

# Intrathoracic Schwannoma Presenting with Hemorrhagic Pleural Effusion in a Young Adult Patient

## Genç Erişkin Hastada Hemorajik Plevral Efüzyonla Seyreden İntratorasik Schwannoma Olgusu

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**ABSTRACT** Pleural effusion is an important clinical problem in daily medical practice for pulmonary physicians that can not sometimes be figured out. Despite rare occurrence, schwannomas are the most common neurogenic tumor of the thorax. Thoracic schwannoma presenting with hemorrhagic pleural effusion is a rare condition. This case report describes a young adult patient with intrathoracic schwannoma complicated with hemorrhagic pleural effusion and presenting with symptoms of chest pain, cough and sweating. This study suggests that intrathoracic schwannomas should be kept in mind in the differential diagnosis of hemorrhagic pleural effusion in young adults.

**Key Words:** Schwannoma, intrathoracic, pleural effusion

**ÖZET** Plevral efüzyon göğüs hastalıkları uzmanları için günlük tıbbi pratikte sıklıkla karşılaşılan bazen de çözümlenemeyen önemli bir klinik durumdur. Nadir görülmelerine rağmen , schwannomalar toraksın en sık görülen nörojenik tümörleridir. Hemorajik plevral efüzyonla ortaya çıkan torasik schwannoma nadir bir durumdur. Bu olgu sunumunda, hemorajik plevral efüzyonla ortaya çıkan intratorasik schwannoması olan ve göğüs ağrısı, öksürük ve terleme semptomları ile başvuran genç erişkin bir hasta sunulmaktadır. Bu çalışma, genç erişkin hastalarda hemorajik plevral efüzyonların ayırıcı tanısında intratorasik schwannomaların da akılda bulundurulması gerektiğini düşündürmektedir.

**Anahtar Kelimeler:** Schwannoma, intratorasik, plevral efüzyon

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Pleural effusion is an important clinical problem in daily medical practice for pulmonary physicians that can not sometimes be figured out. In countries where tuberculosis prevalence is high, tuberculosis considered as the major cause of pleural effusions in young adults<sup>1,2</sup> and other possibilities with low incidence particularly caused by neoplasms might be underestimated. As an example of this situation, this case report describes a young adult patient with intrathoracic schwannoma complicated with hemorrhagic pleural effusion and presenting with symptoms of chest pain, cough and sweating. Despite rare occurrence, schwannomas are the most common neurogenic tumor of the thorax.<sup>3</sup> Thoracic schwannoma presenting with pleural effusion is a rare condition, in addition to this, thoracic schwannoma presenting with hemorrhagic pleural effusion is a more rare condition than this.

