Case Report

Localized Malignant Pleural Mesothelioma Treated by a Curative Intent Lobectomy: A Case Report

Akif Turna, MD, PhD, FETCS,[1] Atilla Pekçolaklar, MD,[1] Neslihan Fener, MD,[2] and Atilla Gürses, MD[1]

Localized malignant mesothelioma is an extremely rare form of presentation of malignant mesotheliomas. The definitive therapeutic modality of the disease is yet to be identified. A 50-year-old male, a former smoker without occupational and/or environmental exposure to asbestos, presented complaining of an intractable cough. The chest radiography showed a left upper lobe mass. The computed tomography showed a 3.5 cm left apical mass. The biopsy showed epithelial malignant cells. The patient underwent a lobectomy. The evaluation of the specimen disclosed a biphasic malignant mesothelioma. His postoperative course was uneventful, and he has been doing well for almost 1 year. A resection of the tumor has shown to increase survival in previous reports, though the role of oncologically justifiable resection, such as a lobectomy, and the biological behavior of such tumors are still difficult to predict. (Ann Thorac Cardiovasc Surg 2007; 13: 349–351)

Key words: localized malignant mesothelioma, lobectomy, rare tumor

Introduction

Localized malignant mesotheliomas are uncommon sharply circumscribed tumors of the serosal membranes with the microscopic appearance of diffuse malignant mesothelioma, but with no evidence of diffuse spread.[1)] Although the ideal therapy for diffuse malignant mesothelioma is yet to be defined,[2)] the types of therapy ranges from radical chemoradiotherapy to extrapleural pneumonectomy.[2)] Localized malignant mesotheliomas should be separated from diffuse malignant mesotheliomas because of their localized presentation, quite different biologic behavior, and far better prognosis.[3)] Although surgical resection is usually recommended for such a localized tumor, the type of resection and the impact of the extent of resection is not identified.[4)]

From Departments of [1]Thoracic Surgery and [2]Pathology, Yedikule Teaching Hospital for Chest Diseases and Thoracic Surgery, Istanbul, Turkey

Received August 21, 2006; accepted for publication July 2, 2007
Address reprint requests to Akif Turna, MD, PhD, FETCS: Cami Sok. Müminderesi Yolu. No:32/22, Sahrayicedid. Kadikoy, 81080 Istanbul, Turkey.

Case

A 50-year-old male presented with chronic cough. He had no known occupational and/or environmental asbestos exposure. Chest computed tomography (CT) disclosed a 3.5 cm left apical mass (Fig. 1). He was a former smoker, and he had been diabetic for 4 years, taking oral antidiabetic medication. A fiberoptic bronchoscopy (FOB) showed no endobronchial lesion. A positron emission tomography (PET) of the whole body was done, and it disclosed a hypermetabolic left upper lobe lesion invading an adjacent rib with aorticopulmonary lymph node metastasis (Fig. 2). A left axillary lymph node biopsy was done, since it was palpable and approximately 3 cm in diameter. The pathology of the lymph node was negative. A transthoracic needle aspiration biopsy of the mass revealed a malignant epithelial tumor. A pulmonary function test was compatible with an anatomic resection. The patient was thought to have a primary non-small-cell lung cancer and a mediastinoscopy followed by a lobectomy was accomplished. There was no chest wall invasion. Lymph nodes taken using mediastinoscopy were nonmetastatic, and a frozen section examination of the anterior mediastinal, subcarinal, and inferior ligament lymph

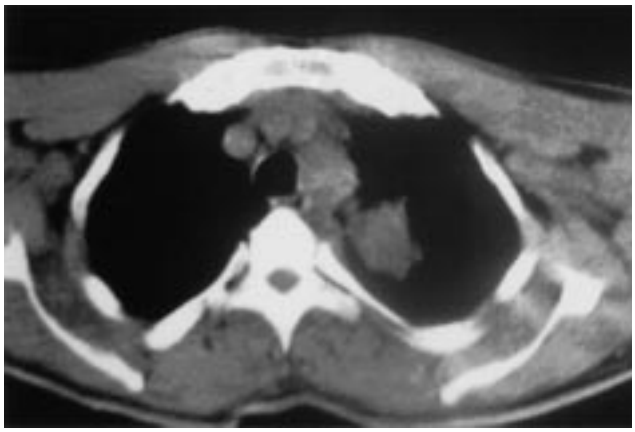

Fig. 1. Computed tomography of the chest unveiled a 3.5 cm left upper lobe mass.

