

Case Report

Development of A Sarcoidosis Related Pleural Effusion After More Than Three Decades

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Abstract:

A sarcoidosis related pleural effusion is a rare finding that most commonly occurs at the time of diagnosis. We report an 82 year-old woman who developed a sarcoidosis related pleural effusion 35 years after initial diagnosis. To our knowledge, this is the longest duration between sarcoidosis diagnosis and the development of a sarcoidosis related pleural effusion presentation documented in the medical literature.

Keywords: Sarcoidosis, Pulmonary; Pleural Effusion

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ABSTRACT:

A sarcoidosis related pleural effusion is a rare finding that most commonly occurs at the time of diagnosis. We report an 82 year-old woman who developed a sarcoidosis related pleural effusion 35 years after initial diagnosis. To our knowledge, this is the longest duration between sarcoidosis diagnosis and the development of a sarcoidosis related pleural effusion presentation documented in the medical literature.

INTRODUCTION:

We describe a patient who developed bilateral pleural effusions from sarcoidosis 35 years after diagnosis. The vast majority of sarcoidosis related pleural effusions are identified at the time of diagnosis. Furthermore, to our knowledge, this is the longest reported delay between the diagnosis of sarcoidosis and the development of a sarcoidosis related pleural effusion.

CASE REPORT:

An 82 year-old woman was evaluated in clinic for shortness of breath and a productive cough over the previous month. She denied fever, chills, chest discomfort or weight loss. The patient had been diagnosed with pulmonary sarcoidosis 35 years earlier by mediastinoscopy. She had no history of extrapulmonary sarcoidosis and had never received anti-sarcoidosis therapy. She had a 25 pack-year smoking history and discontinued cigarette smoking 20 years previously. She had no history of tuberculosis, no family history of tuberculosis, no history of tuberculosis exposure and had numerous negative tuberculin skin tests in the past.

Physical examination revealed a temperature of 98.7 degrees F, blood pressure 148/72 mmHg, heart rate 88/min, oxygen saturation 97% on room air. No jugular venous distension was present. Cardiac examination revealed regular rate and rhythm without rubs, murmurs or gallops. Chest examination revealed decreased fremitus and breath sounds at both bases. Dullness to percussion was noted at the left posterior base. No peripheral edema was noted.

A chest radiograph revealed stable bilateral calcified hilar lymphadenopathy, as well as new small bilateral pleural effusions and new nodular densities in both upper lung fields (Figure 1). Computed tomography of chest revealed moderate bilateral pleural effusions,

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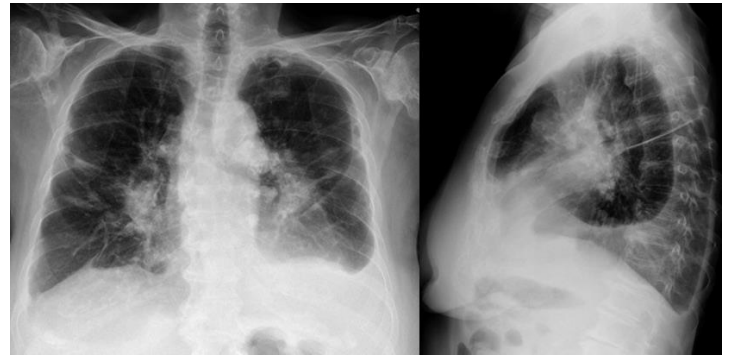


Figure 1. Plain chest radiograph, A/P and lateral views showing small, bilateral loculated pleural effusions.

a small pericardial effusion, mediastinal and hilar lymphadenopathy with calcifications, and scattered subpleural nodules. Ultrasound examination revealed bilateral moderate sized anechoic, simple effusions. (Figure 2) A left sided thoracentesis revealed serosanguinous fluid with the following pleural fluid analysis: white blood cells 888 /cmm with 90% lymphocytes, red blood cells 4,000/cmm, total protein 4.8 g/dl, pleural fluid/serum ratio of total protein 0.70, lactate dehydrogenase 125 IU/L, pleural fluid/serum ratio of 0.56, glucose 79 mg/dl, pH 7.46; Gram stain and bacterial culture as well as stains and cultures for mycobacteria were negative. Pleural fluid adenosine deaminase was 11.8 U/L, Pleural fluid flow cytometry showed no monoclonal B-cell population or aberrant T-cell phenotype. The pleural fluid CD4:CD8 ratio was 5.2. Serum angiotensin converting enzyme was 18 U/L (Upper limit of normal 82 U/L).

