



Case Report

Giant posterior mediastinal schwannoma requiring a thoracoabdominal approach for excision: Case report and literature review

Anindya Bhowmik¹, Sneha Bisht², Ko Ko Zayar Toe³, K. Joshi George⁴

¹Department of Neurosurgery, Sylhet MAG Osmani Medical College Hospital, Kajolshah, Sylhet, Bangladesh, ²Department of Neurosurgery, Kathmandu University, Kathmandu Medical College and Teaching Hospital, Kathmandu, Nepal, ³Department of Neurosurgery, Salford Royal NHS Trust, ⁴Department of Neurosurgery, Salford Royal Foundation Trust, Salford, Manchester, United Kingdom.

E-mail: *Anindya Bhowmik - anindyasomc50@gmail.com; Sneha Bisht - yashmi.sb@gmail.com; Ko Ko Zayar Toe - kokozayartoe@gmail.com; K. Joshi George - joshi.george@srft.nhs.uk



***Corresponding author:**

Anindya Bhowmik,
Department of Neurosurgery,
Sylhet MAG Osmani Medical
College Hospital, Kajolshah,
Sylhet, Bangladesh.

anindyasomc50@gmail.com

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ABSTRACT

Background: A schwannoma is a tumor of the peripheral nerve sheath. They are the most common benign tumor; presenting at any age, and at any site of the body and also one of the most common posterior mediastinal tumors. Posterior mediastinal schwannoma is usually identified incidentally in chest radiographs and with follow-up imaging such as CT scan. Large posterior mediastinal schwannoma usually presents with local symptoms. To confirm diagnosis and obtain local control, surgical excision is the usual approach.

Case Description: Here, we present a case of a 56-year-old female who presented with chronic low back pain. The lesion was picked up on an ultrasound scan to look at her kidneys. She was not experiencing any neurological symptoms. Excision of the tumor was made through a right thoracoabdominal approach. A WHO Grade 1 tumor was diagnosed on histology. There were no signs of recurrence in the follow-up scans.

Conclusion: Giant posterior mediastinal schwannomas are very rare with only one other reported case requiring a thoracoabdominal approach for excision. Though giant schwannomas raise concern for malignancy due to their large size, they generally turn out to be benign

Keywords: Excision, Posterior mediastinal, Schwannoma, Thoracoabdominal

INTRODUCTION

Schwannomas are one of the most common benign tumors arising from the peripheral nerve coverings. Posterior mediastinal tumors are mostly benign and most common type is neurogenic tumors accounting for 75% of the posterior mediastinal tumors.^[4] About 75–85% of these neurogenic tumors are schwannomas.^[8] Usually, posterior mediastinal schwannomas do not give rise to symptoms but giant schwannomas can cause localized symptoms, for example, pain and other symptoms due to compression of the corresponding structures.^[6] They are found incidentally in chest radiographs and in CT Scan.^[1] Surgical excision is usually done to relieve the symptoms;^[9] Excision through thoracoabdominal approach has been done in this case due to the tumor's large size and location low in the mediastinum.

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CASE REPORT

A 56-year-old lady who worked as a nursing sister presented with the chronic low back pain. She had attended in August 2016 with left-sided renal colic and this had picked up as a lesion in the right upper quadrant which was 8–9 cm in size and mainly cystic. MRI revealed thick enhancing cystic wall lesion occupying the right retroocular space [Figure 1].

She described the pain as aching sensation coming from her spine around the thoracolumbar region and the right side had more discomfort than the left side. She had no neurological symptoms or signs related to this although she was a bit overweight (BMI 36) and lower lumbar spine facet joint tenderness. She had no breathing difficulty and no problems with hiccups or coughing episodes.

She had underlying medical problems of the previous BCC in face and uterine fibroid.

On review, she had been suffering from on-going aching sensation in right side of the thoracolumbar region. Recent MRI showed an increase in size of the lesion [Figure 2].

Although initially the lesion was thought to be under the diaphragm, carefully study of the CT and MRI revealed that this was in fact above the diaphragm and arising from the right T11 nerve root [Figures 2 and 3]. A biopsy revealed this as schwannoma.

