Case Report

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Deciduoid Pleural Mesothelioma Affecting a Young Female without Prior Asbestos Exposure

Katharina Gloeckner-Hofmann[a] Xiong-Zeng Zhu[a] Heinrich Bartels[b]
Alfred C. Feller[a] Hartmut Merz[a]

[a]Institute of Pathology, Medical University of Lübeck, and [b]Department of Hematology and Oncology, Städtisches Krankenhaus Süd, Lübeck, Germany

Key Words
Pleural mesothelioma · Deciduoid mesothelioma · Adenocarcinoma · Asbestos

Abstract
Pleural mesothelioma is commonly associated to asbestos exposure. A 40-year-old woman is described who presented with shortness of breath. She had a smoking history but no history of asbestos exposure. Chest radiography and computed tomography showed a large tumour on the right lower lung. An open pleural biopsy was performed. A metastatic adenocarcinoma of the pleura was primarily diagnosed. The tumour progressed and after surgical excision an accurate histological and immunohistochemical examination was performed. It revealed a pleural mesothelioma with a deciduoid differentiation that has not been described before.

Malignant mesothelioma of the thorax is commonly associated in patients with long-term exposure to asbestos. Asbestos-related mesothelioma develops over a period of 14–72 years [1]. The presenting complaints are chest pain, dyspnoea, and recurrent pleural effusions. Fifty percent of affected patients die within 12 months of diagnosis [2]. Mesothelioma has to be differentiated from metastatic adenocarcinoma of the pleura [3]. The symptoms may be similar and a biopsy has to be performed. Recently, a variant of peritoneal mesothelioma has been described. It affected young females without a history of exposure to asbestos [4–6]. Moreover, histology revealed a deciduoid differentiation and prognosis was poor. We describe a case of deciduoid mesothelioma of the pleura, a localisation that has not been reported before.

Case Report

A 40-year-old woman was admitted to the hospital complaining of dyspnoea. On admission, she was free from fever, cough, chest pain or weight loss. She had been smoking 12 cigarettes a day for the past 15 years. She was the mother of five healthy children; she was not pregnant and had no history of exposure to asbestos. On physical examination, the vesicular sound of the right lung was decreased. Chest radiography showed markedly reduced radiolucency of the right lower lung. Computed tomography (CT) of the chest showed a large tumour of 7 cm diameter in the posterior mediastinum paravertebrally, close to the heart. Laboratory tests were within normal limits except for a CA-15.3 of 67.24 U/ml. Exploratory thoracotomy showed infiltration of the pleura, pericardium and diaphragm but

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Hartmut Merz, MD
Institute of Pathology, Medical University of Lübeck
Ratzeburger Allee 160
D–23538 Lübeck (Germany)
Tel. +49 451 500 2714, Fax +49 451 500 3328, E-Mail Merz@patho.uni-Luebeck.de

sparing primarily the lung tissue. An open pleural biopsy was performed and primarily diagnosed as metastatic adenocarcinoma. Postoperatively, the woman was thoroughly examined in order to find the primary tumour site, but none was detected in the lung, thyroid gland, breast, kidney, adrenals, ovaries, pancreas or elsewhere. Following operation, chemotherapy was started with 3 cycles of carboplatin, etoposide (VP-16) and vindesine followed by combined chemotherapy 5-fluorouracil (5-FU) and radiotherapy. At that time, the patient presented with sinus tachycardia. A CT scan revealed enlarging tumour masses compressing the left atrium of the heart. The main part of the tumour was surgically removed half a year later. Histological examination revealed a variant of malignant pleural mesothelioma with deciduoid differentiation (fig. 1). Immunohistochemical investigations showed that the tumour expressed pancytokeratin (KL-1, Dianova, Germany; dilution: 1:100), vimentin (DAKO, Denmark; dilution: 1:50), EMA (epithelial membrane antigen, DAKO; dilution 1:50) and calretinin (Zymed, USA; dilution: 1:50), a marker suggested to be specific for mesothelial cells. No reactivity was detected by β-HCG (DAKO); dilution: 1:3,000) and the progesterone/oestrogen receptors (both DAKO; dilution: 1.25). Thereafter, the patient took a downhill course; no further aggressive treatment was given and she died shortly thereafter.

