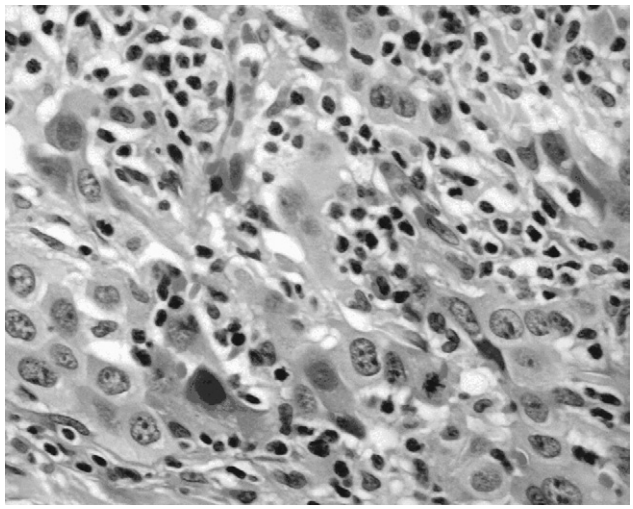

Fig 2. Hematoxylin and eosin stained light micrograph of the excised chest wall metastasis. An epithelioid mesothelioma shows a moderate host inflammatory response with small round lymphocytes easily visible around the tumor cells.

A number of studies have attempted to determine factors associated with prolonged survival after a diagnosis of MPM. Mark and Shin [3] described microscopic features, such as innocuous nuclei, sparsely distributed glands and tubules, micropapillae, and myoid stroma, which in their series of 6 patients were related to prolonged survival of at least 1 and as many as 5 years after diagnosis [3]. The German mesothelioma register showed that epithelioid subtype, age of less than 60 years at diagnosis, and female gender were associated with a better prognosis [4], but not to the timescale reported herein.

In laboratory studies, Comin and colleagues [5] showed a group of 7 patients who had survived more than 3 years had a significantly lower MIB-1 proliferation index (5.2%) compared with 12 controls with a median survival of 8 months whose MIB-1 proliferation index was 27.8% [5].

Spontaneous regression of MPM has not been previously documented histologically, although it was observed radiologically by Robinson and colleagues [6]. In their report, the patient had two areas of disease, one of which regressed and one that progressed to cause the patient's demise. Our patient's lesion, in the paravertebral gutter, which was initially biopsied, was proven to have regressed at his subsequent thoracotomy. Our patient's tumor, like the anterior lesion in the report of Robinson and colleagues [6] had a prominent inflammatory cell infiltrate. Lymphohistiocytoid mesothelioma is a rare form of mesothelioma associated with a marked lymphocytic and plasmacytic infiltrate. In the small number of reports of this subtype of MPM there have been survivors for a maximum of 6 years after diagnosis [7]. These data suggest that spontaneous regression may be an immune-mediated phenomenon.

Our patient underwent successful local excision of his second lesion, which was located in the anterior chest wall. Allen and colleagues [8] presented a series of localized malignant mesothelioma that had a good prognosis after surgical excision. Half of their series of 23 patients were alive with follow-up ranging from 18 months to 11 years. In the rare case of a localized tumor in a fit patient, an aggressive surgical approach seems justified.

We report a case of MPM with spontaneous regression of pleural disease during a 12-year follow-up and only a single localized recurrence in the chest wall at 6 years. There is some evidence that a prominent host response to tumor may be responsible. Such phenomenon must be borne in mind when interpreting reports of nonrandomized treatment.

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FEATURE ARTICLES

Ectopic Pleural Thymoma Presenting as a Giant Mass in the Thoracic Cavity

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We describe a rare case of a giant thymoma that developed in the right thoracic cavity, and seemed to originate from the visceral pleura. We believe that there have been

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few reports of thymoma developing from such an unusual origin.

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Thymoma is an epithelial neoplasm of the thymus, which commonly lies in the anterior mediastinum. Unusually, thymomas can also be found in other locations.

