Giant dumbbell-shaped schwannoma but not transforaminal: transdiaphragmatic

Ferhat Cuce,1 Kemal Kara,2 Muntecep Asker,3 Guner Sonmez2

1Department of Radiology, Van Military Hospital, Van, Turkey
2Department of Radiology, GATA Haydarpasa Training Hospital, Istanbul, Turkey
3Department of Cardiology, Van Training and Research Hospital, Van, Turkey

Correspondence to
Dr Ferhat Cuce,
ferhatcuce@hotmail.com

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SUMMARY
A 31-year-old man reported a 3-month history of right upper abdominal pain and effort dyspnoea. The laboratory data demonstrated no abnormality. On abdominal ultrasound, a gross solid lesion with smooth borders was seen behind the liver. CT scan revealed a huge tumour, 23×17×15 cm in size, it was in the right posterior mediastinum and extended to the right retroperitoneum. In sagittal plane CT images, the lesion was like a dumbbell shape. CT-guided biopsy revealed a spindle cell tumour.

BACKGROUND
First, schwannoma should be kept in mind for the differential diagnosis of a giant thoracoabdominal solid lesion. Second, the dumbbell-shaped tumour is a non-specific term for any of a number of usually benign tumours. The nerve sheath tumour may assume the shape of a dumbbell as a classic when the tumour extends outward the spinal canal through the vertebral foramen. This finding may contribute to the diagnosis. But the dumbbell shape of the nerve sheath tumours could occur anywhere except vertebral foramen as seen in our patient.

CASE PRESENTATION
A 31-year-old man reported of right upper abdominal pain and effort dyspnoea for 3 months. He had a good general condition and had no 'B symptoms'. On physical examination, the patient had tenderness during palpation of the right upper quadrant of the abdomen and there were crackles at the right base of the chest on auscultation.

The patient had no significant medical, social or family history.

INVESTIGATIONS
No significant abnormalities were found on standard blood tests.

His chest X-ray revealed homogen opacity at the inferior and middle zone of the right haemithorax.

On abdominal ultrasound, a gross solid lesion with smooth borders was detected behind the liver.

The thoracoabdominal multidetector CT (MDCT) with contrast media was performed. MDCT revealed a huge tumour, 23×17×15 cm in size, in the right posterior mediastinum extended to the right retroperitoneum. The lesion was solid, encapsulated and had diffuse mild contrast enhancement. The tumour did not contain areas of fat and calcification density (figure 1A, B).

In sagittal plane MDCT images, the lesion was like a dumbbell shape (figure 2).

DIFFERENTIAL DIAGNOSIS
A 31-year-old man presented with right upper abdominal pain and effort dyspnoea for 3 months without B symptoms. On physical examination, the patient had tenderness on the right upper quadrant of the abdomen and there were crackles at the right base of the chest on auscultation. He might have a renal stone or gallstone disease, liver parenchymal disease or lower lobe infection of the right lung. His chest X-ray revealed a homogen opacity at the inferior and middle zone of the right haemithorax and on abdominal ultrasound, a gross solid lesion was detected behind the liver. Radiological examinations revealed that the symptoms were due to the giant solid thoracoabdominal mass.

The giant solid thoracoabdominal tumour was considered as a sarcomatous tumour or a nerve sheath tumour in the differential diagnosis.
TREATMENT
The MDCT images indicated a giant sarcomatous tumour or nerve sheath tumour in the differential diagnosis. CT-guided biopsy revealed a spindle cell tumor. Surgical resection was recommended. The tumour was completely resected en bloc with a portion of adhered left lower lobe and the right hemidiaphragm. The frozen section of the pleural and the diaphragmatic margin was found to contain no tumour. The diaphragmatic defect was repaired with a graft. The final pathology demonstrated the mass consistent with schwannoma characterised by a proliferation of spindle cells.

OUTCOME AND FOLLOW-UP
The postoperative period was uneventful and the patient was discharged home without complication. At 12-month follow-up, the patient was free from recurrence.

DISCUSSION
The term of dumbbell is used for schwannoma when the intraspinal schwannoma extends through the vertebral foramen in the differential diagnosis. CT-guided biopsy revealed a spindle cell tumor. Surgical resection was recommended. The tumour was completely resected en bloc with a portion of adhered left lower lobe and the right hemidiaphragm. The frozen section of the pleural and the diaphragmatic margin was found to contain no tumour. The diaphragmatic defect was repaired with a graft. The final pathology demonstrated the mass consistent with schwannoma characterised by a proliferation of spindle cells.

Learning points

► Schwannoma should be kept in mind for the differential diagnosis of a giant solid thoracoabdominal lesion.
► The dumbbell-shaped tumour is a non-specific term for any of a number of usually benign tumours.
► The nerve sheath tumour may assume the shape of a dumbbell as a classic when the tumour extends outward the spinal canal through the vertebral foramen. This finding may contribute to the diagnosis. But dumbbell shape of the nerve sheath tumours could occur anywhere except in the vertebral foramen.

Competing interests None.
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REFERENCES
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