Giant Posterior Mediastinal Mass: A Rare Presentation of Malignant Pleural Mesothelioma

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Case Presentation

A 74-year-old male with a history of tobacco abuse, COPD, hypertension, and latent tuberculosis presented from an outside hospital for evaluation of dyspnea.

The patient's history was unique for having recurrent left pleural effusions of unclear etiology

A CT chest with IV contrast was performed which revealed a 24 cm mediastinal mass that encased the distal esophagus and thoracic aorta (Figure 1).

Endobronchial US-guided Fine Needle Aspiration (EBUS-FNA) was performed and a left pleural drainage catheter was placed.

Biopsy showed mesothelial differentiation but did not allow for definitive diagnosis.

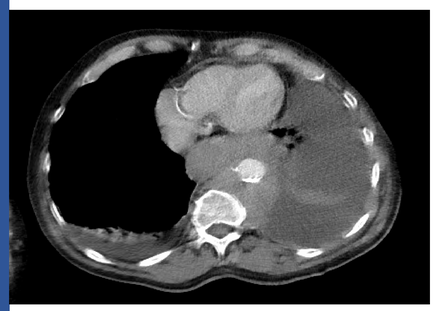


Figure 1: CT with contrast axial cut. Homogenous mass encasing the descending aorta circumferentially, lying posterior to the heart. A large pleural effusion demonstrated also seen.

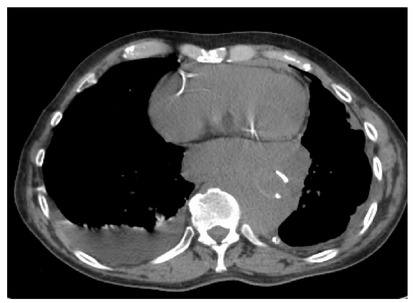


Figure 2: Repeat non-contrast CT at our institution. Mass larger in size compared to Figure 1. Small pleural effusion now present on the right side. Descending aorta moderately calcified

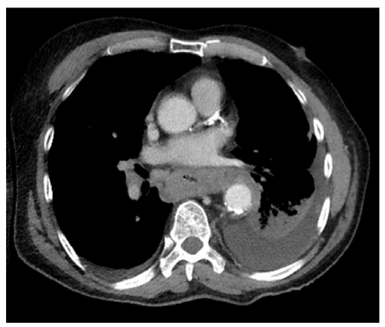


Figure 3: At the level of the pulmonary artery bifurcation, mass is encasing and compressing the esophagus (red).

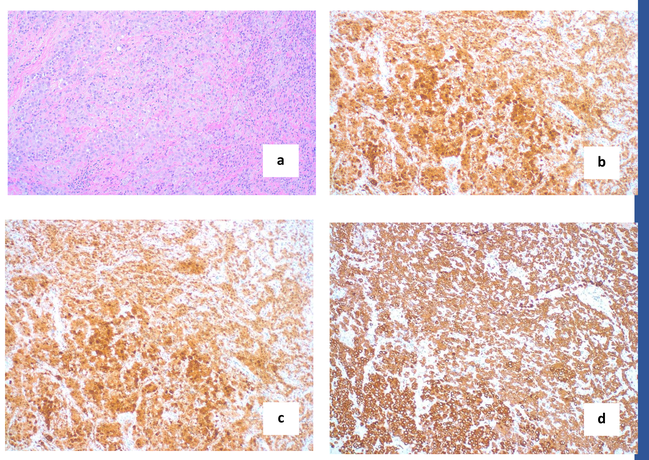
Figure 6a: Nests and cords of large malignant mesothelial cells with abundant pale amphophilic cytoplasm infiltrating through soft tissue; so-called "epithelioid" malignant mesothelioma. Hematoxylin and eosin stain.