Considering her symptoms and the large size, removing this lesion was discussed. Various operative approaches were explored. Considering that the lesion was low in the mediastinum behind the liver and kidneys, it was decided that a thoracoabdominal approach would be the optimal.

Operative procedure

She underwent a right thoracoabdominal approach for giant t11/12 nerve sheath tumor excision under GA. The procedure was performed via reverse L shaped incision over chest and mid upper abdomen. Abdomen and chest were entered and diaphragm was incised. After mobilizing the liver, adrenal and kidneys, and gross total excision of the tumor which lay above the diaphragm was done.

In the postoperative period, unfortunately, she experienced wound gaping at the epigastric area over 10 cm length without obvious sign of infection. The wound was closed back after washout on 14th postoperative and she went home 2 days after that was her 16th postoperative day.

Follow-up

Postoperative imaging showed good excision of the tumor with no residuum found [Figures 4 and 5].

Histology showed WHO Grade 1 Schwannoma.

DISCUSSION

Posterior mediastinal tumors are most commonly neurogenic schwannomas. They present equally in all genders and in all ages but commonly people over 40 years old have shown the most presentation.^[12] They are benign and mostly are symptomless until they reach large sizes giving rise to localized symptoms of pain and other symptoms corresponding to the structure compressed by the tumor.^[10] Typically these tumors arise from the base of the spinal nerves or the thoracic nerves but some may originate from the paravertebral sympathetic, vagus, or phrenic nerves.^[11,13]

Symptoms

As posterior mediastinal schwannoma are mostly benign they are usually asymptomatic. They show cystic degeneration and are encapsulated.^[3,14] Symptoms may occur very late once the tumor has reached a giant size and that is why most of the people present with very late presentations. The symptoms are mostly localized with pain being one of the most usual symptom.^[6] Other symptoms arise due to the large tumor compressing the structures or organs in the region. Dyspnea, stridor, dysphagia, superior vena cava syndrome, and some features of Horner's syndrome are the other symptoms people might experience according to the adjacent structures compressed by the giant schwannoma in the posterior mediastinum.^[2,6,7]

In this case, the patient was experiencing persistent aching sensation in the right side of thoracoabdominal region. She had no neurological symptoms or signs related to this. She was a bit overweight (BMI 36) and had lower lumbar spine facet joint tenderness. She had no breathing difficulty and no problems with hiccups or coughing episodes.

Imaging findings

Imaging such as digital X-rays, CT scans and MRIs are the usual diagnostic tools used. CT scan usually reveals a clear demarcated mass with low density, mild enhancement, and punctate calcifications.^[5] The best diagnostic tool remains the MRI which shows up as a mass which is hypodense in T1-weighted images and hyperdense in T2-weighted images.^[5]

A review of the literature found only four other cases of giant posterior mediastinal schwannomas. Only one of these needed a thoracoabdominal approach for removal of the tumor [Table 1].

Management and operative technique

Mediastinal schwannomas are often found incidentally and can be left alone if asymptomatic. However, if they are

Table 1: Summary of cases reported.

Findings	A ^[8]	B ^[2]	C ^[7]	D ^[14]
Age/gender	47 years (male)	23 years (female)	45 year (female)	26 (male)
Symptoms	Back pain and Dyspnea	2 years of intermittent cough, chest heaviness worse while lying on her right side	Left sided chest pain, hoarseness of voice, progressive worsening dyspnea absence of sweating from left side of face for 4 months	Was asymptomatic and the finding of the lesion was incidental
Imaging	Heterogeneous mass in the left posterior mediastinum with effacement of the left lower lobe, left inferior pulmonary vein, displacement of hemi-diaphragm inferiorly and mediastinal structures towards to the right chest. Peripheral enhancement and internal necrosis	Compression of the trachea and shift of the upper mediastinal contents from the midline due to a large apical mass in the right hemithorax	Displaced trachea to contralateral side, with a large radiopaque lesion in upper and middle lung zones, left main bronchus is compressed, the heart is pushed anteriorly, with erosions in the 7 th rib	Upper mediastinal mass in the left paraspinal region
Treatment	Left thoracoabdominal incision extended at the level of 8 th intercostal space, and en bloc wedge resection part of the left lung lower lobe and also hemi diaphragm an extrapleural dissection was made to perform a subadventitial resection	Excision of the tumor via a right thoracotomy	Left posterolateral thoracotomy. Complete intracapsular excision and capsulotomy with near complete excision of the capsule	Excision via left posterior thoracotomy.
Prognosis	Discharged after 5 uneventful postoperative days. No signs of recurrence at 11 months of follow up	Due to sympathectomy faced increased sweating and flushing on her left side of her face, uneventful postoperative period. Follow-up showed no recurrence	For monitoring she was kept in the ICU for 2 days and after 8 postoperative days she was discharged home without any complications arising in this period	Discharged without any complications in the postoperative period