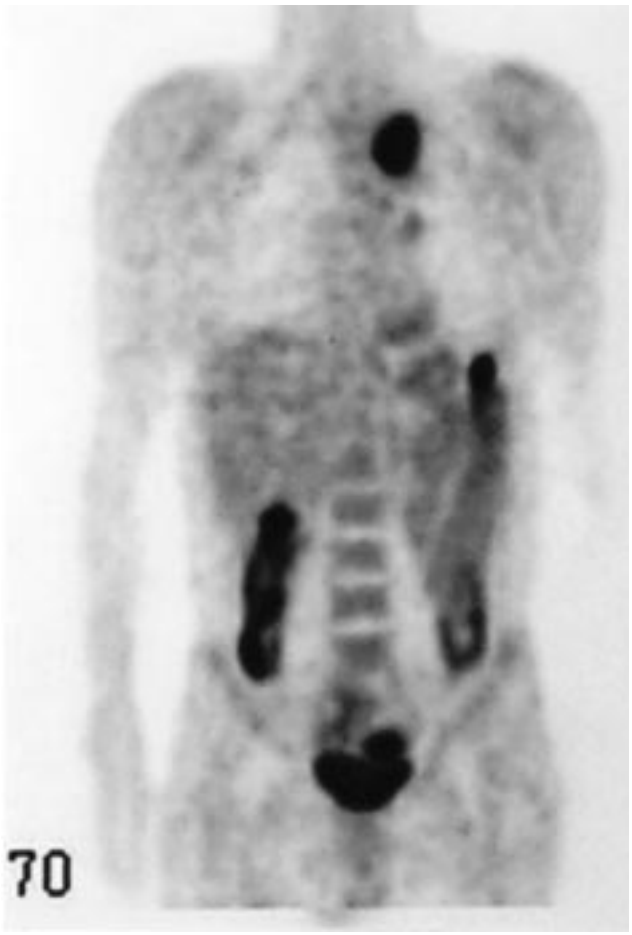

Fig. 2. Whole body positron emission tomography showed a hypermetabolic left apical lesion with possible aorticopulmonary metastasis and chest wall invasion.

nodes were reported to be negative for tumor. Macroscopically, a pathologic examination revealed a 4×4×3.5 cm nodular tumoral lesion. The evaluation of the specimen disclosed a biphasic malignant mesothelioma (Fig. 3). Epitheloid and sarcomatoid differentiations were noticed, and immunohistochemical staining was positive for calretinin, mesothelin, cytokeratin 5 (CK5), and epithelial membrane antigen (EMA) and negative for thyroid transcription factor-1 (TTF-1), cytokeratin 6 (CK6), and carcinoembryonic antigen (CEA). The postoperative course was uneventful. The patient has been doing well for 11 months. The recent thorax CT showed no abnormality.

Discussion

Since Crotty et al. first described a series of 6 localized malignant mesotheliomas in 1994,[4] several case reports of additional examples have been published in the English-language literature.[5–7] Localized malignant mesotheliomas are extremely rare solitary circumscribed nodular tumors attached either in a sessile or pedunculated manner to the surface of the pleura, and by definition they are microscopically, immunohistochemically, and ultrastructurally identical to diffuse malignant mesothelioma. The pathology and immunohistochemical evaluation of the specimen in our patient were identical to diffuse malignant mesothelioma. Because of the vastly different treatment and prognosis, it is crucial to separate localized malignant mesotheliomas from diffuse malignant mesotheliomas. Diffuse malignant mesotheliomas always show gross and/or microscopic evidence of widespread tumor on the serosal surface as individual tumor nodules, as a rind around viscera, or as tumor caking. The optimum treatment or diffuse malignant mesothelioma varies from decortication/pleurectomy to extrapleural pneumonectomy.[8] However, the crucial feature of localized malignant mesothelioma is that many cases can apparently be cured by surgical excision.[3,4–7] We performed a right upper lobectomy as a curative intent treatment. Although the patient has been well for 10 months postoperatively, no ideal treatment was identified in the literature. To our knowledge, this is the first patient who underwent a lobectomy as a curative therapy for localized malignant mesothelioma.

