Case Report

Bronchoalveolar carcinoma on a background of chronic extrinsic allergic alveolitis in a spice miller – A case report

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Abstract

A case of bronchoalveolar carcinoma developing on a background of chronic extrinsic allergic alveolitis is discussed highlighting the likely increased risk of lung malignancies in chronic organic hypersensitivity pneumonitis and the need for further cohort studies and possible impact on occupation related safety and compensation.

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1. Case report

A 34 y old spice miller got hospitalized with breathlessness, expectoration of progressively increasing amounts of mucoid sputum and episodic hemoptysis of 2 months duration with diminished appetite.

Past medical records indicated a diagnosis dated 5 years back of chronic extrinsic allergic alveolitis from spice dust exposure, which was supported by clinical, radiological, spirometry and gas exchange criteria was present in his medical records.

He had never smoked or used recreational drugs. Past history was negative for tuberculosis, asthma, significant exposure to fibrogenic chemicals and drugs.

He was cachexic, afebrile and without lymphadenopathy, cyanosis or clubbing. Dyspnea was present at rest. Trachea was midline, with left basal dullness to percussion. Diffuse bilateral crackles and wheezes with markedly reduced breath sounds in the left basal region were heard on chest auscultation. Cardiovascular, abdominal and neurological examination findings were unremarkable.

Hematological tests revealed a normal complete blood count and erythrocyte sedimentation rate of 10 mm/1st hour. Arterial blood gas findings were: pH 7.452, pCO2 41.5 mmHg, PO2 67.71 mmHg and HCO3− 28.7 mmol/l. Peak expiratory flow rate was 340 l/min without significant improvement post nebulization.

Chest X Ray showed bibasal shadowing with loss of volume on the left side as compared with bibasal fine reticulonodular shadowing in old baseline films.

Sputum staining for acid fast bacilli and Pneumocystis carinii, the tuberculosis polymerase chain reaction, and HIV antibody tests were all negative. Sputum culture showed only commensals with insignificant colony counts. Liver and renal biochemistry were normal. Cardiac echocardiography revealed only a trivial mitral regurgitation without vegetations.

High Resoloution CT scan of the Thorax (Fig. 1) with 5 mm axial helical scans were in favor of a diffuse form of bronchoalveolar cell carcinoma. Ground glass opacification with a crazy paving appearance was distributed peripherally in both lungs affecting all lobes predominantly the lower lobes. Small cavitations with air bronchograms were seen in the right upper lobe and the left lower lobe with bulging transverse fissures. Multiple nodular areas were seen bilaterally. Loss of volume was seen in the left lung with the heart and mediastinum shift to left. Pleural effusion and pneumothorax were absent with patent trachea and main bronchi.

Tissue histology from a transbronchial lung biopsy of the left lower lobe showed infiltrating tumor consisting of cells with vacuolated cytoplasm arranged in a pseudostratified columnar epithelium compatible with compatible with a low grade bronchoalveolar carcinoma.

The patient was transferred to the National Cancer Institute for specialized management where he was commenced on chemotherapy as per the staging.

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2. Discussion

Extrinsic allergic alveolitis is an immunologically mediated lung disorder provoked by exposure to any of more than 300 etiologic agents.1

Bronchioalveolar carcinoma of the lung (BAC) is a subtype of adenocarcinoma of the lung with an increasing incidence of diagnosis2 having unique morphological features and clinical behavior such as bilateral lung involvement, indolent course and higher incidence in non smokers compared to other lung malignancies.3,4

Occupational risk factors are implicated in lung malignancies in Fire-fighters, drivers, textile workers, water treatment plant workers and highway construction workers. Workers in the textile and grain milling industries were shown to have a significant excess risk of squamous cell carcinoma. Textile workers, and water treatment plant workers had excess risk of small cell carcinoma. Construction workers had excess risk of adenocarcinoma. Fire-fighters and workers at textile plants, grain mills, water treatment plants, and in steel production were exposed to a high risk of peripheral tumors while the risk of central tumors was excessive among drivers and highway construction workers.5

Bronchoalveolar cell carcinoma has characteristics making it cytologically, histologically, ultrastructurally, and by molecular composition, a distinct pulmonary adenocarcinoma.6

Radioimaging is useful for diagnosis and correlates with histopathologic growth patterns based on imaging patterns.7

Staging of bronchoalveolar carcinoma has been subject to revisions to reflect survival and prognosis better.8 Surgery9 and chemotherapy with gefitinib10 have shown improvement in outcomes.

Although cigarette smoking has been the much hyped risk factor in the development of lung malignancies, various other types of common occupational irritants could play a role in aetio-pathogenesis. Our case illustrates that diagnosis of chronic extrinsic allergic alveolitis should alert the clinician of increased risk of lung malignancies. Large scale long term occupation related cohort studies could shed light in this regard, with significant implications in the labor safety and compensation arena. We report this case as an index case of bronchoalveolar carcinoma associated with chronic extrinsic allergic alveolitis from longstanding exposure to spice dust (Fig. 1).

Conflict of interest

None declared.

References