Primary Malignant Fibrous Histiocytoma of the Pleura

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Malignant fibrous histiocytoma, a type of sarcoma, is a malignant neoplasm with uncertain origin that arises in both the soft tissues and the bone. The occurrence of primary malignant fibrous histiocytoma of the pleura is extremely rare. We report a case of a 65-year-old Korean man who is being diagnosed with primary malignant fibrous histiocytoma of the pleura.

Key Words: Histiocytoma, Malignant Fibrous; Pleura; Surgery

Introduction

Malignant fibrous histiocytoma (MFH) of the pleura is extremely rare1. The first case was reported in 19822. MFH is a soft tissue sarcoma mainly occurring in the soft tissues, especially in the extremities and trunk. MFH is an aggressive malignancy with high potential of local recurrence and distant metastasis3-5. Surgery is treatment of choice even with recurrence and metastasis6. In this report, we present the case of a 65-year-old Korean man who was diagnosed with primary MFH of the pleura. We present the case and literature review about this unusual MFH.

Case Report

A 63-year-old man presented with dry cough of a 2-week duration. He had a history of pulmonary tuberculosis that had been treated with anti-tuberculosis medication 10 years ago. He was a farmer and former smoker, with 30 pack-years. Physical examination at the time of admission did not indicate any abnormality in the patient. Chest radiograph showed thickening in the right side of the apical pleura (Figure 1A). Chest computed tomography (CT) scans showed diffuse pleural thickening and a mass-like lesion with heterogeneous enhancement (Figure 1B). Trans-thoracic needle biopsy was performed to rule out malignancy. Histopathological examination of the biopsy specimen showed anaplastic cytomegaly, with marked nuclear pleomorphism and atypical mitoses. Immunohistochemistry staining was performed. The panel of monoclonal antibodies consisted of CD68, vimentin, calretinin, cytokeratin 5/6 (CK 5/6), CK 7, thyroid transcription factor-1 (TTF-1), CD56, leukocyte common antigen (LCA), CD34, human melanoma black 45, and S-100. The tumor cells were positive for vimentin and CD68 (Figure 2). These cells were immunonegative for all other markers tested, ruling out carcinoma (cytokeratin), sarcomatous mesothelioma (calretinin), solitary fibrous tumor (CD34), and neurogenic sarcoma (S-100 protein).

Brain magnetic resonance imaging and bone scan performed for cancer staging showed normal findings. Positron emission tomography-computed tomography
Figure 1. Chest radiograph (A) and chest computed tomography (B) showed diffuse pleural thickening.

Figure 2. Histopathological examination of the biopsy specimen showed anaplastic cytomorphology, with marked nuclear pleomorphism and atypical mitoses (A, H&E stain, ×100). These tumor cells stained positively for vimentin (B, ×400) and CD68 (C, ×400).

(PET-CT) showed multinodular hypermetabolic lesion (standardized uptake value, 13.2) at the posterior pleural aspect, with mediastinal lymph node metastasis in the right upper and lower paratracheal nodes (Figure 3). Thus, the final diagnosis was mesenchymal malignancy, primary MFH of the pleura without metastasis beyond the thorax.

The patient underwent thoracotomy with excision of the bulk of the primary mass. The pleural masses on apico-posterior mediastinum which was encountered with third costoverbral joint was resected. Resection of the upper lobe attached to the primary mass, intercostal muscle, right second, third and fourth ribs and mediastinal lymph node dissection was done. The post-operative biopsy result was the same type of the MFH (pleomorphic type) as that of the trans-thoracic needle biopsy performed before the operation. Cancer invasions in lung, ribs, intercostal muscle, vertebra were noted. The patient was discharged after his condition improved but had been lost to follow up since discharge.

Discussion

MFH is the most common soft-tissue sarcomas in adults, MFH occurs most commonly in the extremities.