Respiratory Medicine Case Reports 26 (2019) 326–327

Contents lists available at ScienceDirect

Respiratory Medicine Case Reports

journal homepage: www.elsevier.com/locate/rmcr

Case report

Bilateral diffuse pulmonary infiltrates secondary to malignant peritoneal mesothelioma – A rare clinical presentation

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ARTICLE INFO

Keywords:
Pleural effusion
Peritoneal mesothelioma
Asbestos
Trans-bronchial lung biopsy
Malignant mesothelioma

ABSTRACT

Diffuse pulmonary metastasis secondary to primary peritoneal malignant mesothelioma is rarely reported in the literature. In this report we describe a 59-year-old Caucasian women with no known previous asbestos exposure presenting with bilateral diffuse pulmonary opacities in association with primary malignant peritoneal mesothelioma. The diagnosis was confirmed by ultrasound guided abdominal and bronchoscopy, *trans*-bronchial lung biopsy. The biopsy demonstrated positive staining with AE1/3, CK7, CK5/6, WT1, calretinin and D2 40. The cells were negative for BerEP4, PAX8, CA125, ER, CD34, ERG, P63, P40, Melan A, Gata3 and mammaglobin. The morphology and immunohistochemical profile supported a diagnosis of epithelioid malignant mesothelioma.

1. Introduction

Pleural malignant mesothelioma is known to be strongly associated with asbestos exposure in 80% of cases, followed by the peritoneum as the second most common primary site [1]. Diffuse pulmonary involvement secondary to primary peritoneal mesothelioma is rarely reported in the literature [2]. In this report we describe a patient with no known asbestos exposure presenting with bilateral pulmonary opacities in association with primary malignant peritoneal mesothelioma, which was diagnosed by bronchoscopy, *trans*-bronchial lung biopsy.

2. Case

A 59-year-old Caucasian woman presented with non-specific abdominal discomfort. Clinical examination revealed a palpable abdominal mass. There was no other abdominal symptoms of significance or unintentional weight loss nor constitutional symptoms. She had no significant past medical history and was not on any regular medications. She was a current smoker with a 30-pack year history. She had no known occupational or environmental exposure to asbestos.

Computed tomography (CT) of the abdomen demonstrated extensive peritoneal omental caking with infiltration to the anterior

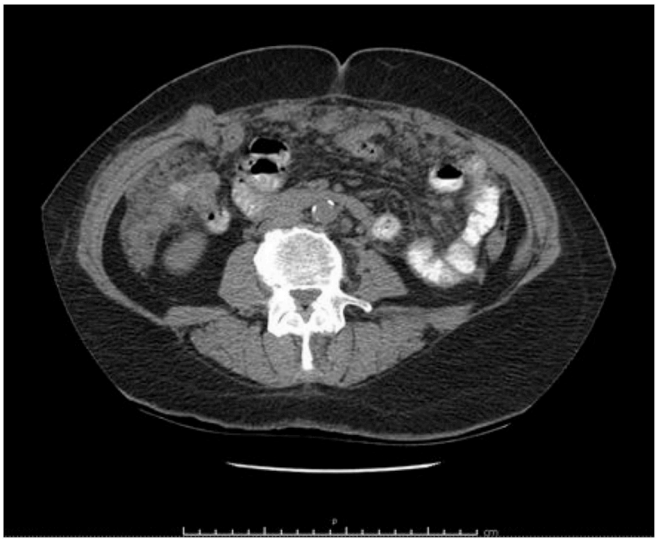

Fig. 1. CT Abdomen demonstrating omental caking with an infiltrative mass into the right anterior abdominal wall.

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https://doi.org/10.1016/j.rmcr.2019.03.003
Received 14 January 2019; Received in revised form 3 March 2019; Accepted 3 March 2019

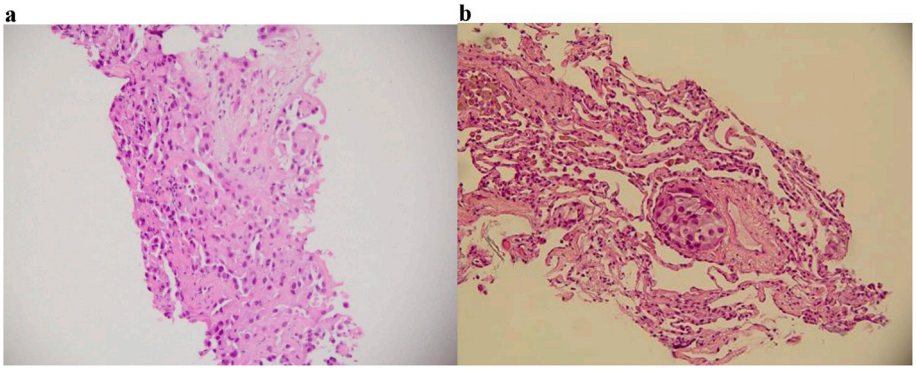

Fig. 2. a & b: Peritoneal biopsy showing malignant mesothelioma (2a) and *Trans*-bronchial lung biopsy showing pulmonary malignant mesothelioma (2b).