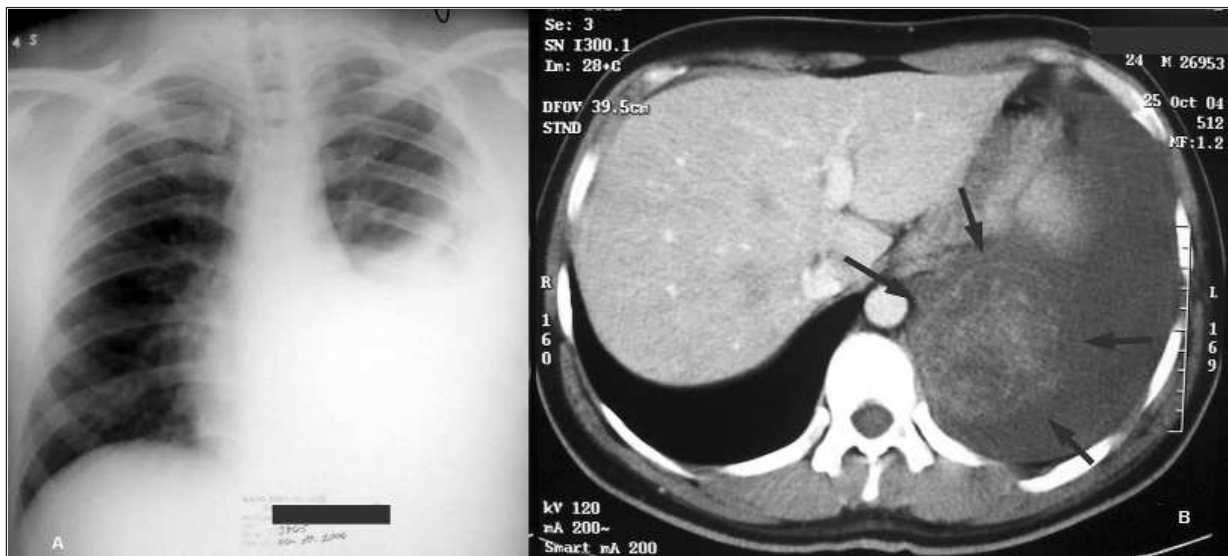
## CASE REPORT

A twenty-four years old man admitted for chest pain, cough, sweating and a left sided pleural effusion. His complaints started three weeks before admission. Treatment with antibiotics did not improve his symptoms. After recognition of left sided hemorrhagic pleural effusion with a pleural puncture in a district hospital, the patient was referred to our hospital, which is a tertiary care hospital. On admission the patient was afebrile (36.7°C) but looked fatigue and his skin was a little sweaty. The blood pressure was 140/80 mmHg, the heart rate 125/min and rhythmic. Examination of the lungs revealed dullness on percussion and absent breath sounds on auscultation on the left hemithorax. An X-ray of the chest revealed a large left-sided pleural effusion with normal right lung and mediastinum (Figure 1A). A total of 650 ml hemorrhagic pleural fluid was drained with two pleural punctures. Pleural fluid biochemistry was as following; LDH: 1369 U/L, total protein: 5g/dL, albumin:3.8 g/dL, cholesterol: 68 mg dL, glucose:82 mg/dL. Pleural fluid adenosine deaminase was 20 U/L. Pleural fluid cell count was as following; leucocyte: 3200/ml (lymphocyte %34.9, granulocyte %50), erythrocyte: 640.000/ml, Hb;2.3

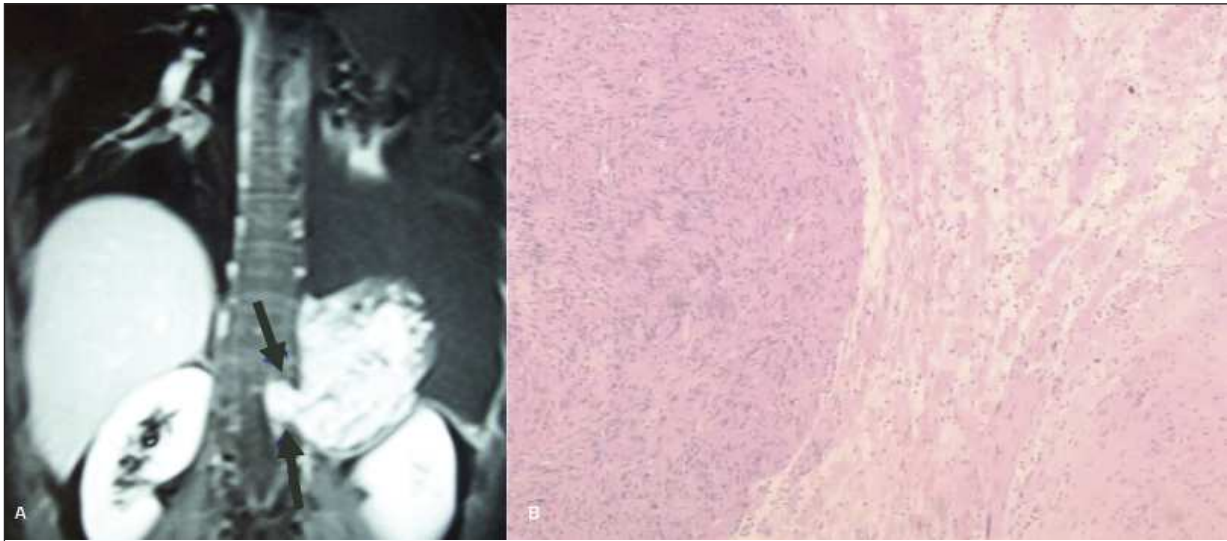
g/dL, Hct;5.9%, PLT:9000/ml. Pleural fluid cytology revealed few lymphocytes and reactive mesothelial cells. A chest CT scan showed a subtle heterogeneous density within the pleural effusion in the left hemithorax (Figure 1B). MRI of the thoraco-abdominal region revealed a heterogeneous mass in the posterior mediastinum, extending into the spinal channel through the neural foramen at the level of Th12-L1 within the pleural effusion (Figure 2A). Complete resection of the tumor was performed by surgical operation. Macroscopically; the tumor was well demarcated, encapsulated and 12 cm in diameter. Microscopic examination of the tumor revealed cellular and hypocellular areas. Cellular areas (Antoni A) consists of monomorphic spindle shaped cells arranged in interlacing fascicles or palisades and forming Verocay bodies. Hypocellular areas (Antoni B) consists of a loose mashwork of gelatinous and microcystic tissue with widely separated spindle cells. Immunoperoxidase method demonstrated S100 protein in the spindle cells. The histologic diagnosis of the tumor was Schwannoma (Figure 2B).

