Case Report

Sarcoidosis present as endobronchial lung mass: A rare case report with review of literature

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Abstract

Sarcoidosis is a multisystem granulomatous disorder of unknown etiology, primarily affecting the intrathoracic lymph node and the lung. The endobronchial involvement in sarcoidosis is not uncommon and may appear as nodules, cobblestoning, erythema, or plaque, but presentation as an endobronchial mass has been rarely described. We report here a 50-year-old gentleman who presented with nonproductive cough and dyspnea on exertion. Video bronchoscopy revealed a polypoid mass in the right lower lobe bronchus occluding the posterior basal segment, and bronchial biopsy revealed noncaseating granulomatous inflammation. Bronchoalveolar lavage (BAL) fluid was negative for tuberculosis, fungal infection, and malignancy. Mantoux test was negative, and serum angiotensin-converting enzyme was elevated. The diagnosis of sarcoidosis was made, and the patient was started on an oral corticosteroid. After treatment, the patient showed significant improvement in symptoms. This case report highlights a rare presentation of sarcoidosis as an endobronchial mass lesion. It is important to take a biopsy to differentiate from other common causes of endobronchial mass, such as malignancy and, rarely, tuberculosis. Sarcoidosis should be considered in a differential of the endobronchial mass lesion.

Keywords: Bronchoscopy, lung mass, malignancy, sarcoidosis

Introduction

Sarcoidosis is a multisystem granulomatous disorder of unknown etiology, characterized pathologically by the presence of noncaseating granulomas in the affected organs.[1] Sarcoidosis primarily affects the lung, but up to 30% of patients present with extrapulmonary involvement.[2] The clinical presentation of pulmonary sarcoidosis is nonspecific and may present with cough, dyspnea, fatigue, malaise, fever, and weight loss.[3] The classical radiologic presentation of pulmonary sarcoidosis is bilateral hilar lymphadenopathy with nodules along the peribronchovascular bundle.[4] There are many rare presentations of sarcoidosis from pulmonary cavitation to pleural involvement, but hardly any study described the presentation as endobronchial lung mass. We present a case of sarcoidosis presenting as an endobronchial mass lesion with a literature review.

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Case Report

A 50-year-old gentleman, a nonsmoker without significant past medical history, presented with dyspnea on exertion (Modified Medical Research Council-1), low-grade fever, nonproductive cough, and pain in the small joint of a hand from the last 5 months. The patient denied symptoms such as hemoptysis, palpitation, blurring of vision, and significant weight loss. His vital signs and the results of his physical examination were within normal limits. Blood investigation revealed normal complete blood count, biochemistry panel, and serum calcium. Rheumatoid factor factor, anti-CCP, and ANA screening were found to be negative. S-angiotensin converting enzyme was found to be

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elevated to 88.8. Mantoux test was also performed with 10 TU, which was found negative (2 × 2 mm). Chest X-ray revealed bilateral hilar prominence. High-resolution CT (HRCT) was suggestive of bilateral hilar lymphadenopathy and perilymphatic nodule [Figure 1a and b]. Ultrasonography of the abdomen showed mild hepatosplenomegaly. The patient was taken for flexible bronchoscopy, considering the possibility of sarcoidosis, and planned for conventional transbronchial lymph node needle aspiration (TBNA) from the hilar lymph node and transbronchial lung biopsy. Contrast-enhanced CT chest could not be performed as the patient had denied it even after counseling, as he thought it was a repetition of CT scan. Bronchoscopy showed a polypoid ball-like mass lesion in the right lower lobe bronchus occluding the posterior basal segment [Figure 1c]. Along with the possibility of pulmonary sarcoidosis, lung malignancy with lymphangitis was also kept in differential, considering the age factor. Bronchoalveolar lavage (BAL) and a biopsy were taken from the mass lesion and sent for histopathologic examination. Transbronchial needle aspiration (TBNA) from the hilar lymph node could not be performed as the patient started bleeding after endoluminal biopsy, which was secured with instillation of cold saline and adrenaline. Spirometry was performed, which showed the forced vital capacity as 3.02 l (63% of predicted). BAL fluid showed lymphocytosis, negative for malignancy cells, acid-fast bacilli, and GeneXpert. Biopsy revealed ill-formed granuloma consisting of epithelioid cells, lymphocytosis, and a few plasma cells with an absence of necrosis (non-necrotizing granuloma), favoring the diagnosis of sarcoidosis [Figure 1d]. Diagnosis of pulmonary sarcoidosis is made on the basis of clinical, radiologic, and histopathologic evidence of noncaseating granuloma with raised serum angiotensin converting enzyme (ACE). The patient was started on tab. prednisolone 0.5 mg/kg once a day and there was a huge improvement in symptoms after 2 weeks of treatment. A follow-up bronchoscopy could not be performed due to financial issues.