A 58-year-old Japanese woman was referred to us with mild palpitation for a period of 1 month. She presented with mild liver dysfunction in blood chemical tests and a huge, massive shadow on chest roentgenogram. Computed tomography (CT) of the chest demonstrated a giant mass in the lower area of the right thoracic cavity, measuring approximately 20 cm in diameter (Fig 1). On magnetic resonance imaging (MRI), the tumor had a low signal intensity on T1-weighted images and an inhomogeneous signal intensity with fibrous septa on T2-weighted images. The intensity increased inhomogeneously with gadolinium-enhanced T1-weighted imaging. From the CT and MRI findings, the tumorous lesion seemed not to invade the chest wall, but to have some adhesion to the diaphragm or inferior vena cava (Fig 2). Angiography of the right hepatic artery, the right adrenal artery, the right subcostal artery, and the right subclavian artery revealed a number of feeding vessels entering the tumor through the diaphragm, and thus a needle biopsy was not performed.

Surgical access to the mass was accomplished through a right anterolateral thoracotomy. In the thoracic cavity, a well-defined giant mass measuring 20 × 14 × 8 cm was found to have made expansive growth to adjacent structures without apparent invasion, except for the pulmonary pleura of the right lower lobe and central part of the diaphragm. The tumor was removed completely through a combined resection of the adjacent tissue.

The resected specimen revealed that the tumor was encapsulated with a thin vessel-rich membrane, and

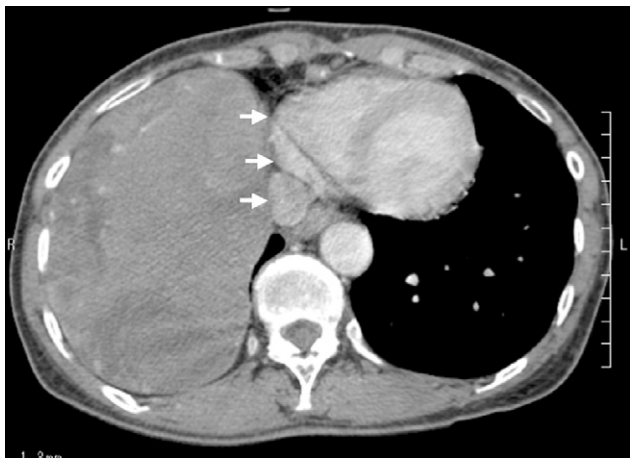

Fig 1. Enhanced computed tomographic scan at the level of the diaphragm shows a huge inhomogeneous mass and left-side deviation of the lower mediastinum (arrows).

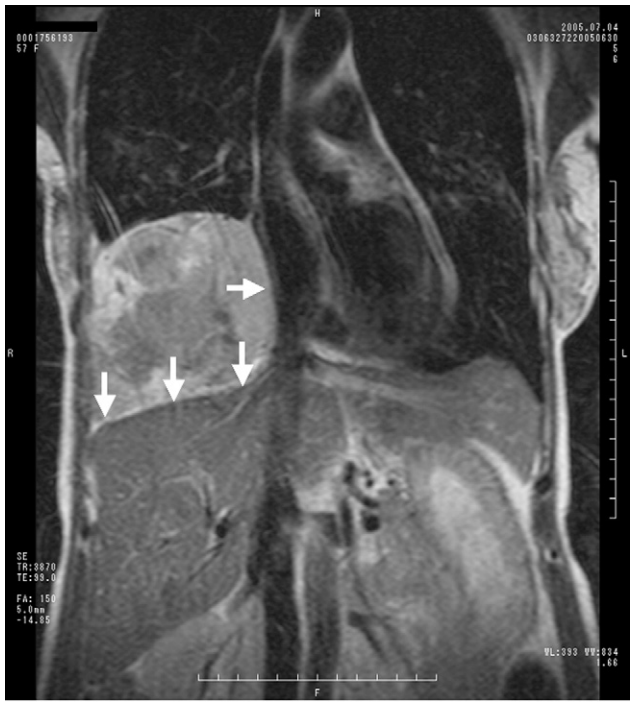

Fig 2. The T2-weighted frontal magnetic resonance image shows an inhomogeneous mass with compression on the diaphragm, the liver, and the inferior vena cava (arrows).

the cut surface showed an internal lobulated structure separated by fibrous septa, whitish–yellow in color, and soft in consistency. Microscopic examination of hematoxylin and eosin stained sections revealed polygonal epithelial cells with bland nuclei proliferating in sheets, focally, with cystic change. Immunohistochemical analysis revealed that the tumor cells were diffusely positive for broad-spectrum epithelial keratin (AE1/AE3) and bcl-2, but negative for CD34. Given these histopathologic features, the tumor was consistent with medullary thymoma (type A thymoma according to the World Health Organization classification [1]). The tumor was almost totally encapsulated by fibrous tissue, but it had focally invaded the lung and diaphragm.

