



AN UNUSUAL PRESENTATION OF ADENOCARCINOMA OF LUNG – A CASE REPORT

Pulmonary Medicine

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ABSTRACT

Lung cancer is the most common malignant neoplasm and the leading cause of cancer deaths worldwide. Lung cancer contributes approximately 13% of all new cancers. Pulmonary adenocarcinoma and squamous cell carcinoma are the most common pathologic types. According to the literature, adenocarcinomas are usually peripherally located tumors and hardly show any cavitation. Only a few case reports showed calcified primary lung tumour with calcified secondaries. In our case, the adenocarcinoma presented with calcified mass lesion /multiple calcified pulmonary nodules and mediastinal lymphadenopathy which was an unusual presentation mimicking non-malignant lesions, which made it's diagnosis more challenging. With a thorough history, clinical examination, investigations and invasive procedures, the final diagnosis was made. This case report is important for the general physician, pulmonologist and radiologists, as it demonstrates a rare spectrum of adenocarcinoma, presenting as calcified lung mass/ nodules and metastasis.

KEYWORDS

Lung cancer, Adenocarcinoma, Calcification, Metastasis

INTRODUCTION

Lung cancer is the most common malignant neoplasm and the leading cause of cancer deaths worldwide^[1,2]. Lung cancer contributes to approximately 13% of all new cancers^[1]. The major histological types of lung cancer include Squamous Cell Carcinoma (SqCC), Adenocarcinoma (ADC) and Small Cell Lung Cancer (SCC). In most developed countries, a relative rise in the incidence of ADC has been observed in the recent past^[3,4]. Pulmonary adenocarcinoma (ADC) and squamous cell carcinoma (SqCC) are the most common pathologic types and account for 50% and 30% of NSCLC respectively. According to literature, adenocarcinoma is usually a peripherally located tumor and hardly shows cavitation, whereas SQCC and SCC were centrally located with cavitation. Only a few case reports showed calcified primary lung tumour with calcified secondaries. Here we report this case, an unusual presentation of calcified primary adenocarcinoma with multiple calcified pulmonary nodules/ mediastinal lymphadenopathy mimicking non-malignant lesion.

CASE REPORT

A 47-year-old male non-smoker came to our OPD with chief complaints of back pain for 1 month and occasional dry cough for the past 1 month. He denied history of fever, weight loss, haemoptysis. He had no similar episodes in the past and no history of Pulmonary tuberculosis /ATT intake. He had no other comorbidities or any significant occupational exposure. Physical and respiratory examinations were normal. Chest x-ray was done, which showed a nodular lesion in the right upper zone. The patient was admitted in our hospital for further workup and was initially started on supportive measures. CECT thorax showed a 5.2x3.2x2cm sized enhancing mass lesion with coarse calcification within, noted in the posterior segment of right upper lobe which was causing abrupt cut off in the bronchi to the posterior segments. A 1.8x1.7x0.7cm sized enhancing lesion with coarse calcification within was noted in the lateral segment of the right middle lobe. Multiple calcified nodular lesions were scattered throughout both lung fields. Multiple enlarged calcified bilateral upper and lower mediastinal lymph nodes were seen in the paratracheal, subcarinal, Para-aortic, subaortic, paraesophageal and bilateral hilar regions with the largest one measuring 16mm in short axis diameter in the right hilar region. (Figure 1)

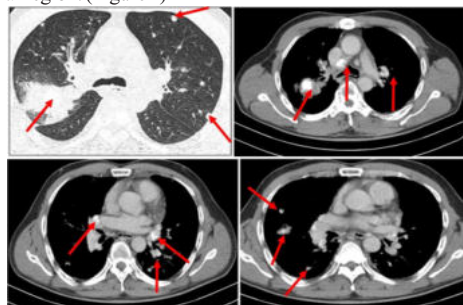


Figure 1 Cect Thorax

The initial differential diagnosis were pulmonary tuberculosis, sarcoidosis, pulmonary neoplasm and pneumoconiosis. Then MRI whole spine was done to rule out disseminated form of the disease which showed partial collapse of T6 vertebral body, right side transverse processes of the T6 and T4 vertebra and posterior-most ends of right side 5 and 6th ribs were showing mild swelling and edema changes, vertebral bone marrow showed mild hypointensity in both T1 and T2 images. MRI/CT Brain screening showed two parenchymal grey matter/grey-white matter junction lesions with disproportionate edema in the left parietal lobe of the cerebrum (Figure 2), spectroscopy in the lesion showed high choline peak. To confirm the diagnosis, CT guided biopsy (Figure 3) and diagnostic bronchoscopy were performed. HPE showed a dense band of fibrocollagenous septa infiltrated by atypical cells arranged in the glandular and nested pattern. The neoplastic glands lined by cuboidal to columnar epithelial cells showing moderate cytoplasm and pleomorphic nuclei showing predominant nucleoli and areas of calcification, suggestive of Adenocarcinoma (Figure 4). TBLB showed occasionally atypical cells and conventional TBNA report was inconclusive.

