

Cavernous Hemangioma in the Posterior Mediastinum, An Incidental Finding during Influenza Season

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Abstract

Incidental pulmonary nodules or incidental mediastinal masses are a common situation in general practice, and always represents a clinical challenge, despite most of these lesions will be benign; the opportunity to diagnose cancer on curable stages should not be overlooked.

Posterior mediastinal hemangiomas are rare benign vascular tumors and can be easily misdiagnosed. They are mostly asymptomatic and can mimic other tumors. Preoperative diagnosis is challenging, and the final diagnosis is made by pathology. Surgery is usually the treatment of choice.

We present a case of the 54-year-old patient. He presented with a cough and fever after flu vaccination. Following further evaluation, a posterior mediastinal mass was discovered. After complete resection of the mass, the patient underwent complete recovery. Posterior mediastinal cavernous hemangioma was the final diagnosis.

Keywords: *Mediastinal Hemangioma; Lung Surgery; Posterior Mediastinal Mass; Incidental Mediastinal Mass*

Abbreviation

CT: Computed Tomography

Introduction

Mediastinal hemangiomas are uncommon benign vascular tumors of the mediastinum and are very rarely found in the posterior mediastinum [1,2]. It is difficult to distinguish a hemangioma from a tumor in the posterior mediastinum since preoperative diagnosis can be quite challenging [3]. Hemangiomas usually don't give any symptoms [4,5] and are usually detected as an incidental finding [4]. We present the case of a 54-year-old patient, he presented with a cough and fever after flu vaccination. Following further evaluation, a posterior mediastinal mass was discovered. Resection of the mass was performed and the patient underwent complete recovery. Posterior mediastinal cavernous hemangioma was the final diagnosis.

Case Report

Patient is a 54-year-old non-smoker male with past medical history of hiatal hernia, hypertension, and hyperuricemia. He was vaccinated against the flu and began with a cough and fever, 2 weeks went by and although the symptoms were becoming milder, a general feeling of unwellness persisted, thus he presented to a routine physical exam. Examination of the chest and abdomen was normal, however, due to his previous history, a chest x-ray was requested. An upper left thoracic lesion was detected (Figure 1A).

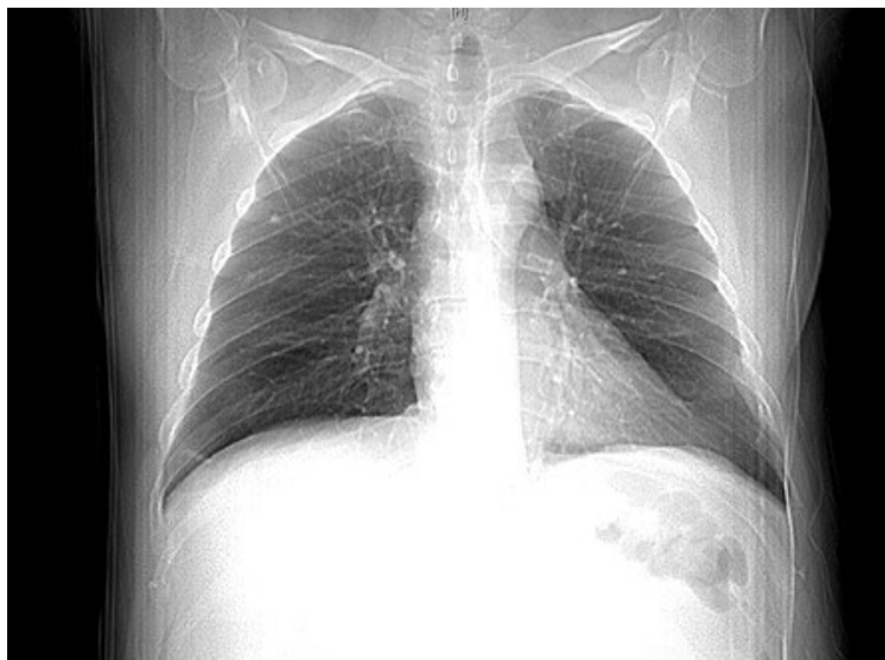


Figure 1A: Chest x-ray showing an upper left pulmonary nodule.

Cardiothoracic consultation was required. Chest tomography revealed a 4 x 4 cm left lung mass with a relative density of 5-30 HU in the upper lobe that compromised the chest wall and the posterior mediastinum (Figure 1B).

