CASE REPORT

Detection of incidental schwannoma by traumatic hemothorax

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ABSTRACT

A case of hemothorax caused by traumatic rupture of schwannoma is rarely reported. We present a case of thorax injury of an 18-year-old woman who had fallen from a high place with a Glasgow Coma Score 13. Chest X-ray showed a left-sided massive pleural effusion. Chest tomography revealed a 105×80 mm formation in the left lung basal region. The patient underwent an emergency thoracotomy after 2000 cc blood drainage with intercostal tube placement. Tumor's pathologic diagnosis was schwannoma (neurilemmoma). In this case study, we would like to present a traumatic hemothorax for the previously unknown mediastinal mass with the relevant literature.

Keywords: Schwannoma; thoracotomy; traumatic hemothorax.

INTRODUCTION

The posterior mediastinal masses are seen rarely. Schwannomas (neurilemmoma) are the most common neurogenic tumors of the thorax. Most schwannomas are located in the posterior mediastinum and originate from the intercostal nerves. They are generally asymptomatic, and it may not be diagnosed for a long time. However, the patient may have complaints such as chest pain, dyspnea, pleural effusion, hemothorax, and Horner syndrome.[1] Hemorrhage from intrathoracic neurogenic tumors is extremely rare.[2] In this study, we present a traumatic hemothorax for the previously unknown schwannoma.

CASE REPORT

An 18-year-old woman who had fallen from high place was admitted to the emergency department by ambulance. The patient's consciousness was confused, and Glasgow Coma Score was 13. She had shortness of breath. Decreased air entry was noted at the base of the left lung. Chest X-ray showed a left-sided massive pleural effusion. On chest computed tomography (CT) scan, a 105×80 mm formation in the left lung basal region was noted (Fig. 1a). This formation was properly limited and not associated with the vertebrae. Chest CT revealed massive pleural effusion reaching approximately 9 cm and the mediastinal structures were shifted to the right and the left lung was collapsed (Fig. 1b). Rib fracture and lung parenchymal contusion areas were not seen. Brain and abdominal CT appeared normal. An intercostal chest tube was inserted, and 2000 cc of blood stained fluid were drained (Fig. 2a). Laboratory tests including coagulation studies were normal except for a low hemoglobin level of 8.5 g/dL. After approximately 45 min of follow-up, 1200 cc hemorrhagic fluid drainage was seen and an emergency operation decision was taken. The patient developed confusion and hypotension. Open surgery was preferred to the patient due to loss of time in the video-assisted thoracic surgery application of the patient who had massive bleeding and shock findings. The patient underwent emergency thoracotomy. Intrathoracic 1000 cc hemorrhagic fluid and hematoma were removed by thoracotomy. In exploration revealed a 15×20 cm thick encapsulated lesion that began with the pedicle at the costophrenic sinus level of the left hemithorax, gradually expanding and adjacent to the lower lobe of the left lung but noninvasive to the lung and chest wall (Fig. 2b). In intraoperative observation, the part of the lesion adjacent to the lower lobe of the lung did not have a capsule and bleeding occurred in this

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area. The capsule was like an ice cream cone. The lesion was gently removed from the capsule and totally excised. By providing the necessary field of vision, anxiety was felt for capsule total resection after the lesion was removed. The tumor was successfully resected, and bleeding was stopped in the active bleeding area at the base of the capsule. Immunohistochemical staining for S-100, a neural marker, was strongly and diffusely positive. Calretinin staining was positive; however, smooth muscle actin and desmin staining were negative. The pathologic diagnosis was schwannoma (neurilemmoma) (Figu. 2c). The patient was followed up in the intensive care unit for 2 days and in thoracic surgery service for 4 days before discharge. It was decided that surgical treatment was sufficient and adjuvant therapy was not required. On the chest X-ray taken 1 month after the patient's discharge, all previous findings disappeared and chest X-ray was normal (Fig. 3). The patient gave written informed consent.

Figure 1. Axial CT images show **(a)** a round-shaped mass with 105 × 80 mm measured diameters (arrows) and **(b)** left-sided massive pleural effusion reaching approximately 9 cm (arrows).

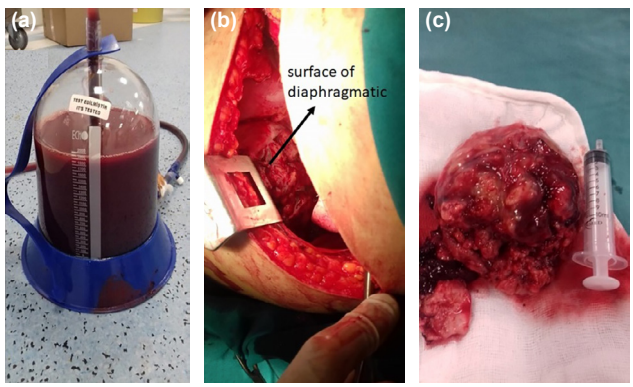

Figure 2. (a) Drainage of 2000 cc blood after insertion of chest tube. **(b)** 15×20 cm thick encapsulated lesion in exploration. **(c)** Macroscopic examination of the mass after the resection.