## DISCUSSION

In this study we have shown a very rare case of hemorrhagic pleural effusion caused by



**FIGURE 1:** A- PA chest-X-ray showing left sided pleural effusion. B- CT of thorax showing a subtle heterogeneous density (arrows) within the pleural effusion in the left hemithorax.



**FIGURE 2:** MRI of the thoraco-abdominal region showing a heterogeneous mass in the posterior mediastinum, extending into the spinal channel through the neural foramen (arrows) at the level of Th12-L1. B- The histologic diagnosis of the tumor was Schwannoma (HEX50).

intrathoracic schwannoma in a young adult. As much as we screened the current literature we were not able to find another case of intrathoracic schwannoma causing hemorrhagic pleural effusion. There is a case of intercostal schwannoma with hemothorax<sup>4</sup> but our case is different from this case at least at two points; first, in our case, schwannoma was at paraspinal position while in that case it was in an intercostal position, second the characteristic of pleural fluid is compatible with hemorrhagic pleural effusion not hemothorax in our case since the pleural fluid hematocrit level was lower than 50% of the peripheral hematocrit (5,9%).

In countries where tuberculosis prevalence is high, tuberculosis considered as the main cause of pleural effusions in young adults and without any proof of microbiology and/or pathology, high pleural fluid ADA levels might be considered as sufficient for the initiation of an antituberculous chemotherapy. Even though this approach is generally valid for the great majority of the patients, there are some exceptions such as lymphomas, rheumatoid arthritis, intracellular infections.<sup>1,2</sup> Despite low ADA levels, our case might be considered as an extreme example of this condition since we could not exclude tuberculous pleural effusion with the initial examinations; even though, pleural effusions with low lymphocyte

counts and considerable amounts of mesothelial cells favor a diagnosis other than tuberculosis and also a hemorrhagic pleural effusions strongly suggests a diagnosis other than tuberculosis, these findings do not rule out a diagnosis of tuberculosis particularly when there is a history of previous pleural puncture or when the disease is at its initial stage.<sup>1,2,5</sup> Moreover, even low pleural fluid ADA levels, contribute to exclude a diagnosis of tuberculosis, a single low pleural fluid ADA level is not sufficient to rule out tuberculosis particularly if the samples are taken soon after onset.<sup>2</sup> On the other hand, even though, a bloody pleural fluid with a low ADA content favors a malignant condition,<sup>5,6</sup> the cause of hemorrhagic pleural effusion in our case was a benign tumor.

Radiologically, schwannomas are usually sharply marginated, spherical, smooth and lobulated paraspinal masses and can reach large dimensions.<sup>3,7</sup> On computed tomography, schwannomas can have homogeneous or heterogeneous attenuation, and they are well-circumscribed, homogenous or heterogeneous masses.<sup>3,7</sup> In our case, due to a large pleural effusion and the site of the tumor, chest X-ray revealed only a left-sided pleural effusion but a mass. However, both CT scan and MRI of thorax revealed a heterogeneous mass within the pleural effusion. A

considerable amount of neurogenic tumors extend through the intervertebral foramen into the spinal column with a “dumbbell” configuration.<sup>3,8</sup> Our case showed a dumbbell configuration on MRI. The treatment of choice is complete resection. Tumors with dumbbell intraspinal extension are best excised with combined neurosurgical and thoracic

procedures.<sup>3,8</sup> Our case was treated with combined neurosurgical and thoracic procedures with excision of tumor completely.

This study suggests that intrathoracic schwannomas should be kept in mind in the differential diagnosis of hemorrhagic pleural effusion in young adults.

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