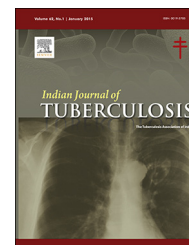


Available online at [www.sciencedirect.com](http://www.sciencedirect.com)

ScienceDirect

journal homepage: <http://www.journals.elsevier.com/indian-journal-of-tuberculosis/>

## Original Article

# The concomitant occurrence of pulmonary tuberculosis with bronchial anthracofibrosis

Shekhar Kunal, Ashok Shah\*

Department of Pulmonary Medicine, Vallabhbhai Patel Chest Institute, University of Delhi, Delhi, India

## ARTICLE INFO

## Article history:

Received 19 August 2016

Accepted 26 October 2016

Available online 15 December 2016

## Keywords:

Biomass fuel smoke exposure

Bronchial anthracofibrosis

Fibreoptic bronchoscopy

High-resolution computed tomography

Pulmonary tuberculosis

## ABSTRACT

**Background:** Bronchial anthracofibrosis (BAF), diagnosed bronchoscopically, is a clinical entity which is now beginning to emerge from obscurity. This is commonly encountered in elderly females with history of long-standing exposure to biomass fuel smoke in poorly ventilated kitchens. As awareness of BAF has increased in recent times, distinct clinico-radiological and bronchoscopic features of the disease have emerged. Diagnosis is achieved by visualisation of bluish-black mucosal hyperpigmentation along with narrowing/distortion of the affected bronchus on fibreoptic bronchoscopy (FOB). BAF was first recognised nearly a decade ago in India, when a 65-year-old female who presented with a middle lobe syndrome (MLS) was diagnosed with concomitant pulmonary tuberculosis and BAF. Pulmonary tuberculosis, seen in up to one-third of patients with BAF, is now considered to be an associated condition rather than a causative agent, as was initially postulated.

**Methods:** Respiratory symptomatics with a history of biomass fuel smoke exposure underwent high-resolution computed tomography (HRCT) of chest as well as FOB to establish a diagnosis of BAF. In patients who were diagnosed with BAF, an association with tuberculosis was also sought for.

**Results:** Of the 31 patients diagnosed with BAF in one unit, four had an associated diagnosis of tuberculosis. Cough was the most common presenting symptom seen in all four patients. Imaging revealed consolidation in 3/4 subjects, nodular lesions in one and in another one multifocal narrowing on HRCT, a feature characteristic of BAF. One patient had a diagnosis of MLS. FOB, in all four subjects, visualised anthracotic pigmentation along with narrowing/distortion of the affected bronchi with the left upper lobe bronchus being most commonly affected. Stains and cultures of the bronchial aspirate for *Mycobacterium tuberculosis* were positive in all four patients while GeneXpert performed in three was positive in all. Rifampicin resistance was not detected. One patient had an actively caseating form of endobronchial tuberculosis as evidenced by oedematous, hyperemic mucosa along with whitish cheese-like material affecting the right middle lobe as was seen on FOB.

**Conclusion:** Once a diagnosis of tuberculosis is established in a patient with long-standing exposure to biomass fuel smoke, invasive procedure required for the diagnosis of BAF is

\* Corresponding author at: Director-Professor, Department of Pulmonary Medicine, Vallabhbhai Patel Chest Institute, University of Delhi, Delhi 110007, India. Tel.: +91 11 2543 3783; fax: +91 11 2766 6549.

E-mail address: [ashokshah99@yahoo.com](mailto:ashokshah99@yahoo.com) (A. Shah).

<http://dx.doi.org/10.1016/j.ijtb.2016.10.003>

0019-5707/© 2016 Tuberculosis Association of India. Published by Elsevier B.V. All rights reserved.

usually not considered and the diagnosis would remain confined to pulmonary tuberculosis. This study highlights the need to recognise BAF and to exclude pulmonary tuberculosis in such patients.

© 2016 Tuberculosis Association of India. Published by Elsevier B.V. All rights reserved.

