Spontaneous Hydropneumothorax: An Unusual Presentation of Malignant Pleural Mesothelioma

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Abstract

We report a case of malignant pleural mesothelioma in a patient who presented with spontaneous hydropneumothorax. This is the third case of malignant pleural mesothelioma reported to have this pattern of radiographical presentation in medical publications in English. The patient was a 52-year-old woman who had environmental asbestos exposure. The hydropneumothorax did not recur after the chest drainage, but the pleural tumour showed progression. Thus, spontaneous hydropneumothorax may be included among the presenting symptoms of malignant pleural mesothelioma, particularly in patients who have a history of environmental exposure.

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Key words: *malignant pleural mesothelioma, hydropneumothorax, environmental asbestos exposure*

Introduction

Unlike the developed countries, malignant pleural mesothelioma (MPM) is not a rare disease in Turkey. There is environmental exposure to asbestos in some regions (1). Until recently, people in these rural areas were used to live in houses with stucco, a greyish-white soil which is rich in asbestos fibers and a potential cause of MPM (2).

The typical radiographical presentation of MPM is a unilateral large pleural effusion with or without ipsilateral pleural thickening or tumour (1,3,4). The chest X-ray reveals a pleural effusion in about 75% of patients (4). Morever, in a large MPM series from Turkey, it is stated that 84% of the cases presented with pleural effusion (5). In this report, we describe a case of MPM with spontaneous hydropneumothorax as an unusual presentation.

Case Report

A 52-year-old woman, from the southeastern part of Turkey, Siverek, Şanlıurfa, was admitted to our department in July 1999, with the complaint of right pleuritic chest pain which had persisted in the past 3 months. The patient used to live in a house with stucco, a type of soil which is rich in asbestos fibers, during her childhood and adolescence. On physical examination, breath sounds were decreased and there was dullness on percussion in the right infrascapular region. The

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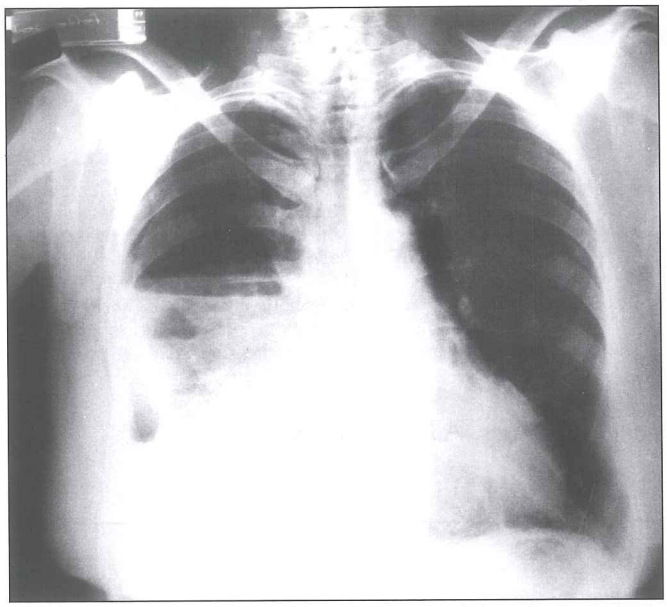

Figure 1. *Chest X-ray showing the right hydropneumothorax on presentation.*

chest X-ray revealed a large hydropneumothorax on the right side (Figure 1). Bilateral pleural thickening, which was dominant on the right side, and hydropneumothorax were observed in the computerized tomography of the thorax. Abdominal ultrasonography was normal. Laboratory data were normal except for a white blood cell count of 14 400, an erythrocyte sedimentation rate of 100 mm/h, and a lactate dehydrogenase value of 618 IU/L. Pleural effusion was found to be exudative, rich in lymphocytes. There were no malignant cells in cytological examination. A pleural biopsy was done by Abram's needle and the pathological examination of the specimen following Hematoxylin-eosin staining revealed malignant mesothelioma, a finding which was confirmed by immunohistochemical staining.

By thoracentesis, 6000 mL of pleural effusion was drained at three different times and 40 mg cisplatin was administered into the cavity following the last drainage. There was no evidence of recurrence of hydropneumothorax during the follow-up period. Two courses of systemic chemotherapy with cisplatin and gemcitabine were administered, and systemic chemotherapy was discontinued because the pleural tumour showed progression. The patient died due to respiratory failure seven months after the diagnosis.

Discussion

We describe an unusual presentation of MPM in this report. We found only two cases of MPM presenting with spontaneous hydropneumothorax reported in medical publications in the English language (6,7). The first case, reported by Dee (6), was a 63-year-old man who had MPM with spontaneous hydropneumothorax. This diagnosis was established by percutaneous needle biopsy. Signs of invasion of lung parenchyma were not mentioned. Wu et al (7), who described the second case of MPM with spontaneous hydropneumothorax, pointed out that hydropneumothorax was recurrent and that the histopathological appearance of invaded lung parenchyma closely resembled that of bronchioalveolar adenocarcinoma. No further information was given about the clinical features of these two cases. We used needle biopsy in the diagnosis of our case as in the first report. Parenchymal invasion was not detected in our case.

In medical publications in Turkish, there were four cases of hydropneumothorax in a series of 131 MPM patients reported by Barış (1). We were not able to find any other case report of MPM presenting with hydropneumothorax. Different patterns of presentation, as exemplified by our case, may be due to presence of more cases with MPM in our country.

Spontaneous pneumothorax is also uncommon in primary intrathoracic malignancies, Wright (8) found the incidence to be less than 0.05%. In subsequent publications, the incidence of MPM with spontaneous pneumothorax was reported to vary between 2% and 11% (9,10). Law et al. (9) reported three cases (2%) of spontaneous pneumothorax in a review of 140 MPM patients. Sheard et al. (10) analysed 45 specimens of pleurectomy material from patients with MPM over the age of 40 years. Five cases (11%) with spontaneous pneumothorax were detected. The mechanism of pneumothorax in MPM, with or without large pleural effusion, is not clear. But it is suggested that it may be caused by rupture of necrotic tumour nodules (11).

In our patient, the pleural effusion was drained by thoracentesis at three different times and intracavitary cisplatin was applied at the last drainage. Two courses of systemic chemotherapy were administered, but the pleural thickening and the tumour showed progression. The patient died seven months after the diagnosis.

Usually chest drainage with suction fails and recurrent pneumothorax or pleural effusion occurs in MPM. In our case, hydropneumothorax did not recur but it is difficult to attribute this finding to the positive effect of intracavitary cisplatin administration, since pleural thickening showed progression.

To our knowledge, only two cases of malignant pleural mesothelioma with spontaneous hydropneumothorax at initial presentation have been reported. Including the case presented

here, all these three cases indicate that the physicians have to be aware that spontaneous hydropneumotorax, particularly in patients with environmental exposure, may be a presenting feature of MPM.

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