

Primary Axillary Venous Aneurysm: Report of a Case

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Abstract

We report a case of nontraumatic, spontaneous venous aneurysm of the left axillary vein. This case may represent only the second such case ever reported in the English-language medical literature. Venous aneurysms are often associated with trauma, arteriovenous fistula, or other venous abnormal hemodynamic conditions, but true primary venous aneurysms are very rare. Surgical excision was uncomplicated and performed easily.

Key words Axillary vein · Venous aneurysm

Introduction

Venous aneurysms are relatively uncommon and usually caused by trauma, arteriovenous fistula, or previous vascular procedures. Conversely, true spontaneous venous aneurysms are very rare. These lesions are generally asymptomatic and easily misdiagnosed as soft tissue tumors. Most of the venous aneurysms reported in the English literature were located in the jugular vein or the popliteal vein. We report a case of an aneurysm arising from the proximal axillary vein, which we initially thought was a chest wall tumor. The mass was excised successfully via an infraclavicular approach.

Case Report

A 53-year-old man was admitted to our hospital for investigation of an enlarging painless soft tissue mass,

which had been palpable for several months, located in the infraclavicular region. He had no history of systemic disease or any traumatic experience. Physical examination revealed a soft, round, nonpulsating mass of 5×7 cm in diameter in the left infraclavicular area. The overlying skin appeared normal, except for some dilated superficial venules. Blood analysis, including a hemogram, a white blood cell differential count, renal and hepatic function tests, and an electrocardiogram yielded normal results. An ultrasonic study of the left upper chest wall revealed a well-defined cystic mass (44×17 mm) without an active blood flow signal. Sono-guided biopsy was performed, but only blood was obtained. Computed tomographic (CT) scanning revealed an oval 2×4 -cm cystic mass with a smooth outline, over the left infraclavicular region, adjacent to the left chest wall (Fig. 1). The lesion was completely excised through an infraclavicular incision, and found to be a venous aneurysm arising from the left proximal axillary vein (Fig. 2). The aneurysm was easily dissected free from the surrounding tissue. A single vessel about 3 mm in diameter connecting to the proximal axillary vein was suture-ligated smoothly, followed by excision of the whole aneurysm. The resected specimen measured $5.5 \times 4.5 \times 1.5$ cm. Pathologic examination of the aneurysm revealed a collection of large, thick-walled veins. The patient had an uneventful postoperative course and was discharged 3 days after the operation. He was followed up at a vascular surgery clinic for 2 years, with no signs of recurrence.

Discussion

Primary venous aneurysms are rarely seen in clinical practice. The etiology of venous aneurysms can be traumatic, inflammatory, congenital, degenerative, or iatrogenic. Spontaneous venous aneurysms are infrequently discovered and several causes of venous aneurysm

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development have been proposed, such as endovenohypertrophy, endovenosclerosis, congenital weakness, and degenerative change. These lesions can be classified according to their anatomic location. Aneurysms located in certain anatomic positions, such as the face and neck and the extremities, are easily accessible surgically, whereas those located in the thoracic and abdominal areas are more difficult to diagnose and manage. The most common areas of venous aneurysm, according

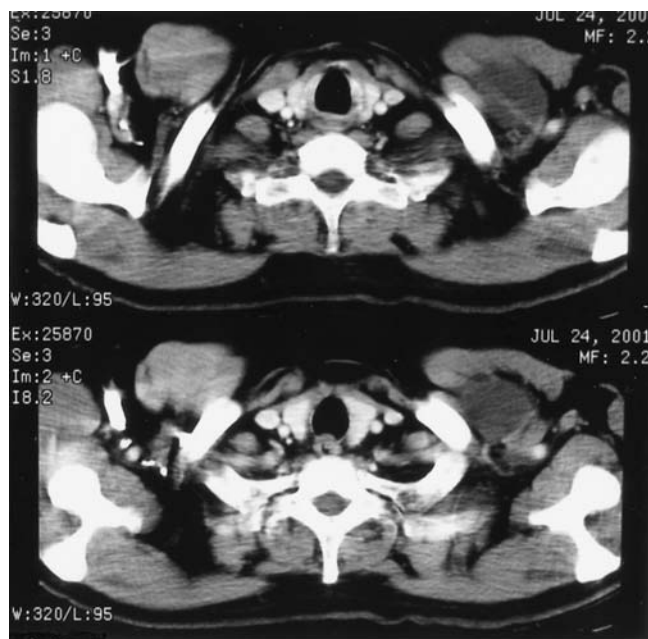


Fig. 1. Computed tomographic scanning showed a 2 × 4-cm cystic mass with a smooth outline, over the left infraclavicular region adjacent to the left chest wall

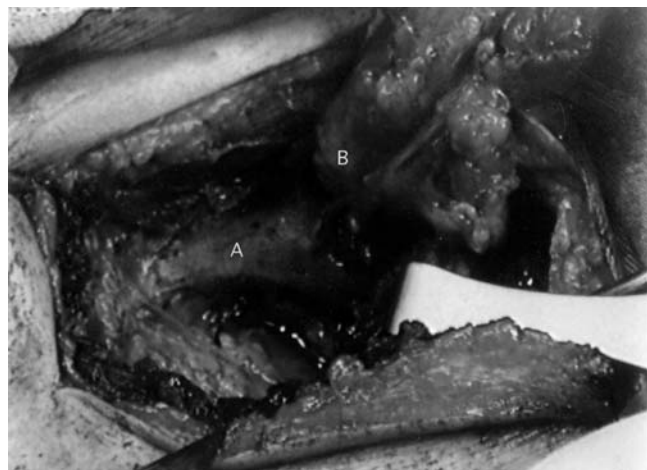


Fig. 2. A saccular venous aneurysm (B) arising from the anterior wall of the proximal axillary vein (A) was carefully dissected free and totally excised

to past reports, are the internal jugular vein, the superior and inferior vena cava, the portal vein, and the veins of the lower extremities.¹⁻⁷ On the other hand, we were able to find only sporadic reports of spontaneous upper extremity venous aneurysms.⁸⁻¹⁴ Most upper extremity spontaneous aneurysms are in the basilic veins. We were able to find only one other report of an axillary venous aneurysm in the English-language literature.⁸ Thus, to the best of our knowledge, the case reported herein is only the second documented case of a nontraumatic venous aneurysm in the axillary vein. It is also the first proximal axillary venous aneurysm presenting as an anterior chest mass over the infraclavicular area.