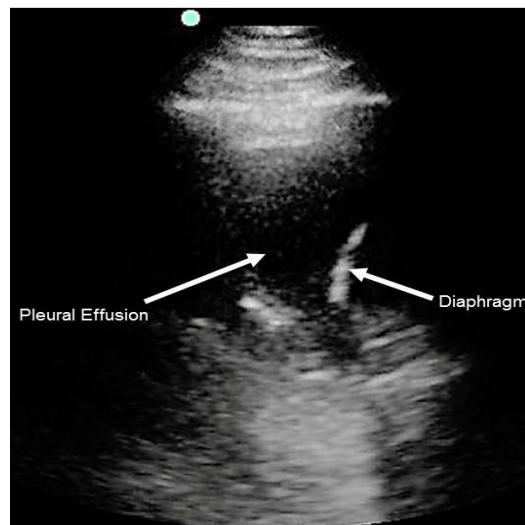


Figure 2. Ultrasound appearance of left-sided, moderate sized, simple effusion.

On the basis of these clinical and laboratory findings, the patient was diagnosed with sarcoidosis related pleural effusion. She was started on 15mg oral prednisone daily with improvement of her symptoms and no signs of recurrent pleural effusion.

DISCUSSION:

We describe a case of sarcoidosis related pleural effusion. Sarcoidosis related pleural effusions are typically lymphocyte-predominant exudates, such as was found in our patient.¹ Sarcoidosis related pleural effusions also tend to have pleural fluid protein values that are relatively more elevated than pleural fluid lactate dehydrogenase (LDH) values.¹ In fact, many patients with sarcoidosis related pleural effusions have a normal pleural fluid LDH with a significantly elevated pleural fluid total protein concentration.¹ This was seen in the case of our patient, whose pleural fluid LDH was less than two-thirds of the upper limits of normal serum LDH value (failed to reach this LDH exudative pleural effusion criteria of Light).² Our patient presented with an effusion was a lymphocytic exudate with a 90% lymphocytic predominance. Sarcoidosis related pleural effusions may cause pleural fluid lymphocyte counts of greater than 80%. Although such a percentage of lymphocytes may be seen with a large variety of pleural effusions, they are only commonly found with the following effusions: Acute lung rejection, rheumatoid pleurisy, chylothorax, post-coronary artery bypass, uremic pleural effusion, sarcoidosis, lymphoma and tuberculous effusion³. Tuberculous pleuritis was unlikely with a mildly elevated ADA at 11.8 U/L. An ADA level below 40 IU/L makes the diagnosis of a tuberculous pleural effusion unlikely, whereas a value >70 IU/L is useful in confirming tuberculous pleuritis.^{2,4} Lymphoma was also unlikely based on the pleural fluid flow cytometry that did not demonstrate any monoclonal proliferations. Our patient did not have a clinical history consistent with lung transplantation (causing acute lung rejection) or previous coronary artery bypass. Uremic pleurisy was also unlikely as her renal function was normal, without elevated blood urea nitrogen. Pleural fluid triglycerides were not obtained, but the appearance of fluid was serosanguinous that would be uncharacteristic of a chylous effusion, and the patient had not clinical feature suggestive of a chylothorax. In addition, a chylous pleural effusion would not have responded to corticosteroids. She had

no history of rheumatoid arthritis, and no joint complaints. For all of the above reasons, we believe that the diagnosis of a sarcoidosis related pleural effusion is secure.

This case is unique in that the onset of pleural effusion was 35 years after initial diagnosis and the patient was never on therapy for sarcoidosis. To our knowledge, after reviewing the 60 documented cases of sarcoidosis related pleural effusion published in the medical literature (Table 1), the previous longest duration from sarcoidosis diagnosis to development of pleural effusion was 20 years. We found 43 cases (71%) were present at time of diagnosis. Only four cases (6.7%) occurred greater than 10 years after initial diagnosis.

In summary a sarcoidosis related pleural effusion is a rare clinical entity, especially in a patient with long-standing sarcoidosis. It is important to accurately characterize the pleural fluid characteristics of such effusions in order estimate the likelihood of this rare disorder in relation to other etiologies.

Declaration of Conflicting Interests: The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding: This research received no specific grant from any funding agency in the public, commercial or not-for-profit sectors.