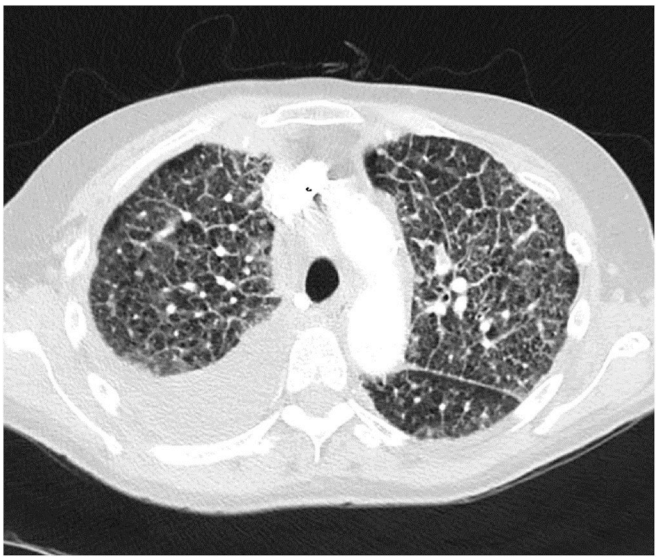

Fig. 3. CT chest demonstrating bilateral diffuse interstitial opacity and interlobular septal thickening along with the right side pleural effusion.

abdominal wall (Fig. 1). Ultrasound-guided biopsy of the abdominal mass revealed large, pleomorphic epithelioid cells, within fibrous stroma. These cells stained positively with AE1/3, CK7, CK5/6, WT1, calretinin and D2 40. The cells were negative for BerEP4, PAX8, CA125, ER, CD34, ERG, P63, P40, Melan A, Gata3 and mammaglobin. The morphology and immunohistochemical profile supported a diagnosis of epithelioid malignant mesothelioma. (figure –2a).

The patient subsequently presented with exertional dyspnoea. A CT scan of chest revealed moderate right sided pleural effusion, bilateral hilar and mediastinal lymphadenopathy, extensive bilateral pulmonary parenchymal & interstitial opacity along with interlobular septal thickening, suggestive of lymphangitic spread. (Fig. 3). A bone scan and a Brain CT were negative for distant metastases. Pleural fluid examination showed it was an exudative effusion, cytological examination was inconclusive. Bacterial cultures and acid fast bacilli were negative.

In order to obtain a definitive diagnosis of the pulmonary infiltrates, she underwent a bronchoscopy with *trans*-bronchial lung biopsy (TBLB). Bronchial washing and lavage did not reveal malignant cells and was negative for microbial or fungal elements. The TBLB confirmed pulmonary epithelioid malignant mesothelioma, demonstrating lung tissue with infiltrating cells, similar to that of initial peritoneal biopsy, also stained positively with CK7, calretinin, WT1 and D2 40. They were negative for Napsin A, TTF1 and P40 confirming pulmonary metastatic malignant epithelioid mesothelioma (Fig. 2b). The TBLB biopsy samples were small and did not contain muscle/fat tissue, hence no invasion into muscle/fat were demonstrated. Lymphovascular invasion was not seen either. Although TBL biopsy did not did not demonstrate lymphangitic invasion, however, the CT scan findings were highly suggestive of lymphangitic spread. Unfortunately the patient had an aggressive course of disease and died within three months of initial presentation, prior to the initiation of any systemic treatment.

3. Discussion

We describe a rare presentation of diffuse pulmonary infiltrates secondary to malignant peritoneal mesothelioma. To the best of our knowledge, there are only occasional reports of similar cases described in the literature [2]. This case is presented to highlight that mesothelioma should be considered in the list of differential diagnosis in patients presenting with diffuse pulmonary infiltrates in relevant clinical context.

The patho-physiology of pulmonary parenchymal involvement secondary to peritoneal mesothelioma is thought to be related to haematogenous metastasis or by diffuse retrograde permeation and embolization of the lymphatic system [3]. Bronchoscopy and TBLB procedure can be considered for early definite diagnosis, especially when the primary site is obscure [4]. Moreover, Malignant mesothelioma regardless of site carries a poor prognosis, with a median survival of approximately 12 months from diagnosis, even when treated with modern combination chemotherapy [5]. More recently ALK (Anaplastic lymphoma kinase) testing has been shown to be useful in patients with peritoneal mesothelioma [6], however this test is not yet routinely performed in our centre. We believe this case will prompt other researchers to publish similar reports and develop guidelines for early diagnostic and management strategies.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.rmcr.2019.03.003.

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