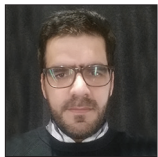


Case Report

A case of a giant thoracic schwannoma

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ABSTRACT

Background: Giant solitary schwannomas are rare, benign, and typically slow-growing tumors reaching up to 20 cm in size.

Case Description: A 43-year-old male presented with shortness of breath and chest pain. The thoracic MRI showed a giant mass 15 cm in diameter filling the left chest cavity. The lesion was resected utilizing intrathoracic approach and required a multilevel approach. Vertebrectomy with instrumented fusion was performed. The pathological diagnosis was benign schwannoma without nuclear atypia. Postoperatively, the patient fully recovered without sequelae.

Conclusion: A 43-year-old male presented with a 15 cm diameter chest mass that proved to be a schwannoma that was resected without long-term sequelae.

Keywords: Ancient schwannoma, Fusion, Giant, Thoracic spine, Vertebrectomy

INTRODUCTION

Spinal schwannomas are slow-growing benign tumors.^[4] Although often completely intradural, 30% extend through the dural root sleeve exhibiting both intradural and extradural features. Giant invasive spinal schwannomas are typically described as involving more than 2 vertebral levels with extraspinal extension of more than 2.5 cm. Other features may include vertebral body erosion and posterior and lateral extension into myofascial planes. Notably, for lesions more than 5 cm in diameter, heterogeneity and indistinct margins without a pseudo-capsule may indicate malignant transformation.^[7] Here, we report a 43-year-old male who presented with a benign 15 cm diameter left chest schwannoma that was readily resected, resulting in no long-term sequelae.

CASE REPORT

A 43-year-old male presented with shortness of breath, bilateral upper limb tingling, and chest pain. The chest x-ray [Figure 1] and thoracic MR scan showed a massive left-sided tumor at the T6 that extended through the T6/T7 foramen and ballooned in the chest cavity measuring 10 cm × 15 cm × 12 cm in diameter [Figure 2]. There was a concern that the tumor was malignant due to its large size and variegated appearance. Surgery included a combined spinal (vertebrectomy)/intrathoracic resection of a giant thoracic schwannoma plus an instrumented fusion performed. Of interest, the

patient required massive blood transfusion due to highly vascular tumor capsule and adhesions to the lung. The patient developed infective collection (empyema) after surgery and was admitted to intensive care for 1 week. The histopathology confirmed that the lesion was a benign schwannoma with some degenerative nuclear atypia but no frank malignant features. The postoperative MRI documented gross total resection of the prior intrathoracic/left T6-T7 foraminal/spinal tumor mass [Figure 3]. When the patient developed a left-sided empyema, drained under ultrasound guidance, IV antibiotics were appropriately administered and adequately managed.

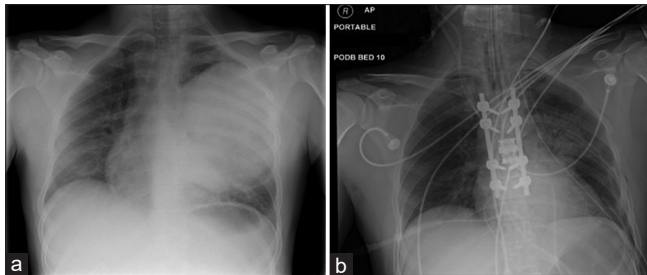


Figure 1: (a) Preoperative chest X-ray a 16 cm soft-tissue mass within the left lung and (b) postoperative chest X-ray AP view.

DISCUSSION

Rare giant solitary schwannomas

Giant solitary schwannomas are rare benign tumors that typically involve more than 2 vertebral levels and can range from a few millimeters to more than 20 cm.^[6]

In a study of 303 benign solitary schwannomas, Das Gupta *et al.* found 10 patients with lesions between 10 and 15 cm in maximum diameter; only two were over 20 cm in diameter [Table 1].^[2]

Intraspinal schwannoma with foraminal extension into the chest typically arises from the intercostal and sympathetic nerves,

Table 1: Benign schwannoma variation in tumor size in a study of 303 cases, Das Gupta *et al.*

Number of patients	Tumor size
243	<5 cm
48	5–10 cm
10	10–15 cm
2	20 cm
Total	303

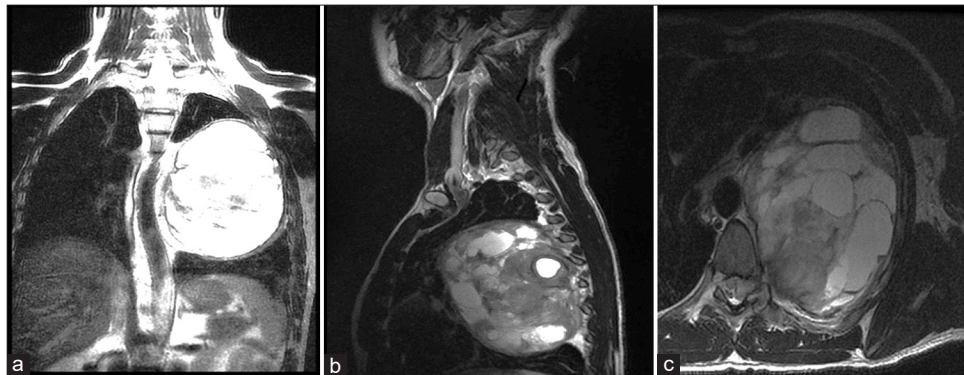


Figure 2: Preoperative MRI a massive left-sided chest tumor which measures approximately 10 × 15 × 12 cm in diameter with solid and metacystic appearance, there is an intraspinal component of this tumor which enters the spinal canal at the T6-7 level. (a) Coronal section T2, (b) sagittal section T2, and (c) axial section T2.



