

## Schwannoma of the Brachial Plexus Presenting as an Enlarging Cystic Mass: Report of a Case

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**We report a rare case of schwannoma of the brachial plexus presenting as an enlarging cystic mass. A 52-year-old woman was found to have a rapidly enlarging cystic lesion in the left pectoralis minor space. Surgical exploration finally found that the lesion was schwannoma originating from the fascicles of the brachial plexus. Partial removal of the fluid enabled us to dissect the mass without difficulty. The patient showed no sign of neurological disorders postoperatively. Although schwannoma sometimes accompanies the cystic lesion in part, schwannoma of the brachial plexus manifesting as a cystic lesion is very rare. (Ann Thorac Cardiovasc Surg 2008; 14: 311–313)**

**Key words:** brachial plexus, neurogenic tumor, schwannoma

### Introduction

Schwannomas are the most common neurogenic tumors of the thorax, especially in the posterior mediastinum, whereas in the peripheral nervous system they are relatively uncommon and usually found associated with one of the main nerves of the limbs. Schwannomas originating from the brachial plexus are rare, and to our knowledge those manifesting preoperatively as a cystic lesion have rarely been reported.<sup>1,2</sup> We report a case of schwannoma of the brachial plexus manifesting as an enlarging cystic mass in the pectoralis minor space.

### Case Report

A 52-year-old woman, suddenly being aware of a mass on the left subclavicular fossa, was admitted to our hospital. A chest CT scan showed a cystic lesion, with a diameter of 4 cm and a capsule in the pectoralis minor

space (Fig. 1). Otherwise she was well with no abnormal findings. She showed no sign of any neurological disturbances on the left upper limb, and she was referred to our department.

A percutaneous needle biopsy of the mass was performed, but it revealed only that the cyst contained a yellowish serous fluid without malignant cells. We aspirated the fluid as much as possible, and the mass was not palpated from the skin at the end of the biopsy. However, a few days later she noticed that the mass had again enlarged as big as before. A chest MRI revealed a cystic lesion existing beneath the pectoralis minor muscle, oppressing the subclavicular-axillary vein to the bottom (Fig. 2). T2-weighted MRI seemingly showed that the mass was a complete cystic lesion and had no sign of invasion of the surrounding vessels. We then decided to extirpate it.

After the small subclavicular skin incision, the major pectoralis was divided and the well-swollen mass was revealed in the pectoralis minor space. It was very difficult to dissect the mass completely because of its swollen shape, and we then drew a certain amount of fluid out from the mass to dissect it with great ease. We finally found the stalk of the mass at its bottom, arising from the fascicles of the brachial plexus. The proximal end of the stalk was dissected and finally the mass was

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**Fig. 1.** A chest CT scan showed a cystic lesion with a diameter of 4 cm in the pectoralis minor space.



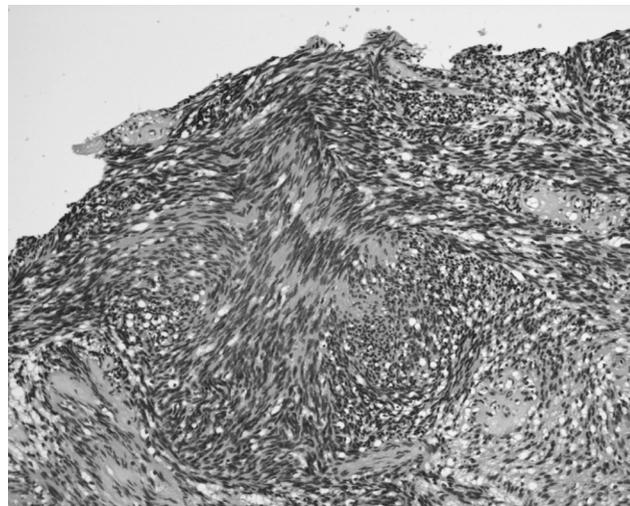
**Fig. 2.** A chest T2-weighted MRI revealed that cystic lesion existed in the pectoralis minor space, oppressing the subclavicular-axillary vein downward.

removed. The tumor was mostly cystic, but a tiny part of it consisted of a yellowish solid mass. Pathologically it was diagnosed as schwannoma originating from the brachial plexus (Fig. 3). After surgery the patient complained of neither sensory nor motor disturbances of the left upper limb. She is also well without recurrence three months later.

### Comment

Schwannoma is thought to arise from the Schwann cells of the nerve sheath. This tumor is usually solitary and may arise from any cranial or peripheral nerve. Schwannoma is the most common neurogenic tumor of the thorax, but it is very rare to find schwannoma of the brachial plexus.<sup>1,2)</sup> Most schwannomas originating from the brachial plexus are found without symptoms, as in our case. Ten percent of schwannomas are found to be malignant.

It is of much interest that the tumor in our case was preoperatively presented as a cystic lesion. Preoperative differential diagnosis of the cystic lesion was lymphangioma, ganglioma, and schwannoma. However, we could not determine a definitive diagnosis preoperatively even after performing a percutaneous biopsy. Furthermore, because the fluid accumulated again soon after the removal also seems very interesting. Moon et al. pointed out that the matrix metalloproteinase might



**Fig. 3.** Microscopic examination of the tumor showed a schwannoma.

Spindle-shaped cells with spindle- or rolled-form nuclei lined or crossed roughly.

be involved in the pathogenesis of cyst formation or in its enlargement.<sup>3)</sup> They also stated that enlargement of the tumor might aggravate adhesion to the nerve, engendering the degradation of the tumor-nerve barrier proteolytically.

Regarding the treatment of schwannoma, surgical removal is the first choice; however, the resected margin of the tumor is always difficult and controversial. Some-

times we need to sacrifice the nerve involved in the tumor because of the complete resection. In our case, the tumor had its stalk, and we could therefore resect the tumor there. It is fortunate that our patient showed no sign of neurological disorder postoperatively; however, in recent reports intraoperative nerve action potential recording has been mentioned to prevent any damage to the nerves.<sup>4)</sup>

In conclusion, we experienced an unusual case of schwannoma of the brachial plexus manifesting as a cystic mass in the pectoralis minor space, and we herein report its successful treatment.

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