

## Case Report

# Adenosquamous Carcinoma Presenting with Necrotising Mediastinal Lymphadenopathy in a Non-smoker Young Adult: A Rare Case Report

Moti Lal Bunkar<sup>1</sup>, Rajendra Takhar<sup>1\*</sup>, Savita Arya<sup>2</sup>, Nitin Mirdha<sup>3</sup>

1 Dept. of Respiratory Medicine, Govt. Medical College, Kota (Rajasthan), India

2 Dept. of Dermatology, Govt. Medical College, Kota (Rajasthan), India

3 Dept. of Conservative Dentistry & Endodontics, Jodhpur Dental College and  
General Hospital, Jodhpur (Raj) India

### Abstract

**Introduction:** Adenosquamous carcinoma (ASC) of lung is a rare and poorly described subtype of bronchogenic carcinoma. Most patients of adenosquamous carcinoma of lung come from older age group and present with cough, chest pain, weight loss, dyspnoea, haemoptysis, and fatigue. The radiologic findings of adenosquamous lung carcinoma may consist typically a peripheral solitary nodule or less commonly a central hilar mass. Here we present a unique case of adenosquamous lung carcinoma in a young adult who presented with nonspecific complaints and unusual chest X ray along with atypical findings on contrast enhanced computerised tomography in the form of necrotising mediastinal lymphadenopathy.

**Presentation of Case:** A 30 years old male non-smoker and non-alcoholic office worker presented at with nonspecific symptoms of dry cough and exertional dyspnoea. Physical examination revealed a single, hard, non-tender lymph node in right supraclavicular region which on excisional biopsy and histopathology revealed poorly differentiated metastatic adenosquamouscarcinoma confirmed by immunohistochemistry. Chest skiagram PA view showed bilateral nodular shadows in mid and lower zones and right paratracheal opacity. CECT thorax revealed multiple mediastinal lymph nodes with hypo areas suggestive of internal necrosis. In spite of adequate anticancer chemotherapy regimen, clinico-radiological deterioration was observed.

**Conclusion:** Adenosquamous carcinomas usually presents in advanced stage, show an aggressive histologic behaviour with poor survival rates than the single histology group. Early identification of such cases with varied presentation may save lives. Keeping these things in mind, early identification of such cases with varied presentation may improve survival to some extent.

**Keywords:** Adenosquamous carcinoma; Lymphadenopathy; Necrotising; Mediastinal

**Academic Editor:** Xiaoning Peng, Hunan Normal University School of Medicine, China

**Received:** December 2, 2014; **Accepted:** December 24, 2014; **Published:** January 28, 2015

**Competing Interests:** The authors have declared that no competing interests exist.

**Consent:** We confirm that the patient has given the informed consent for the case report to be published.

**Copyright:** 2015 Takhar R *et al.* This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

**\*Correspondence to:** Rajendra Takhar, Dept. of *Respiratory Medicine*, Govt. Medical College, Kota (Rajasthan), India; Email: [drrajtakhar@gmail.com](mailto:drrajtakhar@gmail.com)

## Introduction

Adenosquamous cancers (ASC) is not a common variant of lung malignancy and found only in 0.4–4.2% of patients diagnosed as primary lung cancers [1-3]. Clinicoradiological characteristics of ASC are still not clearly defined. ASC are commonly found in men, who have a history of smoking. It is disease of old population usually presenting in sixth or seventh decade of their life [4, 5].

Major symptoms associated with ASC are cough, chest pain and dyspnoea. Other symptoms may include haemoptysis, fever and weight loss. The tumour does not present with any specific radiological pattern but majority of the tumours are peripherally located and are more common on the right side than the left [4, 6]. There may be wide imaging spectrum both in terms of size and morphology [6]. It is difficult to distinguish ASC from other histological forms on basis of imaging studies. These patients usually presents as a single lesion on chest x ray and mean tumour size may range between 2.8 - 3.8cm (range 0.6 - 11cm) [6,7]. CT radiographic includes usually a peripherally located mass with lobulation and/or intra-tumoral necrosis within the tumour [7].