Palpitation and liver dysfunction improved immediately after surgery.

Comment

Embryologically, the thymic epithelium originates in the third or fourth branchial pouches and descends caudally with the third parathyroid into the anterior mediastinum by the fifth or sixth week of gestation. Aberrant migration may occur anywhere along this pathway and it is believed that ectopic thymomas originate from this aberrant thymic tissue [2]. Seventy-five percent of the thymomas are within the anterior mediastinum, 15% are in both the anterior and superior mediastinum, and 6% are located in the superior mediastinum [3, 4]. The remaining 4% of thymomas

FEATURE ARTICLES

occur ectopically, affecting the neck, middle or posterior mediastinum, and lung [5, 6]. However, ectopic thymoma occurring in the pleura is extremely rare and has been infrequently documented [7].

The differential diagnoses for giant intrathoracic mass are a pleural tumor (e.g., solitary fibrous tumor, malignant mesothelioma, and sarcomas), a chest wall tumor, or a metastatic mass. MRI findings of the thymoma have the same or slightly increased intensity as that of muscle on T1-weighted images and increased intensity on T2-weighted images. Inhomogeneous signal intensity on T2-weighted images with a lobulated border, fibrous band, and lobulated internal architecture is indicative of an invasive thymoma [8]. Although the MRI features of this case resembled those of orthotopic thymoma, preoperative diagnosis was difficult because of the unusual location.

In summary, this report documents an extremely rare occurrence of ectopic pleural thymoma presenting as a giant mass in the thoracic cavity.

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Minimally Invasive Management of Boerhaave's Syndrome

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We report the case of a 42-year-old man with Boerhaave's syndrome. His medical history was significant only for a long-standing history of dysphagia. The patient presented to the emergency department with vomiting, followed by severe retrosternal and epigastric pain of sudden onset. An esophagogram showed evidence of free extravasation of contrast from the left posterolateral aspect of the distal esophagus just above the level of the hiatus. A minimally invasive technique was used to repair this injury.

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Boerhaave's syndrome is associated with a significant risk of mortality and morbidity. Prompt surgical management is the treatment of choice. The accepted management involves surgical repair of the perforation using a thoracotomy or laparotomy, or both. Reducing the inflammatory response by minimizing the surgical trauma may decrease the mortality risk of this potentially lethal condition. We report the successful laparoscopic and thoracoscopic management of a patient with Boerhaave's syndrome. Although open repair and drainage are the gold standard, we conclude that laparoscopic and thoracoscopic management of Boerhaave's syndrome is a feasible alternative.

A 42-year-old man with a long-standing history of intermittent dysphagia that required a change in the patient's dietary habits presented to the emergency department with a 5-hour history of vomiting, followed by severe retrosternal and epigastric pain of sudden onset. On initial presentation, his blood pressure was 142/86, pulse was 100/min, and his respiratory rate was 22/min. The patient was afebrile and mildly distressed.

On chest exam, there was decreased air entry over the left hemithorax, with crackles at the left lung base. His abdominal exam revealed a nondistended abdomen and epigastric tenderness without generalized peritonitis. The leucocyte count on admission was 12.1×10^9/L. The initial chest radiograph revealed a small left pleural effusion. A contrast-enhanced computed tomography (CT) scan of the chest demonstrated pneumomediastinum and a left pleural effusion highly suggestive of esophageal perforation (Fig 1). The result of a CT scan of the abdomen was normal. A Gastrografin (Tyco/MallinKrodt, St. Louis, MO) swallow demonstrated free extravasation of contrast from the left posterolateral aspect of the distal esophagus just above the level of the hiatus (Fig 2).

After aggressive volume resuscitation, commencement of broad-spectrum antibiotics, and analgesia, the patient was taken to the operating room. On-table endoscopy revealed a 2-cm to 3-cm perforation just above a narrowed gastroesophageal junction. A laparoscopic exploration showed no intraabdominal pathology.

We then harvested a generous portion length of the greater omentum and secured it to the edges of the left crus. We also performed a Heller myotomy given the patient's long-standing history of dysphagia. A laparoscopic gastrostomy and feeding jejunostomy were performed, and the port sites were closed.

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