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Intrathoracic Schwannoma with Venous Return to Vena Azygos: A Case Report

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Author's contribution

The sole author designed, analysed, interpreted and prepared the manuscript.

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Case Study

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ABSTRACT

Aims: Schwannoma is a neurogenic tumour, originating from the nerve sheaths may either be malign or benign. In this case, was presented a giant mass and its an abnormal vascular structure.
Presentation: In this case, the location of the big mass was also the posterior sulcus. The mass has been dissected extrapleural from the thoracic wall by a posterolateral thoracotomy. The venous return was detected to be towards to the azygos vein.
Discussion: When excising a resectable giant schwannoma mass, the possibility of abnormal vessels or arteries should be kept in mind.

Keywords: Schwannoma; posterior mediastinum; vena azygos.

1. INTRODUCTION

An intrathoracic neurogenic tumour originating from the chest wall is a rare condition. It is difficult to make an accurate preoperative diagnosis [1]. Neurogenic tumours may develop from the sympathetic chain, the intercostal nerve sheath or the nerve roots [2-3]. It has a variety of clinical and histological features and generally asymptomatic at oncet. When its compression effect begins, it starts being to be symptomatic, and this course of the disease takes a long time [3]. Sometimes it can cause spontaneous bleeding from the mass and is very rare [4].

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Therefore it is crucial to know that vascularity of mass. The arterial and venous blood flow anatomy of the mass can have some variations. [4]. In our case, we report a different unusual venous return of a schwannoma.

2. CASE

A 46-year-old woman patient, whose labouring with animal-breeding suffered from back pain at rest. Facial cyanosis, dyspnea and difficulty to swallow have begun to occur for the last one year progressively. In the last two months, her complaints became unbearable. Physical examination showed dullness on percussion and decrease of breath sounds in the right hemithorax. Chest radiogram showed a hyperdense mass in the right hemithorax. Thoracic computed tomography revealed a large, well-circumscribed lesion that causing the carina to move to left, and under pressuring the right main bronchus and causing atelectasis of upper and middle lobe. Also, it has a heterogeneous density. (Fig. 1). A right posterolateral thoracotomy was performed. Passive atelectasis was detected on the upper and lower lobes depending on the extra parenchymal located mass. Three intercostal arteries were entering into the mass and a large vein drained to vena azygos from the mass was detected (Fig. 2). The accessory veins and arteries were double ligated and cut. The mass was excised (Fig. 3). One chest tube is inserted. The patient was discharged on the fifth postoperative day.

Microscopically spindle cell proliferation with palisading of nuclei (Fig. 4.a,b,c) besides the multilocular cyst formations (Fig. 4-d) were observed. It was diagnosed as “benign schwannoma” with the positive staining of S-100 protein immunohistochemically (Fig. 4-e).

The patient is still in our follow-up without any complaints for two years.