Figure 3: Postoperative MRI, there is no definable residual tumor with normal spinal canal (a) sagittal section, (b) axial section, and (c) coronal section.

Table 2 : Summary of giant schwannoma cases reported.

Author/year	Number of patients	Location of tumors MR/CT	Symptoms/neurological deficit	Surgical procedure	Outcome
Gueldich et al., ^[3] 2015	1	The CT chest revealed a cervicomedial mass extended from the left thyroid lobe to the tracheal bifurcation measuring 12 cm in height	Two years history of wheezing, nocturnal dyspnea associated with a dry cough.	Cystic mass was completely resected by a transversal cervicotomy after aspiration of the hemorrhagic content	One year follow-up did not show any signs suggestive of a tumor recurrence
Kato et al., ^[4] 2011	1	Computed tomography of the chest revealed a sharply marginated tumor, 150 mm in size, in the posterior mediastinum, and pericardial effusion	Presented to A&E with cardiogenic shock and hypoxia with a history of exercise-induced dyspnea and right chest pain for several weeks.	Complete surgical resection using a left thoracotomy approach	Discharged on the 6 th postoperative day and had an uneventful recovery.
Peng et al., ^[5] 2018	1	CT scan revealed a giant cystic solid mass 13 × 8.5 × 6.5 cm in size with mixed density in the left posterior pararenal space.	Dull pain in the left waist	Left retroperitoneal approach, complete surgical excision.	No evidence of recurrence.
Yu et al., ^[7] 2012	1	CT scan revealed a well-defined mass 10 × 10 × 14 cm in size occupying the right carotid triangle, and descending to the superior mediastinum.	Two years history of the right-side neck swelling with slight dysphagia and dyspnea.	Surgical excision was done using a transcervical approach	Postoperatively, the patient was transferred to the intensive care unit. A partial Horner's syndrome and arrhythmias were noticed on day 1 and 3, respectively.

but only rarely presents as predominantly intrapulmonary masses.^[3,6]

CT and MR studies of thoracic schwannomas

Studies of large/giant schwannomas have typical features on CT and MR studies [Table 2]. On CT, these lesions are usually low density and show modest enhancement with punctate calcification. On MR, they are hypodense lesions on T1- and hyperdense lesions on in T2-weighted images that markedly enhance with contrast. Although huge schwannomas raise concerns about malignancy, they are usually benign. However, they often warrant surgical intervention due to their mass effect.^[1] Our case illustrates that even these kinds of massive tumors (supergiant schwannomas, more than 10 cm in size) can be benign and if faced with a similar case again, we probably would not choose to remove the vertebra and instrument.

CONCLUSION

Here, we reported a 15 cm diameter left-sided spinal T6-t7 foraminal/intrathoracic schwannoma that was totally excised utilizing a combined intraspinal/intrathoracic approach without further long-term sequelae.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent.

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Nil.

Conflicts of interest

There are no conflicts of interest.

REFERENCES

1. Bhowmik A, Bisht S, Toe KK, George KJ. Giant posterior mediastinal schwannoma requiring a thoracoabdominal approach for excision: Case report and literature review. *Surg Neurol Int* 2021;12:241.
2. Das Gupta TK, Brasfield RD, Strong EW, Hajdu SI. Benign solitary Schwannomas (neurilemmomas). *Cancer* 1969;24:355-66.
3. Gueldich M, Hentati A, Chakroun A, Abid H, Kammoun S, M'saad S, et al. Giant cystic schwannoma of the middle mediastinum with cervical extension. *Libyan J Med* 2015;10:27409.
4. Kato M, Shiota S, Shiga K, Takagi H, Mori H, Sekiya M, et al. Benign giant mediastinal schwannoma presenting as cardiac

- tamponade in a woman: A case report. *J Med Case Rep* 2011;5:61.
5. Peng X, Li Z, Zhou L, Zhao L, Wu X, Yang Y, *et al.* Giant posterior pararenal schwannoma: A case report and review of literature. *Mol Clin Oncol* 2018;9:325-8.
 6. Sridhar K, Ramamurthi R, Vasudevan MC, Ramamurthi B. Giant invasive spinal schwannomas: Definition and surgical management. *J Neurosurg* 2001;94 Suppl 2:210-5.
 7. Yu NH, Lee SE, Jahng TA, Chung CK. Giant invasive spinal schwannoma: Its clinical features and surgical management. *Neurosurgery* 2012;71:58-67.

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