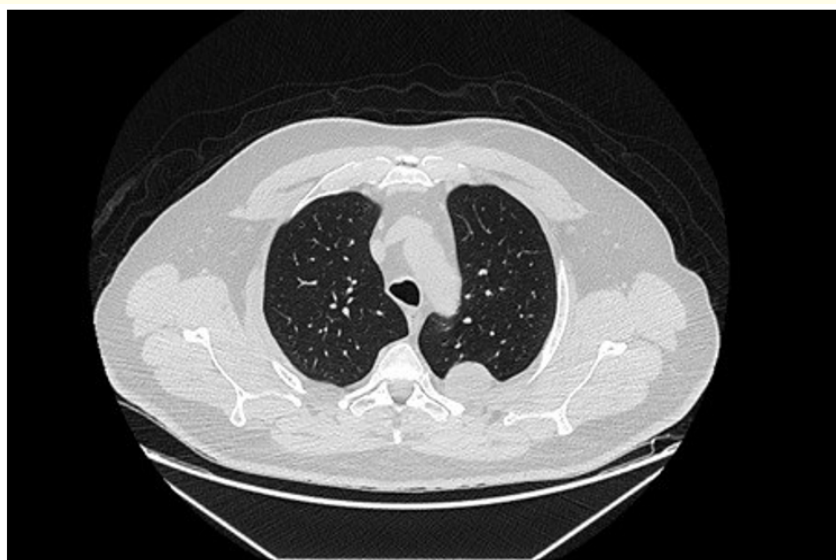


Figure 1B: Thoracic tomography revealed a posterior mediastinal mass.

The mass outline was fairly regular and there were no calcifications at its periphery, also no pleural effusion was evident. Some small 6mm lymph nodes were seen in the aortopulmonary window and a calcified lymph node in the left hilum was identified as well.

Complete blood count (CBC) and bronchoscopy were normal.

Due to the characteristics of the mass, and the lymph nodes seen in the CT scan, surgery was decided. At thoracoscopy, a 3.5 x 4 x 2 cm violaceous tumor was observed in the posterior mediastinum. It was completely attached to the apex of the left superior lobe of the lung and apparently compromised the visceral pleura. The tumor surface was smooth and blood vessels showed marked growth around the tumor. No additional masses or lymph nodes were detected during surgery (Figure 2A).

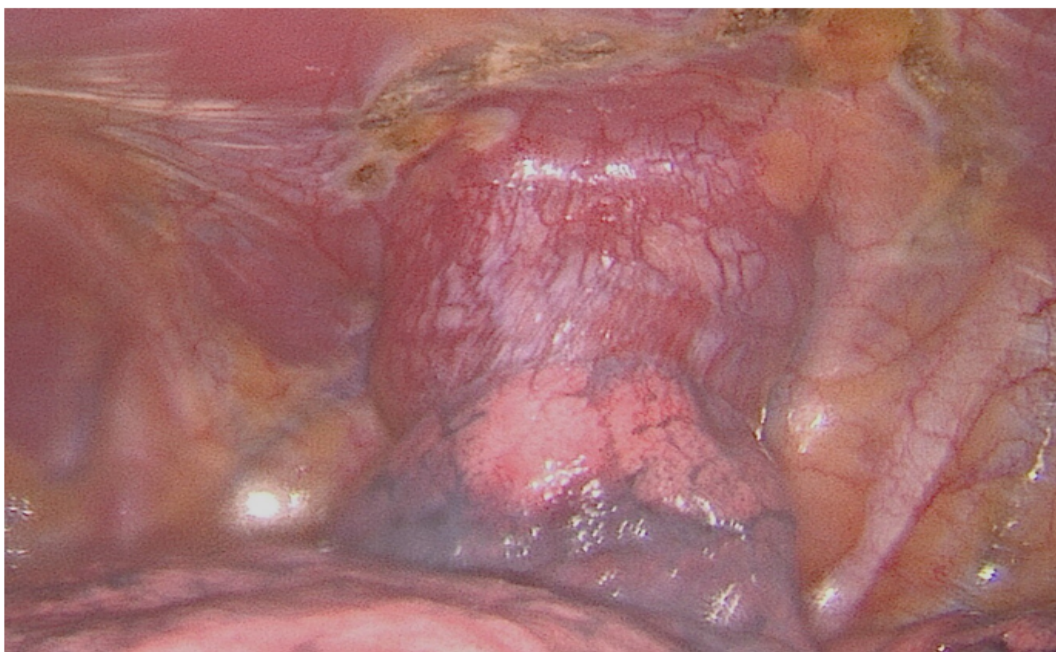


Figure 2A: Posterior mediastinum tumor attached to the apex of the left superior lobe of the lung. The tumor surface is smooth and blood vessels showed marked growth around the tumor.