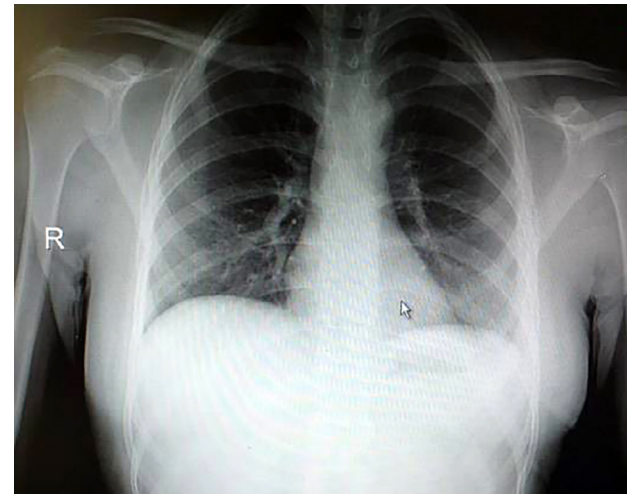

Figure 3. Normal chest X-ray image 1 month after discharge.

DISCUSSION

Schwannoma is a neurogenic tumor which can occur in the mediastinum, which is the most common location of intrathoracic neurogenic tumors.[3] In general, schwannomas are slow-growing and asymptomatic tumors that rarely develop into malignant tumors.[4] The tumors occurred more often in women than in men, at a relatively early age. Intrathoracic hemorrhage caused by neurogenic tumors has been rarely reported in the literature.[3] The causes of blood stained pleural effusion are thought to be caused by external trauma or a weak site within the tumor.[5] Our search of the literature using PubMed found only one case reports of schwannoma associated with traumatic hemothorax.[6]

The diagnosis is usually determined an incidental asymptomatic mass on a radiograph or CT. Posterior mediastinal masses usually have sharp margins due to their interface with the lung. Chest CT is useful for determine the location of the mass and its relationship with neighboring structures and to distinguish cystic, vascular, or solid density formation. Recent studies have suggested ultrasound-guided fine-needle aspiration biopsy as a diagnostic method for mediastinal lesions.[6] Morimoto et al.[5] emphasized the importance of chest magnetic resonance (MR) imaging in pre-operative evaluation because of the schwannomas show equal or lower signal intensities than muscles on T1-weighted MR image. In our trauma case, we only had time for X-ray and CT.

Morimoto et al.[5] described intrathoracic schwannoma cases presented with hemothorax and treated successfully by surgical excision. Including the schwannoma, surgical resection is the primary treatment of choice in most neurogenic

tumors.[6] The tumor should be carefully removed from the pleura because of the high risk of bleeding of the nutrient vessels from the chest wall.[3] Schwannomas rarely develop into malignant tumors (approximately 2%, 5%).[4] In our patient, there was a history of trauma and the tumor was successfully resected. There were no histological findings suggestive of malignancy in this case and tumor's pathologic diagnosis was benign schwannoma.

Conclusion

We report a rare case of intrathoracic schwannoma presenting with traumatic hemothorax. Chest trauma is one of the leading causes of morbidity and mortality. Traumatic hemothorax is a rare and life-threatening complication. Immediate application of chest tube drainage and complete surgical excision of the tumor allow lung function to return to normal. Trauma history may cause diagnostic delay, so an underlying neoplasm in the hemothorax should be kept in mind.

Informed Consent: Written informed consent was obtained from the patient for the publication of the case report and the accompanying images.

Peer-review: Internally peer-reviewed.

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Conflict of Interest: None declared.

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OLGU SUNUMU - *ÖZ*

Travmatik hemotoraks ile insidental schwannomun saptanması

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Schwannomun travmatik rüptürü ile meydana gelen hemotoraks olgusu nadiren bildirilmiştir. Glasgow Koma Skoru 13 olan yüksek bir yerden düşmüş, 18 yaşındaki bir kadının toraks yaralanma olgusunu sunuyoruz. Akciğer grafisinde sol taraflı masif plevral efüzyon saptandı. Göğüs tomografisinde sol akciğer bazal bölgesinde 105x80 mm oluşum saptandı. Hastaya interkostal tüp yerleştirilerek 2000 cc kan drenajından sonra acil torakotomi uygulandı. Tümörün patolojik tanısı Schwannom (Neurilemmoma) idi. Bu olgu çalışmasında, daha önce bilinmeyen mediastinal kitle için ilgili literatürle birlikte travmatik hemotoraks sunmak istiyoruz.

Anahtar sözcükler: Schwannom; torakotomi; travmatik hemotoraks.

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