6Strong and diffusely positive nuclear and cytoplasmic immunohistochemical staining for calretinin, establishing mesothelial origin for the tumor

6c: Intense membrane- specific immunohistochemical staining for D2-40 (podoplanin), characteristically seen in epithelioid malignant mesothelioma

6d: Strong and diffusely positive cytoplasmic staining for broad- spectrum cytokeratin AE1/3, as expected in epithelioid malignant mesothelioma

Special thanks to AmeriPath and Dr. Terence Cudahy for images and captions



Pleural fluid studies were consistent with an exudative process but were otherwise negative.

Unfortunately 4 months later, the patient re-presented with worsening shortness of breath and increased drainage from his pleural catheter. He also endorsed progressive dysphagia to solid foods

Repeat CT showed growth of the mediastinal mass, now 7.4 x 10.7 x 24 c m, a newly-growing right pleural effusion, and a distended esophagus (Figure 2).

Video-Assisted Thoracoscopic (VATS) biopsy was performed and a new right Pleurx catheter was placed.

Immunohistochemical staining confirmed pathologic diagnosis of Malignant Mesothelioma (Figure 6).

He was referred to oncology for palliative radiation and chemotherapy.

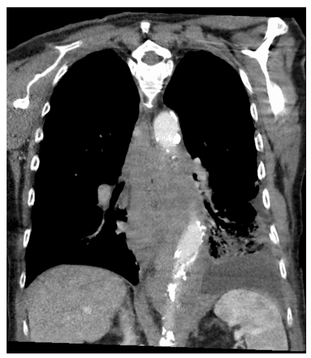


Figure 4: Mass seen on coronal view - extends from top of aortic arch to diaphragm.

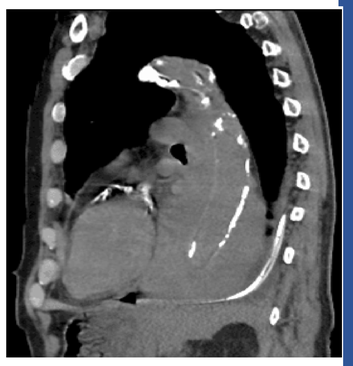


Figure 5: Sagittal view - Growth of mass pushing heart anteriorly against chest wall and extending to posterior edge of thoracic cavity

Discussion

Malignant mesothelioma typically presents in patients with asbestos exposure, with respiratory symptoms caused by primary pleural involvement with associated pleural effusion.

Instead, this patient presented with a rapidly growing posterior mediastinal mass, without a pleural lesion or known asbestos exposure.

Common differential diagnosis for posterior mediastinal masses usually includes neurogenic tumors (accounts for 60%), meningoceles, and spinal lesions, and did not include mesothelioma prior to this encounter (1).

Repeated pleural fluid analyses and EBUS-FNA tissue samples were insufficient to yield a definitive diagnosis and resulted in delay of diagnosis and subsequently significant growth and progression of the patient's disease.

Treatment options remain mostly palliative with prognosis typically less than 12 months, but if detected early, a combination of chemotherapy/ surgery regimens can prolong survival to an average of 22 months (2).

Conclusions

This presentation of malignant mesothelioma as a posterior mediastinal mass with bilateral pleural effusions without evidence of primary lung involvement was atypical.

As a result, the patient was undiagnosed for several months, during which time the tumor rapidly progressed.

This case illustrates the importance of considering mesothelioma in your differential for posterior mediastinal masses.

Understanding the unique ways mesothelioma can present could lead to earlier diagnosis and potentially improved patient outcomes.

References

1.Juanpere S, Cañete N, Ortuño P, Martínez S, Sanchez G, Bernado L. A diagnostic approach to the mediastinal masses. Insights Imaging. 2013;4(1):29–52. doi:10.1007/s13244-012-0201-0

2. Bianco A, Valente T, De Rimini ML, Sica G, Fiorelli A. Clinical diagnosis of malignant pleural mesothelioma. J Thorac Dis. 2018;10(Suppl 2):S253–S261.