From there surgery was fairly straightforward, since the lesion looked suspicious complete excision was decided. Resection started by dividing a portion of lung attached to the lesion, using, linear staplers (Echelon Flex 60 Powered Plus, Ethicon Inc. Somerville, NY). The mass was resected from the lung with 1 cm margin, complete excision of the tumor was achieved using the Harmonic scalpel (Ethicon Endo-Surgery, Inc, Cincinnati, Ohio), without any complications ([Supplementary video](#)).

Pathology revealed a 4 x 4 x 2 cm heterogeneous encapsulated mass with dark brown solid areas of fibrous aspect and intercalated with large hemorrhagic areas. Small dilated and congestive blood vessels were surrounded by thick walled spaces. Some vessels were occupied by fibrous tissue with partial recanalization. The tumor was attached to the lung tissue, but there was no definitive direct invasion of the lung, S100 immunohistochemistry was negative, ruling out Schwann cell tumor. Cavernous hemangioma was the final diagnosis (Figure 2B and 2C).

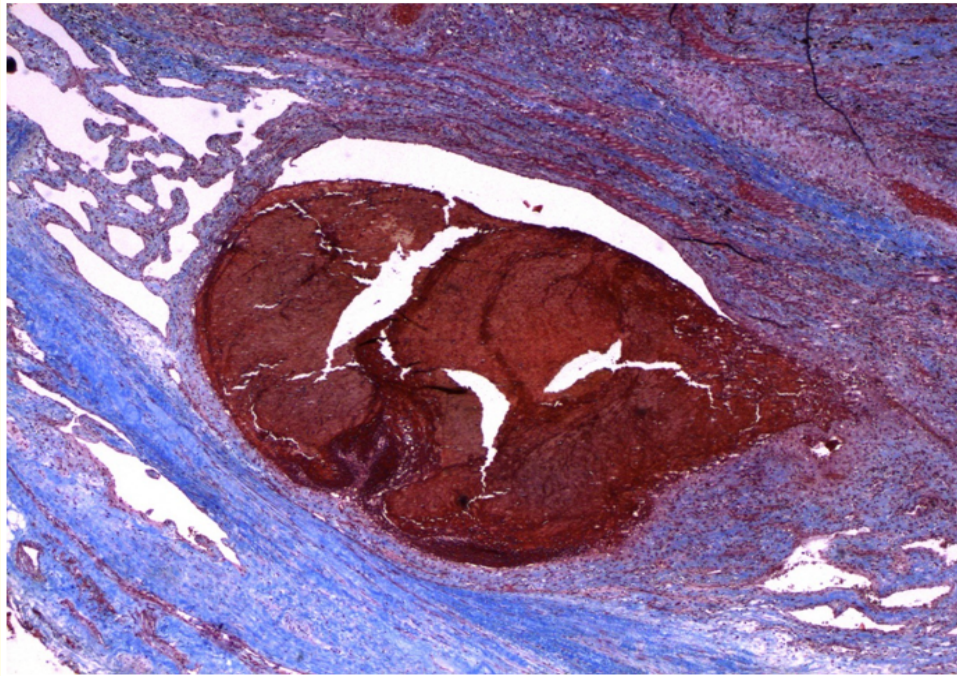


Figure 2B: Dilated vessels with cavernous formations around the vessel, vessel is lined by endothelium (Hematoxylin-Eosin 10X).