There is also an increased incidence of lymph node metastases at the time of initial presentation compared with other histological types [8]. Mediastinal lymph node enlargement is found in more than half of cases of ASC [5]. Lymph node may enlarge at multiple mediastinal stations in these cases. There may be heterogeneous contrast enhancement of lymph nodes but no internal necrosis. Necrotising lymphadenopathy has been reported in squamous variety of lung cancer but it has not been reported in ASC.

To the best of our knowledge this is first ever reported case of adenosquamous carcinoma presenting with necrotic mediastinal lymph nodes in a non-smoker young adult, a very rare presentation of the disease, along with its review of literature. Other causes of necrotising lymphadenopathy were ruled out e.g. vascular compromise from vasculitis; occlusion or trauma; post mediastinoscopy, infections as tuberculosis, fungal infections and as well as malignant diseases like lymphoma and metastatic lesion primarily in squamous cell carcinoma.

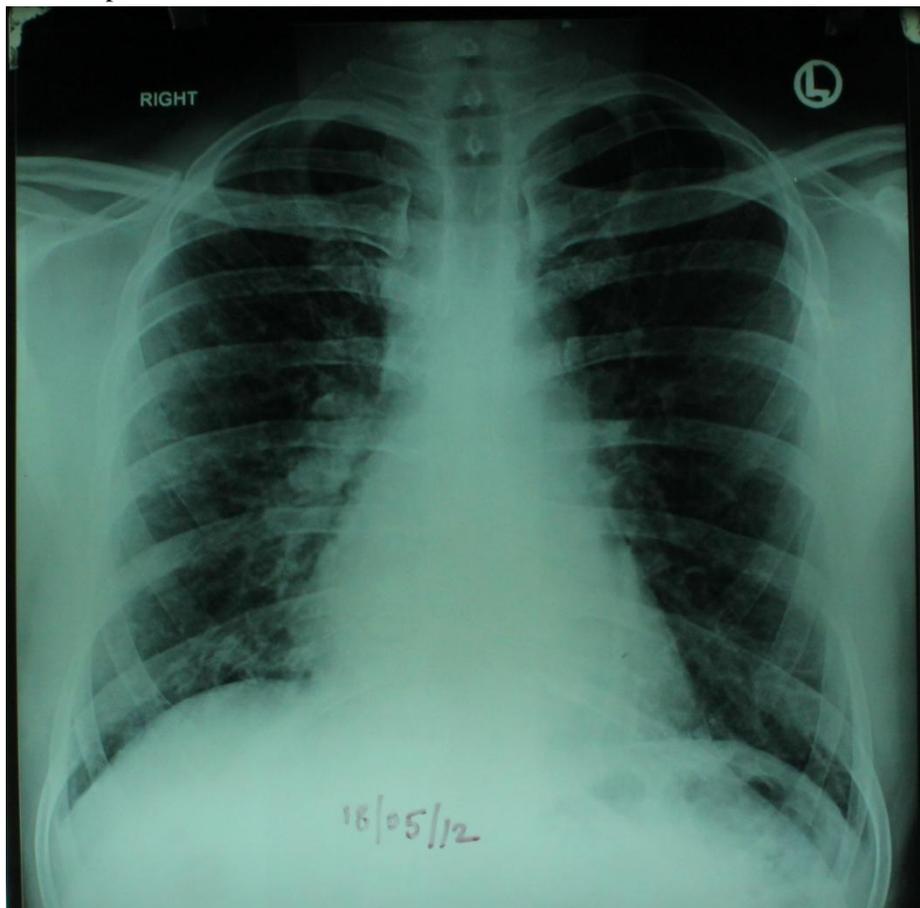
## Case presentation

A 30 years old male presented at the outpatient department with nonspecific symptoms of dry cough and exertional dyspnoea for 3 months. There were no complaints of haemoptysis and hoarseness of voice or constitutional symptoms like fever, loss of appetite and weight loss. The patient denied any history of trauma or drug intake, any operative procedure. He was a non-smoker and non-alcoholic office worker.

