

# Mediastinal mass diagnosed as a benign schwannoma

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## ABSTRACT

Neurogenic tumours of the mediastinum are most commonly present in the posterior mediastinal compartment. Schwannomas, being the most frequently encountered type, can be either benign or malignant, although the former is more common. They typically appear as an asymptomatic mass on radiographic imaging. These tumours with spindle-shaped cells are often asymptomatic, and are routinely detected on standard pulmonary radiography. However, computed tomography and magnetic resonance imaging, especially for posterior mediastinal tumours, provide additional information and help to determine its possible extension to adjacent structures. Therefore, radiographic and histopathological examinations are vital diagnostic tools in the detection of these silent tumours. Complete surgical resection using video-assisted thoracic surgical technique is the mainstay of treatment, and offers an excellent prognosis.

**Keywords:** asymptomatic mass, neurogenic tumour, posterior mediastinal tumour, schwannoma

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## INTRODUCTION

Neurogenic tumors of the mediastinum are mostly located in the posterior mediastinum.<sup>(1)</sup> Benign schwannomas are the most frequently encountered type.<sup>(1,2)</sup> They typically present as an asymptomatic mass on radiographic imaging,<sup>(3)</sup> and have an excellent prognosis with prompt diagnosis and surgical management.

## CASE REPORT

A 50-year-old housewife with no prior illness of any significance visited our clinic for a routine medical checkup. She was asymptomatic at presentation, and her physical examination and routine blood tests were all within normal limits. Chest radiograph (posteroanterior), however, showed a large, well-defined soft tissue mass that projected over the right hilum. The right hilum could be visualised through this mass. The paravertebral tissue, dorsal spine and



**Fig. 1** Posteroanterior chest radiograph shows a well-defined mass over the right hilum.

costophrenic angles were normal, and the lung fields were clear (Fig. 1).

Computed tomography (CT) with non-ionic contrast (axial view) revealed a well-defined mass lesion along the posterior aspect of the right hemithorax, measuring 8.2 cm × 6.7 cm × 6.0 cm in the craniocaudal, transverse and anteroposterior dimensions, respectively (Fig. 2). There was no evidence of consolidation, effusion or pulmonary nodule in either of the lung fields. Hilar/mediastinal lymphadenopathy was not present, and no evidence of bony erosion in the adjacent vertebra/ribs was observed. The impression was that of a right-sided posterior mediastinal mass lesion.

The differential diagnoses of the posterior mediastinal mass included neurogenic tumours, lymphadenopathy, enteric cysts, bronchogenic cysts, esophageal tumours, aneurysms and paraspinous abscess. CT-guided fine needle aspiration biopsy was performed for histological examination so as to arrive at a definitive diagnosis (Fig. 2). The mass was subsequently diagnosed as a benign schwannoma. The patient then underwent complete surgical resection of the mass through lateral thoracotomy. She subsequently made an uneventful recovery.

## DISCUSSION

Neurogenic tumours top the list of common differential

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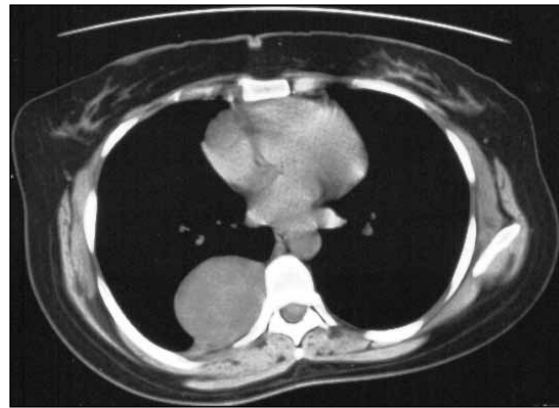
diagnoses for posterior mediastinal masses.<sup>(1)</sup> These differential diagnoses include nerve root tumours (schwannomas or neurofibromas), sympathetic ganglion tumours (neuroblastomas, ganglioneuroblastomas, ganglioneuromas) and paragangliomas (chemodectomas and pheochromocytomas).<sup>(2)</sup> For easy recall, Kahn has suggested the mnemonic HALOVEEN,<sup>(4)</sup> which stands for haematoma, abscess, lymph nodes, osteophyte, vertebral (metastasis, plasmacytoma), extramedullary haematopoiesis, esophagus and neurogenic.