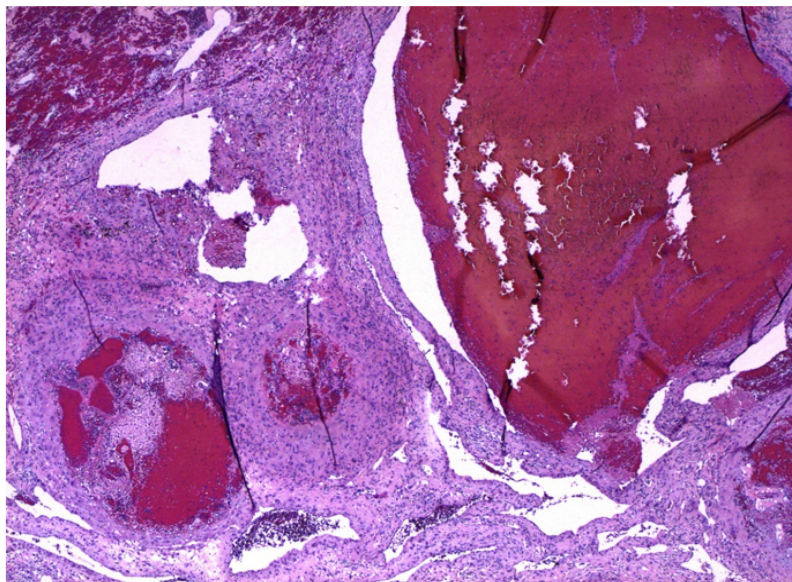


Figure 2C: Dilated vessels separated by fibrous material (Masson Trichrome 4X).

The postoperative course of the patient was uneventful, thoracic drainage was removed at the 5th postoperative day, and he was discharged soon after.

Patient underwent full recovery and on follow up controls patient is doing well.

Discussion

Solitary pulmonary nodules are identified in approximately 150.000 patients in the United States each year, lung cancer or metastatic lesions are estimated to occur in about 20% of these patients [4]. When a nodule or a mass is detected, it always represents a clinical challenge, although the great majority will be benign; the opportunity to diagnose lung cancer in a curable stage should not be overlooked [5]. Mediastinal masses both benign and malignant do occur [6], most of them are primary and arise on an asymptomatic patient. They can be diagnosed either accidentally or when they invade adjacent anatomic structures [7]. About half of all mediastinal masses are located in the middle and posterior compartments [8] and neurogenic tumors are the typical lesions of the posterior mediastinum [2]. In our patient, a mediastinal mass was identified as an incidental finding after flu vaccination.

Mediastinal hemangiomas are uncommon benign vascular tumors of the mediastinum and are rarely found in the posterior compartment. They represent less than 0.5% of all mediastinal tumors [1,2]. Ever since Shannon, *et al.* first described a mediastinal hemangioma in 1914 few cases have been reported [3]. They usually occur in infancy [1] and approximately 75% of these lesions appear before the age of 35. The cause of hemangioma is thought to be due to vascular developmental anomalies rather than true neoplasms [2]. In spite of their vascular structure, no major communication exist between the great vessels and the tumor [5]. They have no clear sex or racial predilection and usually are asymptomatic, however, when they do, cough, dyspnea, and chest pain are among the most common symptoms [1,2,4,9].

The natural history of the cavernous hemangiomas is in general; of early growth, with gradual regression by the fifth year of life, however when they occur in the mediastinum they do not regress spontaneously [5].

To our knowledge and after an exhaustive search this is the first case ever reported in Ecuador.

Hemangiomas are classified histologically into cavernous, capillary and venous types [4], with the majority 90% being the first two variants [9]. Cavernous hemangiomas are characterized by ectatic vessels interposed with stromal elements such as fat or fibrous tissue [1,4,5,9]. When they appear on the chest, they usually manifest as nonspecific masses on tomography. In non-contrast CT hemangiomas appear as well circumscribed, soft-tissue masses [4]. As it was discovered in our case.

Focal phleboliths, a ring-like calcification with central lucency [2], are seen in less than 10% of the cases, but when they appear, it's usually a diagnostic sign [1,3]. Is difficult to distinguish a hemangioma from any tumor in the posterior mediastinum since preoperative diagnosis can be challenging [3]. Invasive procedures for posterior mediastinal masses are often necessary to obtain a definitive diagnosis [1], however catastrophic hemorrhage due to CT-guided biopsy can occur when approaching a mediastinal hemangioma [4]. Endovascular embolization is an option, however, preoperative diagnosis is difficult [3].

Surgery is the treatment of choice as it allows diagnosis and treatment. This could be done by thoracoscopy or thoracotomy [1,4,5].

In our patient, surgical management was straightforward, due to the size and the location of the mass. One of the challenges we faced initially was the uncertainty of whether or not the symptoms presented by our patient were due to the mass or by an adverse effect of vaccination that led to the incidental finding of the mediastinal mass and finally a hemangioma.

Conclusion

Even though cavernous hemangiomas of the posterior mediastinum are rare tumors they should always be included in the differential diagnosis of posterior mediastinal tumors.

Conflict of Interest Disclosure

The authors declares that there is no conflict of interest regarding the publication of this paper.

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