

Giant Interpectoral Lipoma Causing Venous Thoracic Outlet Syndrome: A Rare Case Presentation

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Summary: Lipomas are the most prevalent type of benign soft tissue tumors, primarily composed of adipocytes, and typically remain asymptomatic unless they reach a significant size. Although giant lipomas are infrequent, their occurrence on the chest wall, particularly in the interpectoral region, is exceedingly rare. We present a unique case of a 48-year-old man with a massive interpectoral lipoma measuring 19.4 × 12.9 × 9.4 cm, which resulted in venous thoracic outlet syndrome by compressing the subclavian vein. This case highlights the clinical challenges in diagnosing deep-seated chest wall lipomas and underscores the necessity of considering thoracic outlet syndrome as a potential complication, even in the absence of direct neural or arterial compression. The presentation of thoracic outlet syndrome can vary, and a comprehensive evaluation is imperative for accurate diagnosis and management. (*Plast Reconstr Surg Glob Open* 2024; 12:e5587; doi: 10.1097/GOX.0000000000005587; Published online 7 February 2024.)

A lipoma, the most common soft tissue tumor, is usually asymptomatic unless it grows significantly, causing compression in nearby tissues. Lipomas are termed “giant” when exceeding a size of 10 cm. Giant lipomas are most frequently reported on the back, extremities, and the abdomen. They are rarely documented on the chest wall. Additionally, when chest wall lipomas do occur, they are usually located in the subcutaneous layer,¹ which is rich in adipose tissue.

Thoracic outlet syndrome (TOS) refers to the compression of nerves and blood vessels in the thoracic outlet, a region between the neck and the upper chest. This compression can lead to various symptoms, including pain, weakness, tingling sensation or paresthesia, and swelling in the affected arm.

In this case, we present a rare instance where a giant interpectoral lipoma on the chest wall caused venous TOS due to compression of blood vessels by the tumor. This scenario is unusual because chest wall lipomas are rare, and TOS is not commonly attributed to chest wall tumors.

CASE

A 48-year-old man with no significant medical history came to our clinic due to a gradually worsening swelling

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in his right arm. He also reported experiencing a sensation of chest compression and difficulty breathing during exertion. Upon physical examination, we observed that the right side of his chest was larger than the left, and a painless, soft mass present on the right lateral chest wall was palpated. The patient reported observing chest wall asymmetry for 10 years. Despite being an office worker, he engaged in resistance training throughout the period when the asymmetry was noticed. As a right-hand dominant individual, he initially attributed the enhanced appearance of his chest to muscle hypertrophy from his training. There were no visible changes in the skin, and the patient had no neurological deficits in his right upper extremities.

A chest computed tomography (CT) scan revealed a massive, hypodense, well-defined mass measuring 19.4 × 12.9 × 9.4 cm, situated between the pectoralis major and minor muscles (Fig. 1A). (See figure, Supplemental Digital Content 1, which shows CT image of the giant interpectoral lipoma in coronal view. <http://links.lww.com/PRSGO/D55>.) Although the mass did not extend into the chest cavity, it was causing compression of the thoracic cavity and the right axillary/subclavian vein (Fig. 1B). Due to the strong suspicion of a benign tumor, after consulting with the patient and his family, we decided to proceed with a radical excision to address the compression.

During the surgery, we confirmed that the mass did not invade the chest wall or involve nearby tissues. We were able to completely remove the mass without causing

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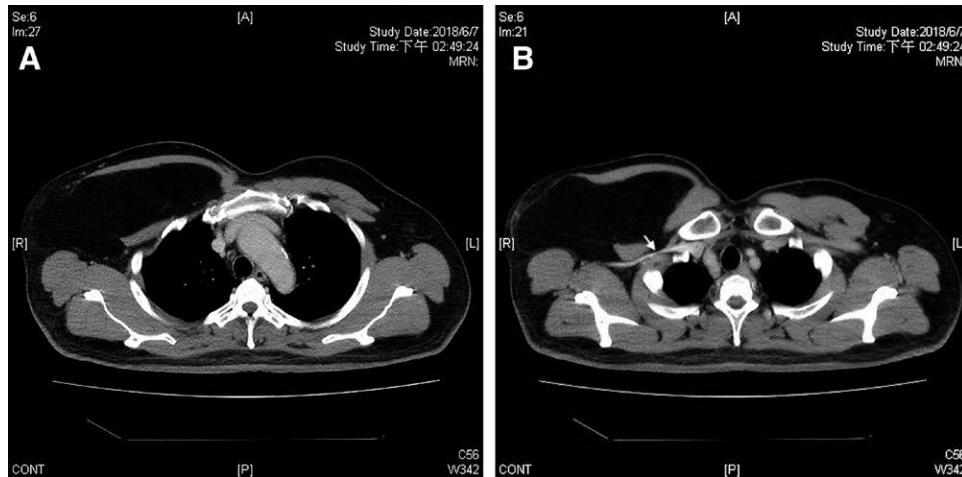


Fig. 1. CT images. A, CT image of the giant interpectoral lipoma in axial view. B, CT image of the patient revealing compression of the subclavian vein by the giant interpectoral lipoma.