## 1. Introduction

Endobronchial pigmentation along with narrowing of the airways was first described in 1951 by Cohen.<sup>1</sup> He reported eight female patients with perforated tuberculous lymph nodes and narrowing of right middle lobe bronchus. Six of these patients also had anthracotic pigmentation of the affected bronchus. Retrospectively, this would appear to be the first ever description of 'bronchial anthracofibrosis' (BAF), a term coined by Chung et al.,<sup>2</sup> from Korea in 1998. The authors characterised this disease entity with a description of 28 never smokers who had a significant history of wood smoke exposure. A majority of them (20/28) were females with a median age of 64 years. Among these, three-fourths had right middle lobe involvement with active tuberculosis seen in more than 60%. Endobronchial and lymph node tuberculosis were postulated as causative factors in these patients and it was recommended that active tuberculosis must always be ruled out. The authors had even advocated that prompt institution of empirical anti-tuberculous therapy should be considered in all such patients, regardless of bacteriological confirmation. However, evidence implicating long-standing exposure to biomass fuel smoke has emerged as the key aetiological factor in the occurrence of BAF.<sup>3,4</sup>

The disease is characterised by the presence of anthracotic pigmentation commonly seen at the bifurcation of the bronchial tree along with local inflammation and fibrosis leading to bronchial narrowing and distortion.<sup>3</sup> BAF is a bronchoscopic diagnosis and was first documented from India<sup>5</sup> in 2008 in a 65-year-old woman who presented with middle lobe syndrome (MLS) and associated tuberculosis. With increasing awareness, the disease has now been characterised clinico-radiologically, bronchoscopically and has unfolded as a distinct clinical entity. Review of the literature has shown that BAF is commonly associated with tuberculosis, pneumonia, chronic obstructive pulmonary disease and lung cancer.<sup>3</sup> Tuberculosis is now considered as an associated disorder rather than a causative one and can be seen in up to 31% patients with BAF.<sup>3</sup> With tuberculosis being rampant in our country, it is possible that once the diagnosis of tuberculosis is established, the invasive procedure required to establish the diagnosis of BAF may not be done and the diagnosis would remain confined to tuberculosis.

The association of BAF and tuberculosis is yet to receive the attention that it deserves. In light of the above, this study aims to highlight this association seen in patients who had chronic exposure to biomass fuel smoke.

## 2. Material and methods

Respiratory symptomatics, never smokers, who gave written and informed consent were enrolled. A detailed history of respiratory symptoms and exposure to biomass fuel smoke was recorded. Attempts were also made to understand whether their homes had adequate ventilation or not. These patients underwent chest radiography and high-resolution computed tomography (HRCT) of the thorax. In addition, those patients with a clinical suspicion of tuberculosis had sputum examination for the presence of acid fast bacilli (AFB) and Mantoux test. Fibreoptic bronchoscopy (FOB) was done only in those who again gave a written informed consent just prior to the procedure. The diagnostic criteria adopted for BAF<sup>3,4</sup> were: (1) long-standing history of biomass fuel smoke exposure, (2) on HRCT, the occurrence of multifocal narrowing of involved bronchus when present and (3) visual confirmation on FOB of (a) bluish-black mucosal pigmentation, along with (b) narrowed/distorted bronchus. An associated diagnosis of tuberculosis was based on: (1) bronchial aspirate positive for AFB and/or (2) culture positive for *Mycobacterium tuberculosis* (*M. tuberculosis*) and/or (3) GeneXpert positive for *M. tuberculosis*.

## 3. Results

Of the 31 patients diagnosed as BAF in one unit, four patients had an associated diagnosis of tuberculosis which has been detailed in Table 1. We had detailed one of the four patients, as the first case of BAF from India who presented with a MLS.<sup>5</sup> All the four elderly patients (three females and one male) were never smokers with a significant history of biomass fuel smoke exposure. None of the four patients had a history of anti-tuberculous therapy in the past. Cough, as a presenting symptom, was seen in all four patients while dyspnoea and constitutional symptoms were documented in 3/4. Chest radiograph (Fig. 1) revealed consolidation in three patients and nodular opacities in one which were confirmed on HRCT of the thorax (Fig. 2A and B). Multifocal narrowing, a feature characteristic of BAF on HRCT, was present in 1/4 patient. Imaging further revealed that right lower lobe was affected in three patients while in two patients each the middle, lingular and right upper lobes were involved. A diagnosis of MLS was established in one patient.<sup>5</sup> Left upper lobe bronchus was involved in 2/4 patients. Sputum stains for AFB were negative in all four patients while Mantoux test was positive in one. Anthracotic pigmentation along with narrowing/distortion of the affected bronchi was visible on FOB (Fig. 3) in all four patients. Stains and cultures of bronchial aspirate were

Download English Version:

<https://daneshyari.com/en/article/5672373>

Download Persian Version:

<https://daneshyari.com/article/5672373>

[Daneshyari.com](https://daneshyari.com)