Benign schwannomas are the most common type of neurogenic tumours. It affects patients of both genders equally, predominantly in the third or fourth decades of life. It originates from the schwann cells of the nerve sheath. On gross examination, a schwannoma is an encapsulated nodule that is attached to the epineurium of the nerve from which it originates. Microscopically, it is made up of spindle cells that give rise to dense cellular areas (Antoni A) and hypocellular areas (Antoni B) (Fig. 3). Mitotic figures are rare. However, gross examination of the malignant type shows large fusiform masses with areas of necrosis and haemorrhage within, and the microscopic picture comprises mainly pleomorphic spindle cells and abundant mitotic cells. The distinctive feature of a malignant schwannoma is the presence of other cell types, e.g. mucin secreting glands, epithelial cells and mesenchymal tissue.

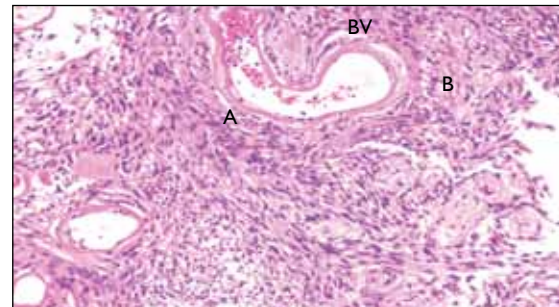
Mediastinal schwannomas are usually benign in nature and seldom degenerate into malignant tumours. The classical presentation is an asymptomatic mass found on chest radiograph. The presence of symptoms raises the suspicion of malignancy. Constitutional symptoms include weight loss, malaise, fever and vague chest pain. Symptoms of obstruction or compression occur due to invasion of the normal mediastinal structures. Occasionally, there may be dramatic findings such as superior vena cava syndrome, Horner syndrome and phrenic nerve paralysis.

Radiological tools like CT and magnetic resonance imaging of the chest and spine help to pinpoint the precise anatomic location of the mass, as well as exclude any vascular origin, local and intraspinal invasion of the mass. These modalities are also very useful in excluding other differential diagnoses of posterior mediastinal mass.<sup>(4)</sup> For instance, lesions of the vertebrae (metastasis, plasmacytoma) that originate in the mediastinum can be distinguished from those that invade the mediastinum from the lungs or other structures, e.g. pancreatic pseudocysts extending into the mediastinum via the esophageal hiatus.

The clinical history of the patient also provides essential information to aid in narrowing down the



**Fig. 2** Contrast-enhanced axial chest CT image shows a well-defined mass located in the posterior aspect of the right hemithorax, measuring 8.2 cm × 6.7 cm × 6.0 cm in the craniocaudal, transverse and anteroposterior dimensions.



**Fig. 3** Photomicrograph shows multiple tortuous blood vessels with hyaline thickening of the wall (BV) (Haematoxylin & eosin, × 20). A: Antoni A; B: Antoni B.

differential diagnoses. A patient with a history of fever is likely to have an infectious mass (e.g. abscess), whereas a past history of congenital haemolytic anaemia (e.g. thalassaemia, hereditary spherocytosis) would point toward extramedullary haematopoietic tumours. Our patient was asymptomatic and the mass was spotted incidently on radiography, which revealed a classical presentation of benign schwannoma. Histopathological examination, however, remains the cornerstone to confirm the diagnosis of a lesion, as well as to rule out the malignant nature of the mass.

Complete surgical resection is the mainstay of treatment. The tumour will continue to increase in size if left untreated; hence, prompt management would affect the prognosis. Thoracotomy via the posterolateral approach has been the conventional surgical technique for resection of these posterior mediastinal masses.<sup>(5)</sup> At present, video-assisted thoracoscopic surgery is the preferred technique for the diagnosis and management of benign posterior mediastinal masses, as it is less invasive and results in fewer lung complications and a shorter hospital stay. However, malignant lesions are still best approached via open thoracotomy.<sup>(6)</sup> Patients with benign neurogenic tumours have excellent survival

prospects following complete resection, whereas those with malignant tumours have a poorer prognosis.<sup>(7)</sup>

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