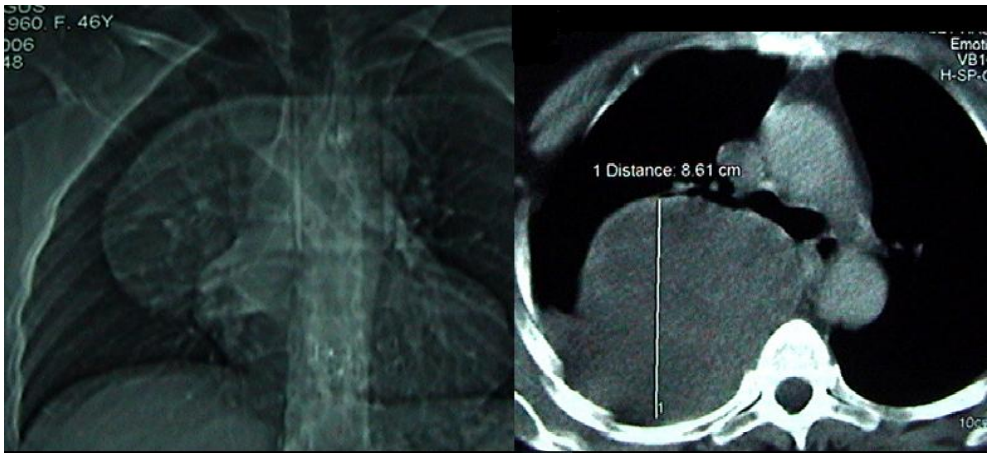

Fig. 1. CT scan of the upper chest showing a mass in the right lung

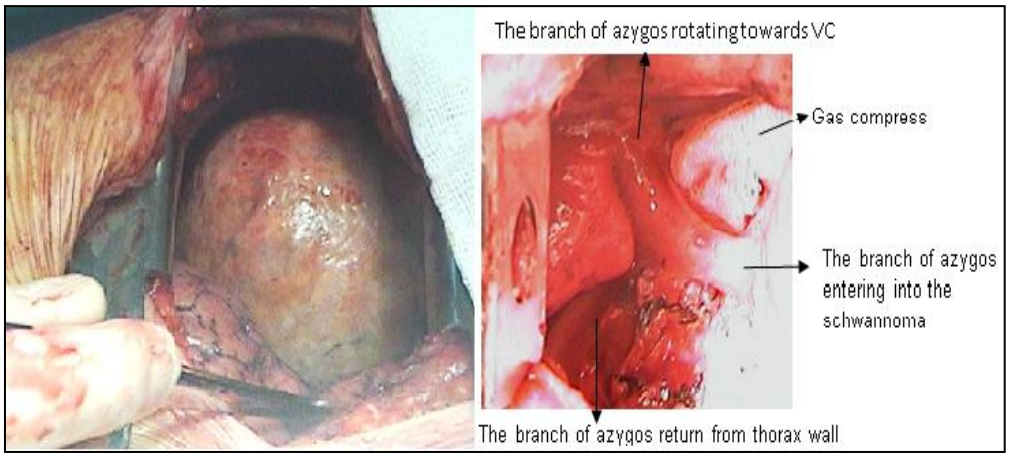

Fig. 2. Posterior located mass and accessory vein entering into the schwannoma

Fig. 3. Anterior and posterior face of the mass

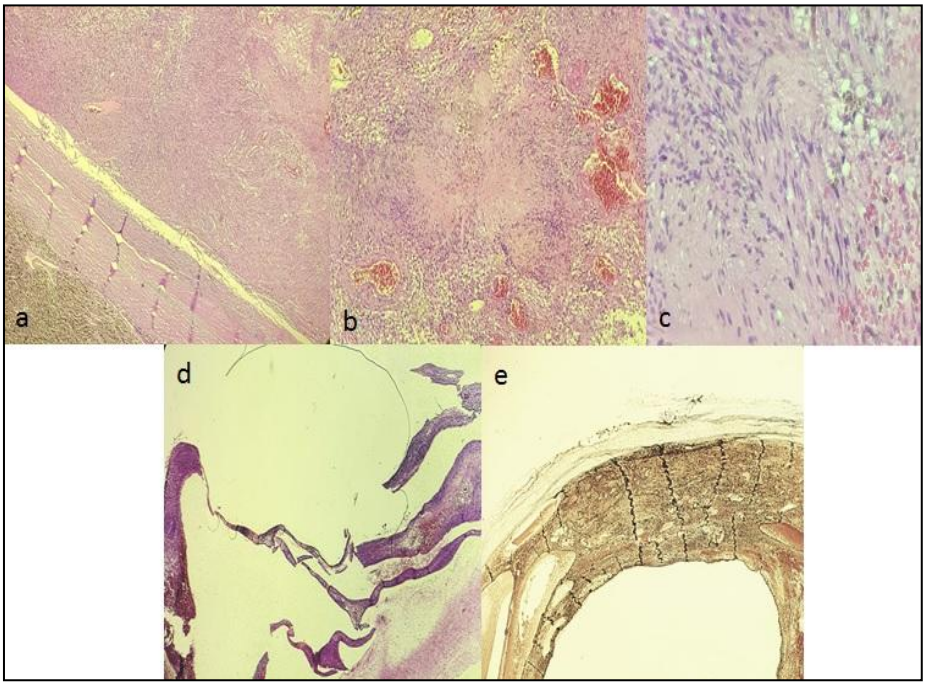

Fig. 4. (a). Spindle cell proliferation is seen in the upper right side, anthracosis in the lower left, and fibrous tissue separating them (H&EX40). (b). Palisading of nuclei is seen better in higher power image (H&EX100). (c). A closer view of the palisading nuclei (H&EX400). (d). Multilocular cyst formation is seen (H&EX40), (e). Strong S-100 protein immunoreactivity (H&EX40)

3. DISCUSSION

Most of the schwannomas (90%) originated from the nerve sheath are benign [5]. Schwannoma is common in the head, neck, oral cavity, retroperitoneum, joints and especially in the thorax. Briefly, it can be seen anywhere with nerve sheath. While 60% of the neurogenic tumours are asymptomatic, some of them may cause symptoms such as chest pain, Horner's syndrome, husky voice and the symptoms related with the vertebra [6].

The nerve sheath tumours appear more frequently on adults and women with the ratio of 73–83% whereas the tumours from the nerve cells more frequently appear on men [7-8].

Schwannoma is generally solitary tumour. It is seen around, well-circumscribed, and

encapsulated in thoracic computed tomography and x-ray. The tissue density varies according to Anthony A and Anthony B contents of the cells [9]. Preoperative diagnosis is very difficult. The fine needle aspiration is rarely successful because of the limited cellularity of these neoplasms. So the diagnose and treatment are with a radical surgical excision in giant schwannoma. Small tumours are often removed using video thoracoscopy [10].

When a thoracic computed tomography angiogram for schwannoma was taken, it can be seen that its vascular structure comes from very different regions, and aberrant formations of those vascular structures can be observed [11]. In the study made by Berlin O, et al. the feeding artery of the nerve affected and the artery connection of the proximal and distal ends of the tumours were revealed in 2 patients, and it was shown that the venous return in the patients was towards the vein following the nerve [12]. In our case, A large vein drained to vena azygos from the mass and three intercostals arteries entering into the mass has been noticed at the operation instantly.

Both schwannomas and neurofibromas, which are neural sheath tumors, may show signs of degeneration such as bleeding, cyst formation, necrosis or calcification due to slow growth. These features are more common in schwannomas than neurofibromas. Immunohistochemically, schwannoma is positive for S-100, Leu-7 and Myelin basic protein confirming its neural origin [13]. Almost all cases of intrathoracic neurogenic tumours were benign. In a study of 60 patients by Yamaguchi M et al., only one patient was diagnosed as malignant schwannoma [3].

4. CONCLUSION

Posterolateral thoracotomy should be performed, if the diameter of schwannoma bigger than 6 cm. Complete removal of the schwannoma by posterolateral thoracotomy provides a full treatment of the patient. But it should be kept in mind, in the giant intrathoracic masses normal feeding arteries and draining veins may be unusual.

CONSENT

As per international standard or university standard, patient's consent has been collected and preserved by the authors.

ETHICAL APPROVAL

As per international standard written ethical approval has been collected and preserved by the author(s).

COMPETING INTERESTS

Author has declared that no competing interests exist.

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