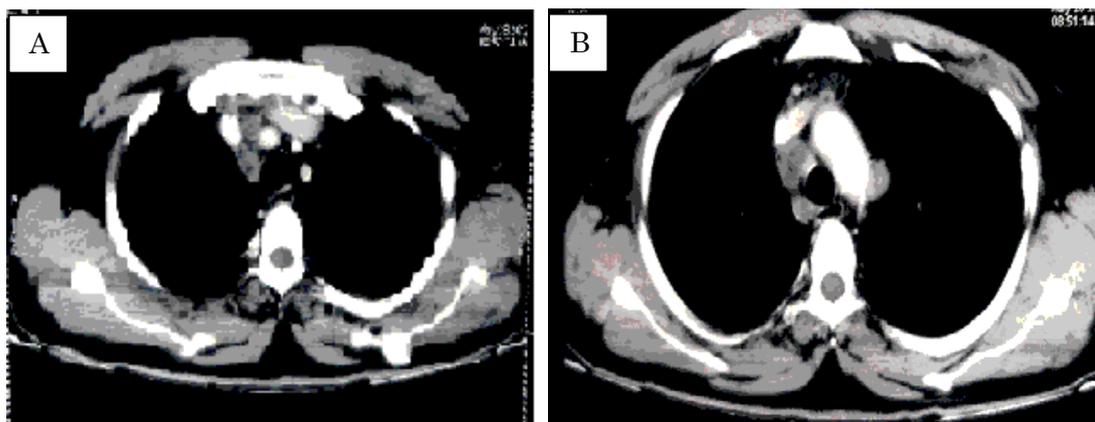
On physical examination, respiratory rate was 20/min, pulse rate was 112/min and blood pressure was 126/76 mm Hg. He was afebrile. A single, 1 cmx1cm, hard, non-tender lymph node in right supraclavicular region was noted that was fixed to underlying structures. Clubbing, cyanosis, dilated veins, pedal oedema and any organomegaly were absent. Respiratory system examination revealed bilateral inspiratory crackles in both infra-scapular regions. Examination of other systems revealed nothing abnormal.

Laboratory investigations revealed normal total and differential white cell counts but haemoglobin was 9 gm% and ESR was 20 mm first hour. Fasting blood sugar, renal function tests and liver function tests were within normal limits. HIV serology was negative. Sputum smear examination for AFB was negative. Pulmonary Function Tests and ECG were within normal limits. Ultra-sonography of abdomen revealed nothing abnormal. Chest skiagram PA view showed bilateral nodular shadows in mid and lower zones and right paratracheal opacity (**Fig 1**). Contrast Enhanced CT revealed para-tracheal, pre-aortic and pre-carinal lymph nodes. All the lymph nodes showed hypo dense