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Table 1. The 60 reported cases of confirmed sarcoidosis related pleural effusion, relating the time of presentation of the effusion to the time of diagnosis of sarcoidosis.

| Reference | Case # | Time From Sarcoidosis Diagnosis to Pleural Effusion Presentation | On Therapy at Time of Presentation |
|---|--------|--|------------------------------------|
| Present Case | 1 | 35 Years | No |
| Fontecha Ortega M, Rodríguez Álvarez SJ, García Satué JL. Pleural Effusion: A Rare Manifestation of Sarcoidosis. Arch Bronconeumol. 2017; 53:170-171. | 2 | At Diagnosis | No |
| Nair, Vidya, Onkar Jha, and Deepak Talwar. Hemorrhagic Sarcoid Pleural Effusion: A Rare Entity. Lung India. 2016; 33: 532. | 3 | At Diagnosis | No |
| Joshi S, Periwal P, Dogra V, Talwar D. Sarcoidosis as unusual cause of massive pleural effusion. Respiratory Medicine Case Reports. 2015; 16: 143-145. | 4 | 2 Months | Yes |
| Enomoto Y, Yokomura K, Suda T. Bilateral Pleural Effusion Associated with Miliary Sarcoidosis. American Journal of Respiratory and Critical Care Medicine. 2015; 191:474-475. | 5 | At Diagnosis | No |
| Ferreiro L, San José E, González-Barcala FJ, Suárez-Antelo J, Toubes ME, Valdés L. Pleural effusion and sarcoidosis: an unusual combination. Arch Bronconeumol. 2014; 50: 554-556. | 6 | At Diagnosis | No |
| | 7 | At Diagnosis | No |
| | 8 | At Diagnosis | No |
| Shin KH, Kim KU, Lee G, Park H-K. Endobronchial mass and ipsilateral pleural effusion as presenting features of sarcoidosis. Journal of the Formosan Medical Association. 2014;113:974-975. | 9 | At Diagnosis | No |
| Jovanović D, Vučinić V, Stević R, Milenković MR, Samardžić N, Velinović M, Stjepanović M. Sarcoidosis of the pleura--A case report. Vojnosanit Pregl. 2014; 71:506-509. | 10 | 11 Years | Yes |
| Hou G, Wang W, Zhao Y-B, et al. Bloody Pleural Effusion -A Rare Manifestation of Sarcoidosis. Internal Medicine. 2013; 52:1211-1215. | 11 | At Diagnosis | No |
| | 12 | 3 Months | No |
| Esnakula AK, Coleman P, Ahaghotu CA, Naab TJ. Scrotal mass and unilateral lung masses with pleural effusion mimicking metastatic testicular malignancy: an unusual presentation of sarcoidosis. Case Reports. 2013. | 13 | At Diagnosis | Yes |
| Lee IS, Kim SB, Moon CS, et al. Sarcoidosis Presenting with Massive Pleural Effusion and Elevated Serum and Pleural Fluid Carbohydrate Antigen-125 Levels. Tuberculosis and Respiratory Diseases. 2012;73:320. | 14 | At Diagnosis | Yes |
| Sharma SK, Soneja M, Sharma A, Sharma MC, Hari S. Rare manifestations of sarcoidosis in modern era of new diagnostic tools. Indian J Med Res. 2012;135:621-9. | 15 | 20 years | No |
| Jayalaxmi TK, Lobo I, Nair G, Uppe A, Swami S. Recurrent massive pleural effusion with neurosarcoidosis: a rare presentation of sarcoidosis. J Assoc Physicians India. 2010;58:251-252. | 16 | At Diagnosis | No |
| Fijolek J, Wiatr E, Gawryluk D, Langfort R, Bestry I. Pleural sarcoidosis - a report of three cases. Pneumonol Alergol Pol. 2010;78:79-82. | 17 | At Diagnosis | No |
| | 18 | At Diagnosis | No |
| Modrykamien A, Arrossi A, Reddy A. A 50-year-old man with stage 2 sarcoidosis with pleural involvement. J Hosp Med. 2009;4:E1-E3. | 19 | At Diagnosis | No |
| Currie GP, Kerr K, Buchan K, Garg D. A rare cause of recurrent massive pericardial and pleural effusions. QJM. 2008;101:989-90. | 20 | At Diagnosis | No |
| Iyer S, Afshar K, Sharma OP. Peritoneal and pleural sarcoidosis: an unusual association - review and clinical report. Curr Opin Pulm Med. 2008; 14:481-7. | 21 | At Diagnosis | No |
| Akçay S, Pinelli V, Marchetti GP, Tassi GF. The diagnosis of sarcoidosis pleurisy by medical thoracoscopy: report of three cases. Tuberk Toraks. 2008;56:429-33. | 22 | At Diagnosis | No |
| | 23 | At Diagnosis | No |
| | 24 | At Diagnosis | No |
| Huggins JT, Doelken P, Sahn SA, King L, Judson MA. Pleural Effusions in a Series of 181 Outpatients With Sarcoidosis. Chest 2006; 129:1599-1604. | 25 | At Diagnosis | No |
| | 26 | Unknown | Yes |

