality in diagnosing an early

squamous cell carcinoma which is used to stage the tumour and guide decision making on treatment plan¹⁰. MRI is superior to CT in the evaluation of superior sulcus tumour, local invasion and hilar lymphadenopathy¹⁰. PET is an important tool in the assessment of squamous cell carcinoma and staging of patients who are considered to be candidates for radical treatment. The main additional advantage of PET is its ability to assess loco- regional lymph node metastasis more accurately than CT, to detect metastatic lesions that would have been missed on conventional imaging or are located in clinically hidden areas, and to help in the differentiation of lesions that are equivocal after conventional imaging. The indexed case did not have PET CT as it was stage four at the time of diagnosis.

Conclusion

This case highlights the fact that despite a tumour being large, nearly occupying the whole hemithorax, even in the absence of central cavitation or necrosis, possibility of squamous cell carcinoma needs to be considered as a differential diagnosis. This also proves the common statement that uncommon presentation of common neoplasms should come in differential diagnoses after the usual presentation of common neoplasms in thorax.

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