Although many cases of diffuse malignant mesothelioma are associated with asbestos exposure, no asbestos history was present in our case. Allen and colleagues reported that only a small fraction of patients with localized malignant mesothelioma were known to have asbes-

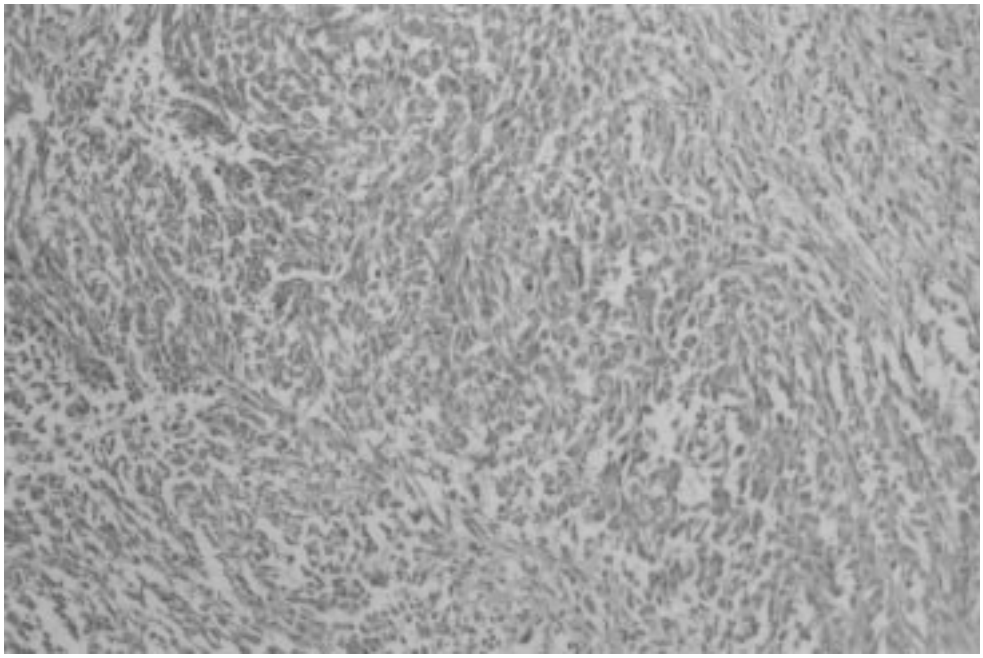

Fig. 3. A histopathologic examination revealed biphasic mesothelioma (hemotoxylin-eosin; ×100).

tos exposure.[3] For this reason, the role of asbestos exposure in the causation of localized malignant mesothelioma is yet to be known.

In conclusion, a resection of the tumor has shown to increase survival in previous reports, though the biological behavior of such tumors is still difficult to predict.

References

1. Travis WD, Brambilla E, Müller-Hermelink HK, et al. (eds). WHO Classification of Tumours. Pathology and Genetics of Tumours of the Lung, Pleura, Thymus and Heart. Lyon: International Agency for Research on Cancer (IARC) Press, 2004; p 136.
2. Shields TW, Yeldanyi AV. Uncommon tumors of the pleura. In: Shields TW, Locicero III J, Ponn RB, RuschVW, eds.; General Thoracic Surgery 6th ed. Philadelphia: Lippincott Williams & Wilkins, 2005; pp 930–3.
3. Allen TC, Cagle PT, Chung AM, et al. Localized malignant mesothelioma. *Am J Surg Pathol* 2005; **29**: 866–73.
4. Crotty BT, Myers JL, Katzenstein AL, et al. Localized malignant mesothelioma. A clinicopathologic and flow cytometric study. *Am J Surg Pathol* 1994; **18**: 357–63.
5. Erkilic S, Sari I, Tuncozgur B. Localized pleural malignant mesothelioma. *Pathol Int* 2001; **51**: 812–5.
6. Okamura H, Kamei T, Mitsuno A, et al. Localized malignant mesothelioma of the pleura. *Pathol Int* 2001; **51**: 654–60.
7. Allen TG, Cagle PT, Churg AM, et al. Localized malignant mesothelioma. *Am J Surg Pathol* 2005; **29**: 866–73.
8. Rusch VW, Venkatraman ES. Important prognostic factors in patients with malignant pleural mesothelioma, managed surgically. *Ann Thorac Surg* 1999; **68**: 1799–804.