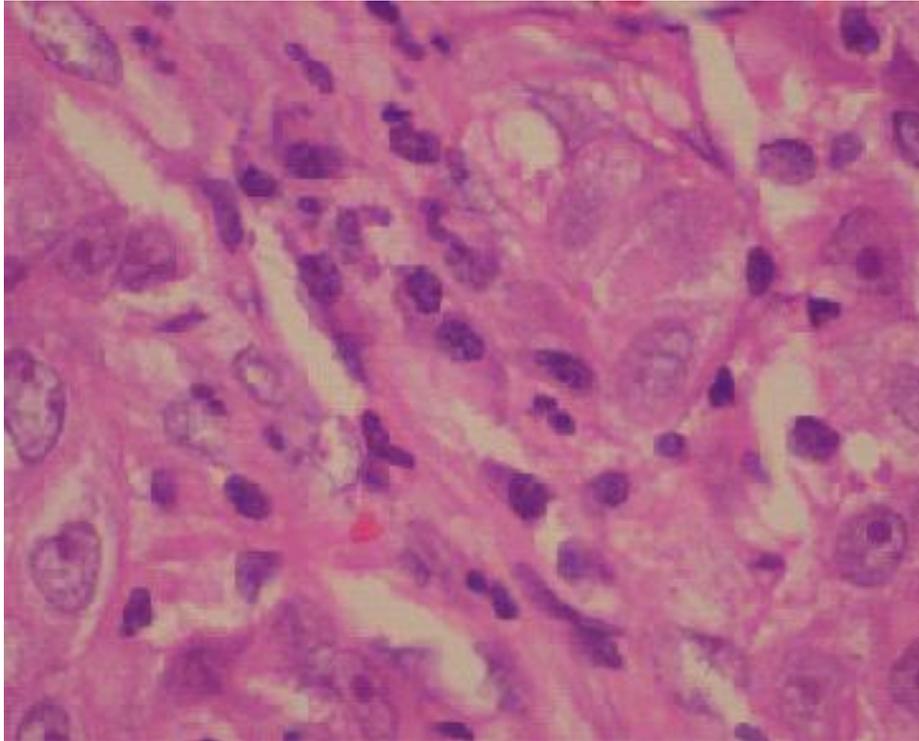
lesions suggestive of internal necrosis (**Fig 2.A &B**). Peri-bronchovascular thickening and septal thickening were also present.



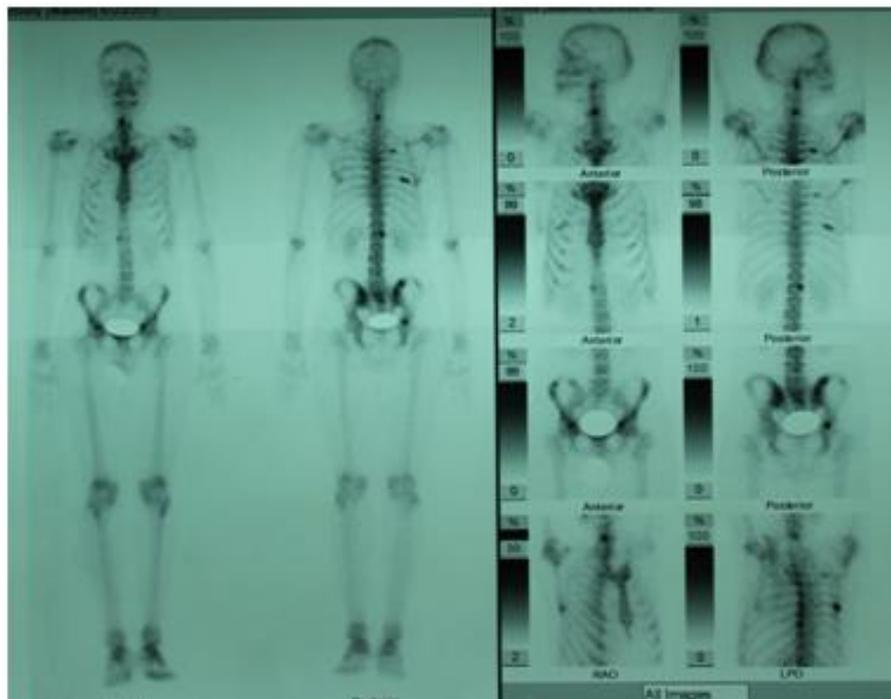
**Figure 1** Chest skiagram PA view showing bilateral mid and lower zone nodular shadows and right para-tracheal opacity.



**Figure 2** (A, B) CECT of Thorax showing necrotising lymph nodes. (A). Right para-tracheal and pre-tracheal (B). Right para-aortic, pre-carinal and left para hilar.