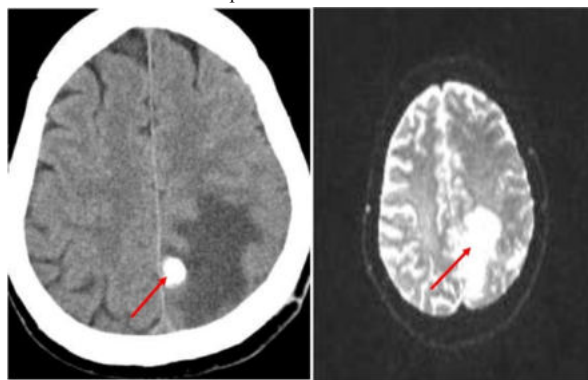


Figure 2 CT and MRI BRAIN



Figure 3 Ct Guided Lung Biopsy

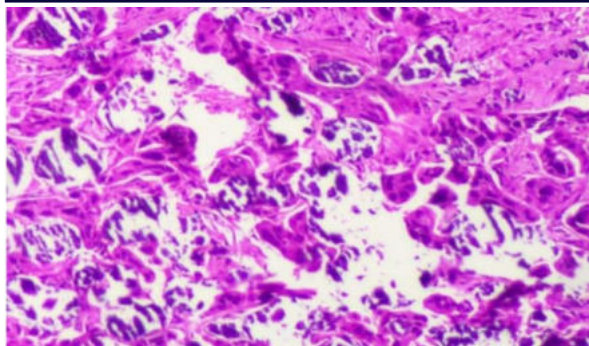


Figure 4 Histopathology Slide

DISCUSSION

According to the World Health Organization classification (2015), malignant epithelial lung tumors are divided into eight major groups. Adenocarcinoma, Squamous cell carcinoma; Neuroendocrine carcinoma includes Small cell carcinoma, large cell neuroendocrine carcinoma, Carcinoid (typical and atypical), Large cell carcinoma, Adenosquamous cell carcinoma, Sarcomatous carcinoma, Other and unclassified carcinomas, Salivary gland-like tumors. In recent years, the prevalence of adenocarcinoma has increased when compared to other subtypes of lung cancer^[5]. Lung adenocarcinoma is increasing among non-smokers and never-smokers^[6]. The classification of lung adenocarcinoma was updated in 2011 where the term bronchoalveolar carcinoma was removed, instead of which four new terms were introduced 1) adenocarcinoma in situ (AIS), 2) minimally invasive adenocarcinoma (MIA), 3) invasive mucinous adenocarcinoma and 4) lepidic predominant non-mucinous adenocarcinoma. New histopathological subtypes of invasive non-mucinous adenocarcinomas were also introduced which are acinar, papillary, micropapillary and solid. Non-mucinous adenocarcinoma is also now classified according to the predominant histological subtype as most tumours consist of a mixture of the subtypes^[7]. Typical appearances on CT of each of the above histologies are usually not identical as well as CT appearances are not pathognomonic^[7]. Calcification within lung lesions is mostly a sign of benignity but may be seen uncommonly in primary lung tumours. By the pattern of calcification, it is challenging to predict the histological subtype, but calcification is more commonly seen in adenocarcinoma than other lung cancer subtypes^[8].

Calcified pulmonary nodules are a group which narrow the differential diagnosis to an extent^[9]. Benign patterns are usually central, diffuse, laminated or popcorn calcifications and they are seen in granulomatous disease and hamartomas. Nodular calcification is mainly due to granuloma formation in response to a healed infection. All other patterns of calcification and possible diagnosis should also be considered. For example, a primary tumor with diffuse calcification is seen in osteosarcoma pulmonary metastasis. Sometimes central and popcorn patterns are also seen in patients with GI-tumors and patients after chemotherapy. Pneumoconiosis (Occupational lung diseases) is also a differential diagnosis that needs to be considered. Silicosis is usually associated with nodal egg-shell calcification and multiple small densely calcified nodules that are upper lobe predominant. Coal workers pneumoconiosis is almost identical to the pattern of silicosis, but with smaller nodules, and minimal symptoms^[10].

In our case, the presentation of the calcified mass lesion with multiple calcified pulmonary nodules/mediastinal lymphadenopathy differs from the typical appearance of malignancy. In such diversity of findings, it is important to rule out non-malignant conditions for which we need a thorough history, clinical examination and investigations. With the result of the histopathological examination, the diagnosis was made for this challenging case of primary pulmonary adenocarcinoma of aggressive behaviour and calcified pattern. This case report is important for the general physician, Pulmonologist and Radiologists, as it demonstrates a rare spectrum of adenocarcinoma, presenting as calcified lung mass/nodules and metastasis.

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