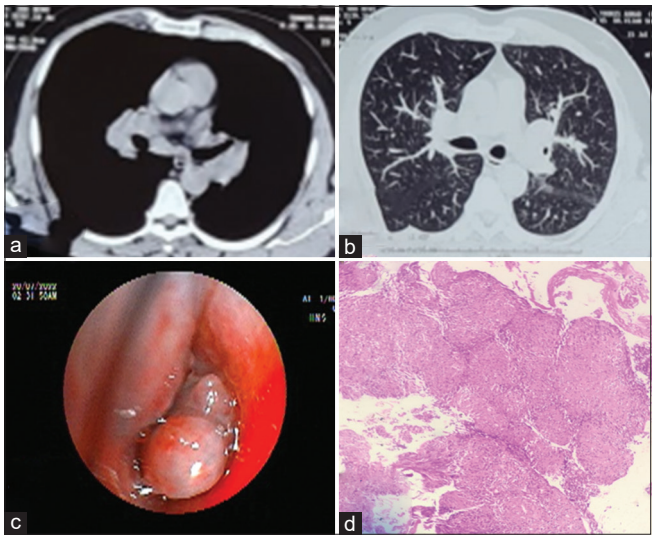

Figure 1: HRCT suggestive of bilateral hilar lymphadenopathy and perilymphatic nodule (a, b). Bronchoscopy showed polypoid ball-like mass lesion in the right lower lobe bronchus occluding the posterior basal segment (c). Histopathologic examination revealed ill-formed granuloma consisting of epithelioid cells, lymphocytosis, and few plasma cells, with absence of necrosis (non-necrotizing granuloma) (d). HRCT = high-resolution computed tomography

Discussion

Diagnosis of sarcoidosis is based on clinical–radiologic suspicion, with histopathologic evidence of noncaseating granuloma and after ruling out other granulomatous diseases such as tuberculosis, fungal infection, and hypersensitivity pneumonitis. The characteristic HRCT feature of sarcoidosis is the presence of small nodules in a perilymphatic distribution, along with parenchymal abnormality, which is predominantly in the mid-to-upper zone. Atypical radiographic presentations of pulmonary sarcoidosis may be seen in 15%–25% of patients.[5] These include ground-glass opacities, honeycombing, and necrotizing consolidations. The endobronchial presentation of sarcoidosis is not uncommon. Torrington *et al.*[6] showed abnormality in the airways in 55% of the studied patients with sarcoidosis. Endobronchial involvement is described as mucosal erythema, edema, granularity, and cobblestoning, with plaques, nodules, and bronchial stenosis,[7] but very few case reports have described the endobronchial mass appearance of pulmonary sarcoidosis.[8-15] There are some reports of tumor-like presentation of sarcoidosis owing to extrinsic compression of the airway by enlarged lymph nodes or presentation as a lung mass, but involvement as an endobronchial mass has been rarely reported in sarcoidosis.[16,17] All the published case reports of endobronchial mass described single mass lesions, except Kumbasar *et al.,*[10] who showed multiple lesions. The present case showed a mass lesion in the basal segment of the right lower lobe and similar to the present case, most of the published case reports showed a lesion in the right lower lobe [Table 1]. With the best available search on PubMed, Google Scholar, and Embase databases, only one case report has been found from India. This is probably the second case report of endobronchial mass in sarcoidosis from India. How this endobronchial mass lesion formed in sarcoidosis is unknown; probably, coalescence of a granuloma gives the appearance of a mass. The clinical profile of Indian sarcoidosis patients may be different compared to patients from the west.[18] One of the most common causes of endobronchial mass lesion is lung malignancy, especially in the elderly, and it is very important to take a biopsy to differentiate. But there is a need to remember that sarcoid-like change can be seen in malignancy and just the presence of noncaseating granuloma is not enough. So, in cases of atypical sarcoidosis, biopsies from two noncontiguous sites are recommended to differentiate malignancy and sarcoidosis.[17] Treatment of this atypical sarcoidosis is the same as that of typical sarcoidosis, where oral corticosteroids are used. Corsello *et al.*[8] showed complete disappearance of endobronchial mass after treatment with oral glucocorticoids.

Conclusion

This case report highlights a rare presentation of sarcoidosis as an endobronchial mass lesion. It is important to take a biopsy to differentiate from other common causes of endobronchial

Table 1: Characteristics of various published case reports of endobronchial mass in sarcoidosis

Author	Country	Year of publication	Age (years)/ gender	Site of endobronchial mass	Extrapulmonary involvement
Corsello *et al.*[8]	USA	1983	37/Male	Apical segment of the right lower lobe	No
Ishii *et al.*[9]	Japan	2002	51/Female	Anterior basal segment of the right lower lobe	No
Ortega *et al.*[11]	Spain	2005	31/Male	Lateral basal segment of the right lower lobe	No
Thomas *et al.*[12]	India	2007	45/Male	Medial segment of the right middle lobe	Polyarthritis, supraclavicular lymphadenitis
Kaminski *et al.*[13]	Poland	2005	38/Male	Left upper lobe bronchus	Arthralgia (wrist, knee joint)
Akpinar *et al.*[15]	Turkey	2009	31/Male	Lateral segment of the right lower lobe	No
Present case	India	2022	50/Male	Posterior basal segment of the right lower lobe	Hepatosplenomegaly, arthralgia (wrist joint)

mass, such as malignancy and, rarely, tuberculosis. Primary care physicians should be aware of the rare presentation of sarcoidosis as the endobronchial mass lesion. It is important to take a biopsy from a mass lesion to differentiate granulomatous disease from malignancy.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given his consent for his images and other clinical information to be reported in the journal. The patient understands that his name and initials will not be published and due efforts will be made to conceal identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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