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*RESEARCH ARTICLE*

# A CASE REPORT OF SECONDARY PNEUMOTHORAX IN MEDIASTINO-PULMONARYSARCOIDOSIS

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## *Abstract*

Pneumothorax on sarcoidlung at the fibrosis stage is an unlikely complication. However, itisconsidered a factor in the severity of sarcoidosis. This study reports the case of a 48-year-old female patient, admitted for management of a secondary pneumothorax on mediastino-pulmonarysarcoidosis in view of the presence ofmediastinaladenopathiesand epithelioid andgigantocellulargranulomatous adenitiswithoutcaseousnecrosis. Athoracic CT scan revealedparacicatricialemphysema. The evolutionwasfavorable afterthoracic drainage. We report on studies in the literatureand discuss the main mechanism of pneumothorax in sarcoidlung.



## Introduction:-

Sarcoidosis is a relatively common inflammatory disease of unknown etiology, characterized by the formation of caseous granulomas. However, pneumothorax is a rare manifestation of sarcoidosis that can be observed in the advanced or early stages of the disease[1].

Necrosis of the subpleural granuloma or rupture of the bullae, or both, appears to be the mechanism of pneumothorax [2].

**Case Presentation**

We report the case of a 48-year-old patient with mediastino-pulmonary sarcoidosis at fibrosis stage, admitted for management of an acute worsening of her chronic dyspnea associated with mucopurulent fatty cough and stabbing chest pain in the right pulmonary hemichampus.

Clinical examination revealed a conscious patient, hemodynamically and respiratorily stable. Pleuropulmonary examination revealed condensation syndrome and gas effusion in the right pulmonary hemichamber.

The patient underwent a thoracic CT scan, which revealed a large-volume secondary spontaneous pneumothorax.

A chest drain was placed with immediate bubbling, and antibiotic therapy was started for 10 days with Amoxicillin/clavulanic acid 1g/8h.

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The evolution was marked by clinical improvement, with disappearance of chest pain and persistence of wet cough with no sign of bronchial superinfection, and cessation of bubbling on the 6th day of drainage.

A chest CT scan was performed after 7 days of drainage, showing a residual pneumothorax with a paracicatricial emphysema[Figure 1].

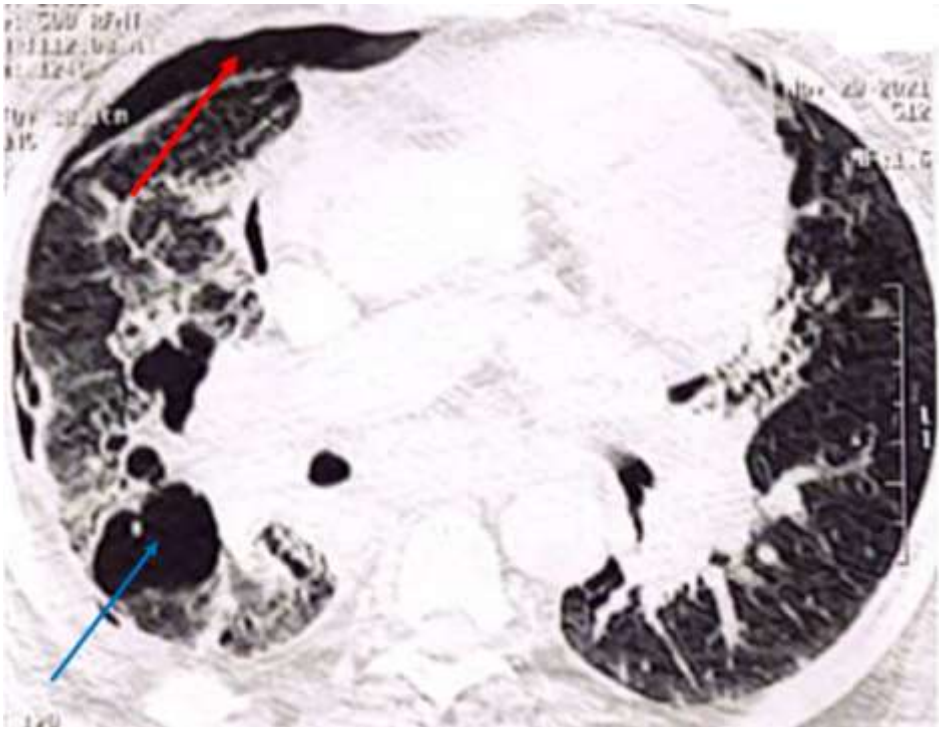

**Figure 1: Cross-section of thoracic CT scan showing residual anterior pneumothorax**
**The red arrow showing residual anterior pneumothorax after chest tube removal.**
**The blue arrow shows a paracicatricial emphysema.**

The patient was discharged without complications after removal of the chest tube.

A follow-up CT scan after three weeks of drainage showed complete return of the lung to the chest wall [Figure **2**].

**Figure 2: Cross-section of 3-week follow-up chest CT scan showing complete resolution of pneumothorax**

## Discussion:-

Severe sarcoidosis is defined as a set of events associated with a significant risk of morbidity and mortality, or requiring extensive treatment with anti-TNF alpha drugs or lung transplantation. Pulmonary fibrosis, pulmonary hypertension (PH), obstructive ventilatory disorder, bronchial stenosis or chronic aspergillosis are the main manifestations determining the severity of sarcoidosis [3].

Severe forms become established during the course of sarcoidosis, while they reveal the diagnosis in a quarter of patients.

On thoracic computed tomography, there are three aspects of sarcoid fibrosis depending on the predominant lesion: bronchial distortions with or without fibrosis mass (47%), honeycomb associated with restrictive ventilatory disorder and collapse of DLCO (29%) and hilo-peripheral or septal linear opacities (24%)[4].

Traction bronchiectasis is significant. In contrast, paracicatric emphysema and bullous destruction are rare.

Bullae rupture and subpleural granuloma necrosis are the main mechanisms [5].However, the mechanism leading to the formation of paracicatricial bullae remains unknown.

Most of the cases cited in the literature with pneumothorax complications were previously followed for sarcoidosis [6-7].

In an American study including 300 cases evaluating the various atypical forms of sarcoidosis, 28% of them experienced complications such as cystic bullous disease, bronchiectasis, pneumothorax and pleural effusion [8].

Another study including 736 patients with mediastino-pulmonary sarcoidosis, 5.4% were at the stage of sarcoid fibrosis, while 20% were progressing [9].

In another series, only 2% of patients followed for sarcoidosis had a pneumothorax [10-11].

This complication was observed in 8.5% of cases in a retrospective study including 142 patients with stage IV sarcoidosis [5].

Pneumothorax was considered the revealing sign of sarcoidosis in a study of 193 cases, four of which were in the early stages [4].

## Conclusion:-

Pneumothorax is a rare complication of the fibrosis form of pulmonary sarcoidosis, but it is considered to be a prognostic factor. Rupture of paracicatricial emphysema and necrosis of the subpleural granuloma appear to be the mechanisms involved in the occurrence of pneumothorax in sarcoid lung at the fibrosis stage.

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