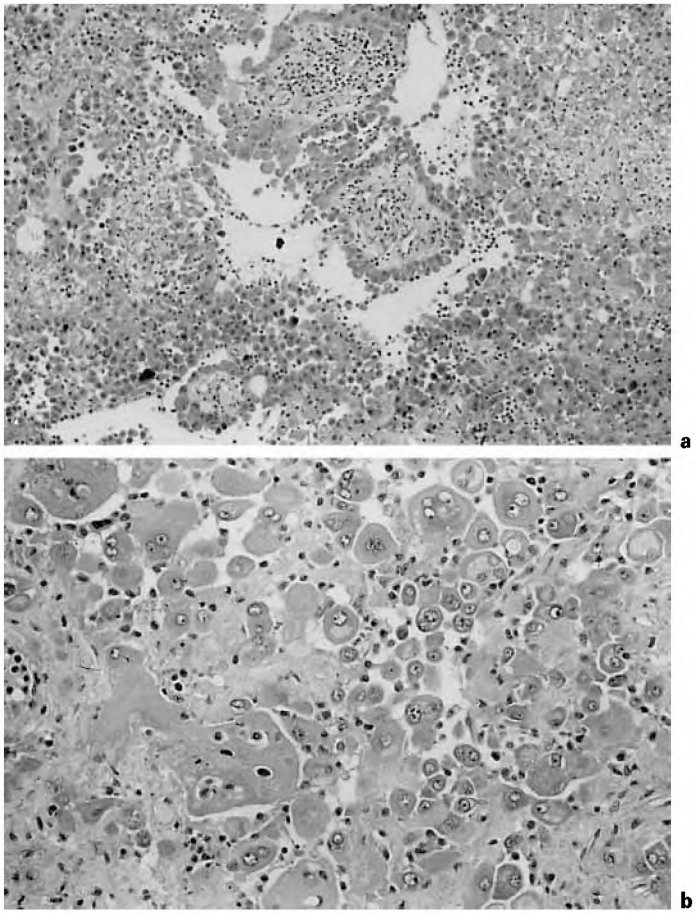

Fig. 1. a Malignant mesothelioma of the pleura. A difficult differential diagnosis from metastatic adenocarcinoma. HE. ×45. **b** Tumour cells are large with round nuclei, prominent nucleoli with deciduoid differentiation. HE. ×190.

Discussion

The pleura may be involved in primary or secondary tumours. Secondary metastatic involvement is far more common than are primary tumours. The most frequent metastatic malignancies arise from primary neoplasms of the lung and breast. Malignant mesothelioma usually occurs in older patients with a history of asbestos exposure. Because of the young age of our patient and a history of smoking with no history of asbestos exposure, a diagnosis of metastatic adenocarcinoma was primarily considered. Histologically, it is not easy to differentiate adenocarcinoma from mesothelioma [3]. A panel of antibodies has to be used to diagnose a mesothelioma [7]. Recently, a new antibody, calretinin, was developed that is specific for mesothelial cells and therefore makes the diagnosis of mesothelioma more reliable [8]. In the presented case, calretinin was positive.

Another special feature of our case was a deciduoid differentiation. Deciduoid mesothelioma is an extremely rare variant of malignant mesothelioma. So far, only 4 cases have been reported [4–6]. The tumour was located in the peritoneum of young women (13–24 years). The aetiology of this lesion is still unknown. All reported cases of deciduoid mesothelioma in young women raise the possibility that the neoplastic lesion may be induced or stimulated by endogenous hormones. Two cases of malignant pleural mesothelioma that produced human chorionic gonadotropin were reported by Okamoto et al. [9]. In the present case, tumour cells neither stained for β-HCG nor for progesterone/oestrogen receptors. Thus, we and others [4] did not find any evidence to relate the pathogenesis of mesothelioma to endogenous hormones.

This case is the first case of deciduoid pleural mesothelioma and points out the problems in diagnosing a mesothelioma versus an adenocarcinoma metastatic to the pleura.

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