

Case Report

Minimally Invasive Thoracoscopic Resection of Intrathoracic Extrapulmonary Schwannoma: Technical Case Report

Murat ONCEL^{*}, Guven Sadi SUNAM, Huseyin YILDIRAN

¹Selcuk University of Medical Faculty Thoracic Surgery

*Corresponding author

Murat Oncel

Email: moncel01@hotmail.com

Abstract: Schwannoma is a well-encapsulated benign tumor that originates from Schwann cells. Prognosis and progress are excellent, and recurrence of the tumor is sometimes reported after surgical resection. Intrathoracic extrapulmonary schwannoma is extremely rare that had grown and bulging inside the thoracic cavity from the lateral chest wall. Usually, intrathoracic Schwannoma is found in the posterior mediastinum and bulge from the inner surface of the bony thorax toward the thoracic cavity. We presented this is technique of one port thoracoscopic resection of non-rib-spreading thoracotomy such as 3 cm incision.

Keywords: Schwannoma, intercostal, hydatid cyst, thoracic wall, technics

INTRODUCTION

Schwannoma is a well-encapsulated benign tumor that originates from Schwann cells. After surgical resection prognosis is excellent, and recurrence of the tumor is rarely reported [1]. Extrathoracic Schwannoma is extremely rare, and Sakurai, et al. reported one case of extrathoracic neurilemmoma such as hydatid cyst of the lateral chest wall [2].

CASE REPORT

A 57-year-old man was referred to our hospital because of a chest X-ray abnormality. He was a nonsmoker and had only regulated hypertension. There was no tenderness or pain of the chest wall mass on physical examinations. All laboratory tests were within normal limits. A plain chest radiograph demonstrated a bulging soft tissue shadow of the right lower lateral thorax without any rib destruction (Fig 1) Computed tomography showed an extra-pulmonary mass a well-defined heterogeneous density mass which was measured 5x4 cm along the right 8th rib and bulged toward the extrathoracic space (Fig. 2). PET CT has been shown 5x4 cm mass on the thoracic wall and Maximum standardized uptake value (SUVmax) was

measured 5,76 (Fig 3). The tumor was suspected to be a neurogenic tumor originating from an intercostal nerve, but its growth pattern was unfamiliar, so the diagnosis included neurogenic tumor, hydatid cyst (perforated) desmoid tumor, and sarcoma of the chest wall. (Fig 4).

Operative procedure

Thoracoscopy was performed with the patient in the postero-lateral position. Ventilation was achieved through a double-lumen endotracheal tube. Tumor was easily dissected from the intercostal muscle. The removed of the tumor from the chest wall was performed through only single port thoracic trocars via the video assisted thoracoscopic surgery. The postoperative course was uneventful, and the patient has been discharged in postoperative fifth day. The pathological diagnosis and histological examination confirmed the diagnosis of a benign schwannoma arising from the intercostal nerve Schwannoma. The two trocar technique is associated with better cosmetic results, less operative hazards and shorter hospitalization [3].

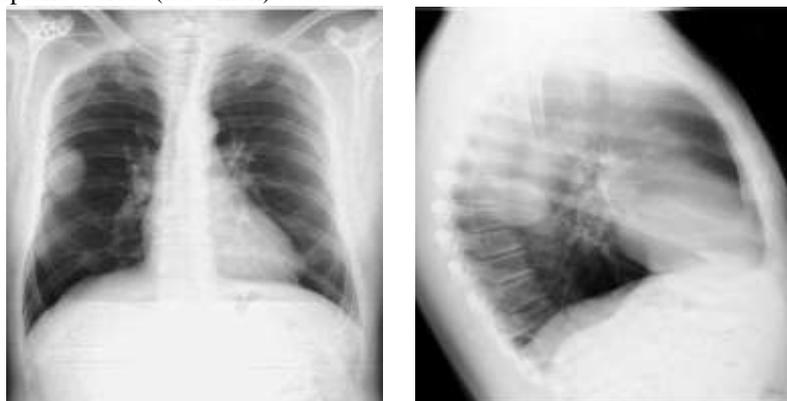


Fig. 1a & 1b: Postero-anterior and lateral X-ray images of lung



Fig. 2: Computed Tomography image of mass



Fig. 3: Intraoperative photo taken by video thoracoscope



Fig. 4: Incision of port

DISCUSSION

The chest wall was the second-most frequent location of a neurogenic tumor (26,7%) [4]. Schwannoma is usually solitary and may arise from any cranial or peripheral nerve. Early surgical excision is considered to be the most acceptable strategy because of the increasing size of the tumor, and the possibility of malignancy. The majority of posterior neurogenic tumors and intercostal neurogenic are asymptomatic. But, as they become larger in size, they can produce symptoms related to local compression, bone erosion and intercostal pain [1]. Most schwannoma originate from the posterior mediastinum but schwannomas arising from the intercostal nerve of the lateral chest wall are relatively uncommon, only 5% of thoracic

neurilemmoma [5]. Furthermore, only one case exists of an extrathoracic schwannoma mimicking a subcutaneous tumor or hydatid cyst in the English literature [2]. Most of these cases were located in paravertebral regions. Traditionally, resection has been performed by standard posterolateral thoracotomy. More recently, such as a tumors have been removed thoroscopically. The advantages of this approach are less pain, early return to normal activity, and an acceptable cosmetic appearance. Prior to the advent of video-assisted thoracoscopy, resection of neurogenic tumors of the intercostal or mediastinum area required excellent exposure via VATS. Larger tumors present a difficult thoracoscopic problem because they prevent adequate exposure of the sulcus. In such instances, we have performed video assisted mini non-rib-spreading thoracotomy such as 3-5 cm. This is very good exposure and removed the tumor. This allows the placement of more than one instrument through the thoracotomy and the use of standard chest instruments for dissection. The improved feel and ability to manipulate the tumor expedites removal.

Chest wall schwannomas are diagnosed by radiologic examination, including CT and magnetic resonance imaging (MRI). Particularly, MRI should be performed in patients with suspicious posterior mediastinal neurogenic tumors to spread intraspinal region [4]. Fine-needle cytology can often establish the diagnosis. Local resection is a sufficient treatment for most of the smaller peripheral tumors of intercostal nerve.

CONCLUSION

Schwannomas arising from the intercostal nerve could grow both inside and outside of the chest wall, such as mimicking lots of benign masses. The thoracoscopic resection of intercostal neurogenic tumors is technically easy.

REFERENCES

1. Lee JY, Lee KS, Han J, Yoon HK, Kim TS, Han BK *et al.*; Spectrum of neurogenic tumors in the thorax: CT and pathologic findings. *J Comput Assist Tomogr.*, 1999; 23(3): 399-406.
2. Sakurai H, Hada M, Mitsui T, Ashizawa I; Extrathoracic neurilemmoma of the lateral chest wall mimicking a subcutaneous tumor: report of a case. *Ann Thorac Cardiovasc Surg.*, 2006;12(2): 133-136.
3. Satoda N, Hijiya K, Fukuse T; Two-port video-assisted thoracoscopic excision of an intercostal schwannoma. *Kyobu Geka*, 2004; 57(3): 198-200.
4. Sakai F, Sone S, Kiyono K, Maruyama Y, Oguchi K, Imai N *et al.*; Magnetic resonance imaging of neurogenic tumors of the thoracic inlet: determination of the parent nerve. *J Thorac Imaging*, 1996;11(4): 272-288.
5. Davidson KG, Walbaum PR, McCormack RJ; Intrathoracic neural tumours. *Thorax*, 1978; 33(3): 359-366.