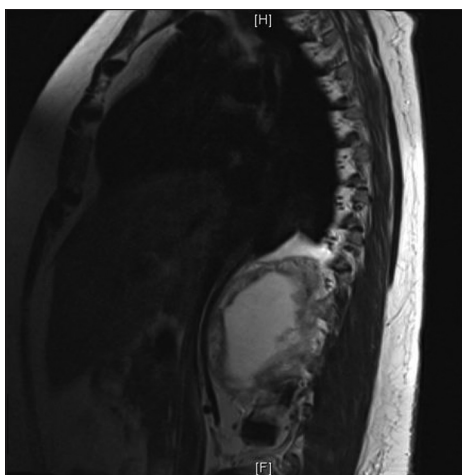


Figure 1: Sagittal Section. Thick enhancing walled cystic lesion within the right retrocaval space. Some calcification in the wall.

growing, causing symptoms or very large in size, surgery is undertaken. Large tumors have the potential for malignant transformation though they are in most cases found to be benign after excision. Small lesions in the upper mediastinum can be removed via a posterolateral approach or from a supraclavicular approach. Lesions in the mid mediastinum can be removed through a standard thoracotomy.^[2,7]

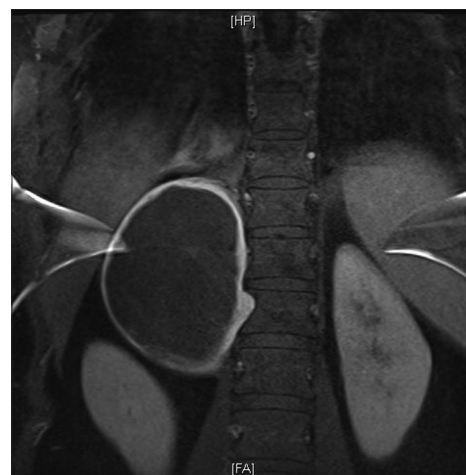


Figure 2: Coronal sect. Large right-sided paraspinal mass lesion extending above the right kidney and displacing it. Entirely in the paraspinal tissues. It shows prominent peripheral enhancement no real central enhancement compared to surrounding muscle tissues. The adrenal is seen separate to this lesion. Scalloping of the lateral margin of T12. There is no widening of the neural exit foramen of the adjacent vertebrae. The remainder of the spine appears unremarkable.

In the lower mediastinum, as in our case, a thoracoabdominal approach with incising the diaphragm has to be considered,



Figure 3: Axial section. Lesion lies above and displaced the right kidney extending into the intervertebral foramen in the lower thoracic spine. There is no widening of the neural exit foramen of the adjacent vertebrae.



Figure 4: Coronal section. Stable appearances. No evidence of recurrent disease.



Figure 5: Sagittal section. No axillary or mediastinal lymphadenopathy is seen. No evidence of lung nodules.

particularly if the lesion is very big. This is a major operation with some morbidity and hence reserved for cases which are symptomatic.

CONCLUSION

Posterior mediastinal giant schwannomas are rare. Their large size can raise concern for malignancy but they are usually benign. When a giant schwannoma occurs in the thoracolumbar region, careful study of the images is necessary to see if they are above or below the diaphragm. A thoracoabdominal approach can enable satisfactory excision when they are in the lower mediastinum.

Declaration of patient consent

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

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Conflicts of interest

There are no conflicts of interest.

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