We initially thought that our patient had a subcutaneous nonpulsatile soft tissue mass, but aspiration cytology and noninvasive studies, including CT scanning and Doppler studies, did not confirm the origin of the mass. Because of its gradual enlargement and unknown etiology, we decided to excise the tumor for definite diagnosis and treatment. The venous aneurysm was excised without any complications or subsequent recurrence.

Establishing a preoperative diagnosis of a venous aneurysm is difficult because of the lack of obvious signs and symptoms. Many cases reported in the literature were initially misdiagnosed as soft tissue tumors. However, a venous aneurysm in the extremities, especially in the superficial venous system, can be detected by careful physical examination. It is frequently seen as a nonpulsating mass that shrinks when elevated, although if the venous aneurysm is in the deep vein system or near the central vein, diagnosis can be more difficult. Vascular Doppler studies can differentiate venous aneurysms from artery aneurysms or arterial venous malformations if any arterial flow component is present in the mass. They can also show any connections to the venous circulation. Imaging studies such as CT scanning or magnetic resonance imaging can also provide clues to the diagnosis, which is best confirmed by venography study. However, the excision of a venous aneurysm in an extremity is technically simple, and venography before the surgical intervention is often unnecessary. The definite diagnosis can usually be made intraoperatively after excision of the mass.

Most venous aneurysms are asymptomatic, although rupture, mass effect, and thromboembolism^{7,10} are possible complications. Although uncommon, venous aneurysm may be a source of pulmonary embolism,^{15,16} so some researchers recommend excision to prevent this dangerous complication.^{1,17}

Although primary axillary venous aneurysms are very rare, they should be considered in the differential diagnosis of a nonpulsatile soft tissue mass in the upper extremities or anterior chest. Our limited experience suggests that an axillary venous aneurysm can be ex-

cised easily without a great risk of complication or recurrence. Thus, we think that if the venous aneurysm is symptomatic, associated with any complication, enlargement, or ambiguous etiology, it should be totally excised and all feeder veins ligated.

References

1. Calligaro KD, Ahmad S, Dandora R, Dougherty MJ, Savarese RP, Doerr KJ, et al. Venous aneurysms: surgical indications and review of the literature. *Surgery* 1995;117:1–6.
2. Dhillon MK, Leong YP. Jugular venous aneurysm — a rare cause of neck swelling. *Singapore Med J* 1991;32:177–8.
3. Schild H, Berg S, Weber W, Schmied W, Steegmuller KW. The venous aneurysm (in German). *Aktuelle Radiol* 1992;2:75–80.
4. Bosshardt TL, Honig MP. Congenital internal jugular venous aneurysm: diagnosis and treatment. *Mil Med* 1996;161:246–7.
5. Bush S, Khan R, Stringer MD. Anterior jugular venous aneurysm. *Eur J Pediatr Surg* 1999;9:47–8.
6. Sommer L, Forte V. Congenital venous aneurysm of the internal jugular vein in a child. *J Otolaryngol* 2001;30:126–8.
7. Santana P, Jeffrey RB Jr, Bastidas A. Acute thrombosis of a giant portal venous aneurysm: value of color Doppler sonography. *J Ultrasound Med* 2002;21:701–4.
8. Acin F, de Benito L, Guilleuma J, Alvarez R. Primary axillary venous aneurysm. *Ann Vasc Surg* 1999;13:539–40.
9. Buckberg GD, McReynolds DG. Venous aneurysm of the upper extremity: a case report. *Am Surg* 1971;37:83–6.
10. De Waele JJ, Calle PA, Vermassen FE. Thrombosis of an aneurysm of the basilic vein upper extremity venous aneurysm. *Acta Chir Belg* 2001;101:308–9.
11. Goto Y, Sakurada T, Nanjo H, Masuda H. Venous aneurysm of the cephalic vein: report of a case. *Surg Today* 1998;28:964–6.
12. Hayashi S, Ishihara H, Hamanaka Y, Sueda T, Shikata H, Matsuura Y. A case of venous aneurysm (in Japanese). *Nippon Geka Gakkai Zasshi* 1993;94:655–7.
13. Nishida K, Miyazawa Y, Matsumoto K, Okinaga K, Imamura T. Primary venous aneurysm of the forearm in a child. *Jpn J Surg* 1991;21:241–3.
14. Perler BA. Venous aneurysm. An unusual upper-extremity mass. *Arch Surg* 1990;125:124.
15. Biessaux Y, Van Damme H, Raskinet B, Pierard LA. Popliteal venous aneurysm: unusual source of pulmonary embolism. *Acta Clin Belg* 1994;49:92–4.
16. Manthey J, Munderloh KH, Mautner JP, Kohl M, Frohlich G. Popliteal venous aneurysm with pulmonary and paradoxical embolization. *Vasa* 1994;23:264–7.
17. Matsuura Y, Higo M, Yamashina H, Tamura M, Kitaoka T, Fukuhara T, et al. A case report of venous aneurysm of the neck vein. *Jpn J Surg* 1981;11:39–42.