**Figure 3** Squamous cell element in ADC carcinoma with keratinization and intracellular bridges.



**Figure 4** Bone scan showing foci of increased tracer uptake (MDP) in vertebra (cervical and lumbar), multiple ribs (3<sup>rd</sup> and 6<sup>th</sup>) and pelvis suggestive of bone metastasis.

FNAC of the right supra-clavicular lymph node showed few lymphocytes and macrophages but it was negative for malignancy or tuberculosis. Excisional biopsy and histopathology of the lymph node revealed poorly differentiated metastatic adenocarcinoma. However, marker studies confirmed it to be Adenosquamous carcinoma as the specimen was positive for CK-7, TTF-1 and P-63 and

negative for CK-20 markers. Review of the histopathology slides unveiled the squamous component of the tumour as well (**Fig 3**). Bone scan showed foci of increased tracer uptake (MDP) in vertebra (cervical and lumbar), multiple ribs (3<sup>rd</sup> and 6<sup>th</sup>) and pelvis suggestive of bone metastasis (**Fig 4**).

In spite of adequate anticancer chemotherapy regimen, clinico-radiological deterioration was observed in follow up visits.

## Discussion

Non-small cell lung carcinoma (NSCLC) comprises about 80 percent of all lung cancers [9]. In spite of improvements in diagnostic technologies, more than 50% of the patients present with locally advanced or distant metastatic disease and the prognosis still remains unsatisfactory [10,11].

Adenosquamous carcinoma (ASC) of the lung comprises a rare variant, comprising about 0.4-4% of the lung carcinomas [12-14] but poor phenotypic characterization, specifically with regard to minor phenotypes, such as adenosquamous carcinoma(ASC) [15] and large cell neuroendocrine carcinoma[16]; may contribute to under diagnosis of the tumour.

Adenosquamous carcinomas show both the squamous and the adenocarcinomatous differentiation, each component constituting at least 10% of the tumour (also known as “collision tumour”) [17]. The areas of glandular and squamous differentiation may be located in different areas of the tumour or may be intimately admixed [18]. Most of these tumours are peripheral.

Diagnosis of the tumour is usually established by direct FNAC of the peripherally situated lung mass/lymph node or by an interventional procedure but biopsy is required for tissue differentiation. Further confirmation of ASC tumour type requires immune-marker studies [6,7] which may be positive for P 63, AE 1/AE 3, Cam 5.2, KL 1, CK 7, EMA &/or TTF-1 but negative for CK 20. In our case, it was positive for CK-7, TTF-1 and P-63 but was negative for CK-20.

ASC is more aggressive than other histologic subtypes of bronchogenic carcinomas and the median survival started from diagnosis to treatment is shorter as compared to adenocarcinoma, squamous and small cell lung cancer [2]. Metastasis is common despite good differentiation. Depending on staging, it is treated with anti-tumour chemotherapy or surgically resected. In a study of 56 patients by Takamori et al, the authors suggested that adenosquamous carcinoma histology was in itself a single and independent predictor of poor outcome at all stages, especially for stage I and II [3]. Ruffini et al also observed that the overall prognosis is inferior to that for either squamous cell carcinoma or adenocarcinoma because of a high rate of early metastatic spreading [19]. Five year survival in 172 patients who underwent resection was 45% in squamous cell carcinoma, 27% in adenocarcinoma and 26% in large cell carcinoma. Of the 13 patients (4%) with adenosquamous carcinoma, none survived for five years after surgical treatment [20]. Our patient was unfit for surgery and was unresponsive to chemotherapy.

## Conclusions

Lung tumours with mixed histologic pattern are a rare occurrence. Adenosquamous carcinomas have progressed to advanced stages at presentation in most of patients, show an aggressive histologic behaviour, and have survival rates significantly lower than the single histology group. One should keep these things in mind while dealing such patients with mixed histology patterns. Early identification of such cases with varied presentation may improve survival to some extent.