| | | | |
|---|----|--------------|-----|
| Heidecker JT, Judson MA. Pleural effusion caused by a trapped lung. South Med J 2003; 96:510-511. | 27 | At Diagnosis | No |
| Sharma OP, Dostanic D. Unilateral proptosis and unilateral pleural effusion due to sarcoidosis: a rare occurrence. Sarcoidosis 1995; 12:68-70. | 28 | At Diagnosis | No |
| Salazar A, Mana J, Corbella X, et al. Sarcoid pleural effusion: a report of two cases. Sarcoidosis 1994; 11:135-137. | 29 | At Diagnosis | No |
| Tommasini A, Vittorio GD, Facchinetti F, et al. Pleural effusions in sarcoidosis: a case report. Sarcoidosis 1994; 11:138-140. | 30 | 2 Years | Yes |
| Ilan Y, Yehuda AB, Breuer R. Pleural effusion-the presenting radiological manifestation of sarcoidosis. Isr J Med Sci 1994; 30:535-536. | 31 | At Diagnosis | No |
| Claiborne RA, Kerby GR. Pleural sarcoidosis with massive pleural effusion and lung entrapment. Kans Med 1990;91:103-105. | 32 | At Diagnosis | No |
| Durand DV, Dellinger A, Guerin C, Guerin JC, Levrat R. Pleural sarcoidosis: one case presenting with an eosinophilic effusion. Thorax. 1984; 39: 468-9. | 33 | At Diagnosis | No |
| Johnson NM, Martin ND, McNicol MW. Sarcoidosis presenting with pleurisy and bilateral pleural effusions. Postgrad Med J. 1980; 56: 266-7. | 34 | At Diagnosis | No |
| Nicholls AJ, Friend JAR, Legge JS. Sarcoid pleural effusion: three cases and review of the literature. Thorax 1980; 35:277-281. | 35 | 9 Months | No |
| | 36 | At Diagnosis | No |
| | 37 | At Diagnosis | No |
| De Vuyst P, DeTroyer A, Vernault JC. Bloody pleural effusion in a patient with sarcoidosis. Chest 1979; 76:607-609. | 38 | At Diagnosis | No |
| Poe RH. Middle-lobe atelectasis due to sarcoidosis with pleural effusion. N Y State J Med. 1978; 78: 2095-7. | 39 | At Diagnosis | No |
| Beekman JF, Simmert SM, Chun PK, et al. Spectrum of pleural involvement in sarcoidosis. Arch Intern Med 1976;136:323-330. | 40 | At Diagnosis | No |
| | 41 | At Diagnosis | No |
| Sharma OP, Gordonson J. Pleural effusion in sarcoidosis: a report of six cases. Thorax 1975; 30:95-101. | 42 | 3 Years | No |
| | 43 | At Diagnosis | No |
| | 44 | 6 Months | No |
| | 45 | 4 Months | No |
| | 46 | 11 Months | Yes |
| | 47 | 1 Year | No |
| Chusid EL, Siltzbach LE. Sarcoidosis of the pleura. Ann Intern Med 1974; 81:190-194. | 48 | 1 Years | Yes |
| | 49 | 18 Months | Yes |
| | 50 | At Diagnosis | No |
| | 51 | 13 Years | No |
| Nelson D, Loudon R. Sarcoidosis with pleural involvement. Am Rev Respir Dis 1973; 108:647-651. | 52 | 15 Years | Yes |
| Selroos O. Exudative pleurisy and sarcoidosis. Br J Dis Chest 1966; 60:191-196 | 53 | At Diagnosis | No |
| | 54 | At Diagnosis | No |
| | 55 | At Diagnosis | No |
| | 56 | At Diagnosis | No |
| Aberg H, Bah M, Waters AW. Sarcoidosis: complicated by chylothorax. Minn Med. 1966; 49: 1065-70. | 57 | At Diagnosis | No |
| Kovant PJ, Donahue RF. Sarcoidosis involving the pleura. Ann Intern Med 1965; 62:120-124. | 58 | 1 Year | No |
| | 59 | At Diagnosis | No |
| Berte S, Pfothenauer M. Massive pleural effusion in sarcoidosis. Am Rev Respir Dis 1962; 86:261-264 | 60 | At Diagnosis | No |