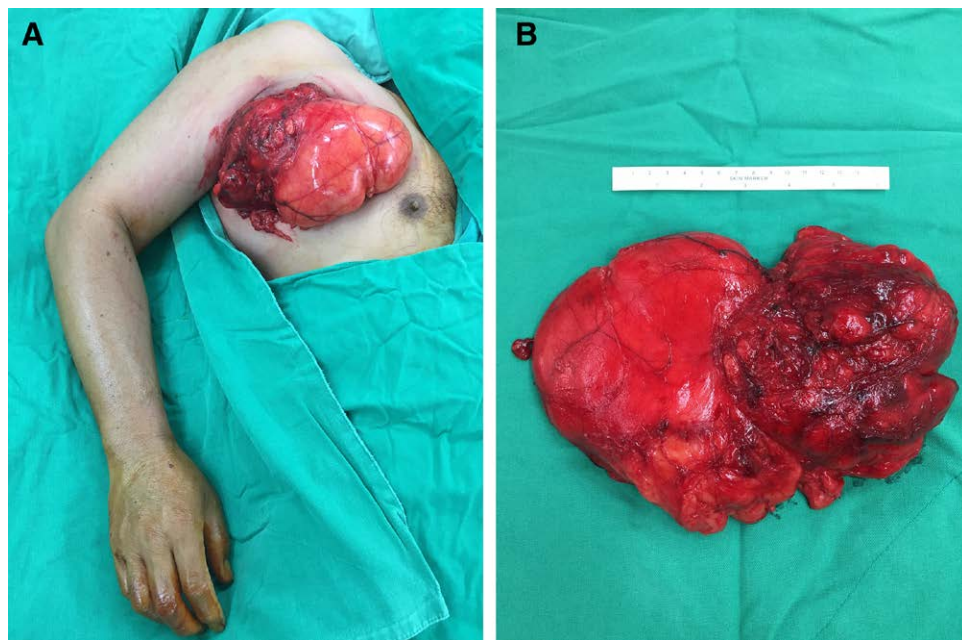


Fig. 2. Intraoperative photographs. A, Intraoperative photograph of the giant interpectoral lipoma. B, Detailed display of the tumor after excision.

damage to the overlying pectoralis major muscle (Fig. 2A). The excised specimen measured $20.5 \times 15.8 \times 6.7$ cm and weighed 1.2 kg (Fig. 2B). Subsequent histological examination confirmed that the mass was indeed a benign lipoma. The patient experienced no immediate postoperative complications and was discharged on the third day after the surgery. At the 1-month follow-up, his symptoms had completely resolved, and his chest circumference had decreased from 101 cm to 92 cm after the surgical removal of the mass.

DISCUSSION

Most chest wall tumors are benign, and many of them do not cause symptoms unless they grow too large or are

located in critical areas. Among benign chest wall tumors, lipomas are the most common. Although there have been a few recent reports of giant chest wall lipomas, with only one case invading the thoracic cavity and causing clinical symptoms.² In our case, a chest CT scan showed a homogeneous solid mass with fat density, which strongly suggested a benign lipoma. Considering these radiological findings and the probable benign nature of the tumor, we opted for a radical excision.

Lipomas typically develop in the subcutaneous layer, which is primarily composed of fat tissue. Deep-seated lipomas, especially those on the chest wall, are uncommon. There has been only one previously reported case of an interpectoral lipoma,³ and other deep-seated cases

were either subpectoral lipomas or intramuscular lipomas originating within the pectoralis major muscle. This case involves a giant interpectoral lipoma situated between the pectoralis major and minor muscles. Deep-seated chest wall tumors are often overlooked, especially in men who engage in regular workouts, as the firm pectoralis muscles can obscure the underlying tumor.

The clinical presentation of TOS can vary depending on the underlying pathology. In neurogenic TOS, patients typically experience neuropathic pain, numbness, and tingling in the fingers, as well as weakness in the upper extremity.⁴ These symptoms tend to worsen with activities that put stress on the upper limb, such as heavy lifting or excessive stretching.⁵ In venous TOS, the most common symptom is swelling in the upper limb, and severe, nonradicular pain may precede the swelling by a few days.⁵

To diagnose TOS, physicians often perform specific posture-triggered tests, including the Adson, Wright, and Halsted maneuvers; the elevated arm stress test (EAST); and the upper limb tension test.⁶ The Adson, Wright, and Halsted maneuvers involve the clinician palpating the radial pulse in the affected upper limb and checking for a decrease in pulse in certain positions. On the other hand, the EAST and upper limb tension test assess whether certain postures provoke symptoms in the patient.

In our case, the patient presented with swelling in the right upper limb. Both the Adson and Wright tests were negative, indicating no decrease in pulsation. Additionally, the EAST test did not worsen the numbness in the limb, suggesting that there was no compression affecting the nerves and arteries passing through the thoracic outlet. To the best of our knowledge, previous reports have documented two cases of subpectoral lipomas causing TOS, albeit with smaller tumor sizes and critical infraclavicular locations.^{7,8} However, our case stands as the first documented instance of a giant interpectoral chest wall lipoma complicated by venous TOS. This case underscores the potential for chest wall tumors to be overlooked, especially in individuals with athletic physiques.

CONCLUSIONS

We reported a rare case of a giant interpectoral lipoma concealed by the robust pectoralis muscles. It is crucial to consider venous TOS even in the absence of neurological deficits.

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DISCLOSURE

The authors have no financial interest to declare in relation to the content of this article.

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