## Abbreviations

ASC-Adenosquamous carcinoma, CECT-Contrast enhanced computerised tomography, PA-posteranterior

## References

1. Nakagawa K, Yasumitu T, Fukuhara K *et al.* Poor prognosis after lung resection for patients with adenosquamous carcinoma of the lung. *Ann Thorac Surg.* 2003, 75:1740-1744
2. Naunheim KS, Taylor JR, Skosey C *et al.* Adenosquamous lung carcinoma: clinical characteristics, treatment, and prognosis. *Ann Thorac Surg.* 1987, 44:462-466
3. Takamori S, Noguchi M *et al.* Clinicopathological characteristic of adenosquamous carcinoma of lung. *Cancer.* 1991, 67:645-654
4. Yukio W, Koji T, Masahiko K *et al.* Clinicopathologic Features and Computed Tomographic Findings of 52 Surgically Resected Adenosquamous Carcinomas of the Lung. *Ann Thorac Surg.* 2014, 97:245-252
5. Hidetaka U, Sohsuke Y, Takeshi H *et al.* *Journal of Cardiothoracic Surgery.* 2010, 5:92
6. Kazerooni EA, Bhalla M, Shepard JA *et al.* Adenosquamous carcinoma of the lung: radiologic appearance. *AJR Am J Roentgenol.* 1994, 163:301-306
7. Yu JQ, Yang ZG, Austin JH *et al.* Adenosquamous carcinoma of the lung: CT-pathological correlation. *Clin Radiol.* 2005, 60:364-369
8. Hsia JY, Chen CY, Hsu CP *et al.* Adenosquamous carcinoma of the lung. Surgical results compared with squamous cell and adenocarcinoma. *Scand Cardiovasc J.* 1999, 33:29-32
9. WHO classification of lung tumours: Group C: malignant epithelial tumours. 1981, 120-125
10. Mountain CF: Revisions in the International System for Staging Lung Cancer. *Chest.* 1997, 111:1710-1717
11. van Rens MT, de la Rivière AB, Elbers HR *et al.* Prognostic assessment of 2,361 patients who underwent pulmonary resection for non-small cell lung cancer, stage I, II, and IIIA. *Chest.* 2000, 117:374-379
12. Fitzgibbons PL, Kern WH *et al.* Adenosquamous carcinoma of the lung: a clinical and pathologic study of seven cases. *Hum Pathol.* 1985, 16:463-466
13. Ishida T, Kaneko S, Yokoyama H *et al.* Adenosquamous carcinoma of the lung. Clinicopathologic and immunohistochemical features. *Am J Clin Pathol.* 1992, 97:678-685
14. Sridhar KS, Bounassi MJ, Raub W Jr. *et al.* Clinical features of adenosquamous lung in 127 patients. *Am Rev Respir Dis.* 1990, 142:19-23
15. Hsia JY, Chen CY, Hsu CP *et al.* Adenosquamous carcinoma of the lung. Surgical results compared with squamous cell and adenocarcinoma. *Scand Cardiovasc J.* 1999, 33:29-32
16. Iyoda A, Hiroshima K, Nakatani Y *et al.* Pulmonary large cell neuroendocrine carcinoma: its place in the spectrum of pulmonary carcinoma. *Ann Thorac Surg.* 2007, 84:702-707
17. Tochigi N, Dacic S, Nikiforova M *et al.* Adenosquamous carcinoma of the lung: a microdissection study of KRAS and EGFR mutational and amplification status in a western patient population. *Am J Clin Pathol.* 2011, 135 :783-789
18. Fishman AP, Jacks AE *et al.* Fishman's pulmonary diseases and disorders; Neoplasm of lung; Pathology of non-small cell lung cancers; *The McGraw-Hill Companies.* 2008, 5( II):1838
19. Ruffini E, Rena O, Oliaro A *et al.* Lung tumors with mixed histologic pattern. Clinico-pathologic characteristics and prognostic significance. *Eur J Cardiothorac Surg.* 2002, 22:701-707
20. Hofmann HS, Knolle J *et al.* *J cardiovas surgery.* 1994, 35:543-547