ARCHIVES OF HELLENIC MEDICINE: ISSN 11-05-3992

CONTINUING MEDICAL EDUCATION
ΣΥΝΕΧΙΖΟΜΕΝΗ ΙΑΤΡΙΚΗ ΕΚΠΑΙΔΕΥΣΗ

Surgery Quiz – Case 53

ARCHIVES OF HELLENIC MEDICINE 2024, 41(4):568–569
ΑΡΧΕΙΑ ΕΛΛΗΝΙΚΗΣ ΙΑΤΡΙΚΗΣ 2024, 41(4):568–569

A. Skarpas,
I. Verzoviti,
V. Kyriakidis,
S. Veneris,
V. Ioannou,
N. Nikolopoulos,
K. Athanasiou,
A.V. Kyriakidis

Department of Surgery, General Hospital of Amfissa, Amfissa, Fokis, Greece

A 73-year-old man presented with a palpable mass in the right neck (fig. 1). The patient did not know exactly what it was. He complained that it appeared to be growing in time. He was sent to do an ultrasound and a computed tomography angiography (CTA).

Comment

Subclavian artery (SA) aneurysms (SCAA) are rarely seen and represent 1% of all peripheral artery aneurysms, while true atherosclerotic aneurysm is even more rare. In most cases the true subclavian artery aneurysms are of atherosclerotic origin. Dent et al have reported that only two out of 1,488 cases of atherosclerotic aneurysm had SCAA, with an incidence of about 0.13%. The common causes of SCAA are atherosclerosis, trauma and post-stenotic dilated aneurysm secondary to thoracic outlet syndrome; besides, the rare causes include infective, syphilitic media necrosis, fibromuscular dysplasia, cystic idiopathic medionecrosis, infection and congenital disorders (Marfan syndrome). Subclavian artery pseudoaneurysms can develop after different reconstructive vascular procedures. The symptoms which the aneurysm of the SA show are determined by the site and size. It is possible to be part of an incidental finding and requires most of the times attendance in order to prevent a potentially fatal rupture.

When an aneurysm presents in an extrathoracic location a finding of a pulsatile lump over the supraclavicular fossa with pulsation and vascular murmurs will occur, whereas an intrathoracic aneurysm or a post-stenotic dilated aneurysm might compress plexus brachialis or the upper extremity vessels leading to ischemia of the upper limb. There is a small chance a lump might erode the apex of lung and cause hemoptysis. There is a chance of it compressing the recurrent laryngeal nerve resulting in hoarse voice. There are reports about dysphagia and Horner's syndrome as well. Dyspnea caused by trachea compression is rarely reported.

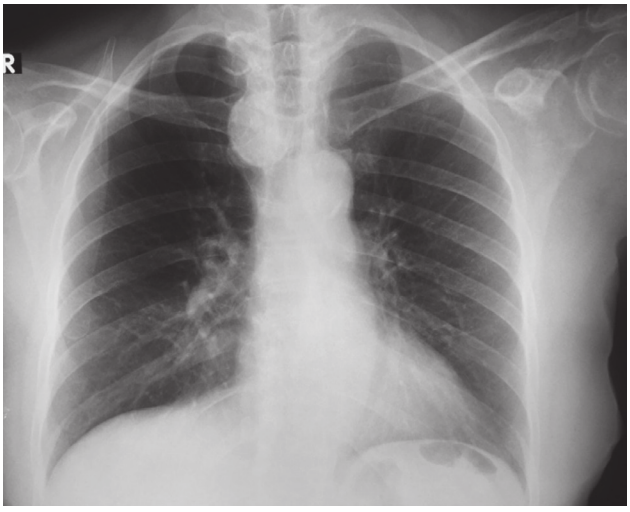

Figure 1.

Diagnostic approach is to great extent revealed with CTA, which is a non-invasive technique and can reveal site, size and artery strikes. CTA is also helpful for establishing the operational approach. SCAA can result in spontaneous rupture and thrombosis, which are common, so it is recommended to correct the aneurysm especially if the patients are with compressive symptoms. Because of the relevance between the SCAA to the brachial plexus, and clavicle and sternum cover the front, this makes it difficult for full exploration during surgery. The most common incisions are as follows: (a) Poster lateral incision; (b) incision over the third anterior intercostal space to enter thorax; (c) median incision over sternum for dividing sternum and transverse incision over second or third intercostals space, and (d) supra-infraclavicular incision. Common operation methods include: (a) Arterial ligation. It is recommended for badly contaminated traumatic aneurysm and aneurysm over distal end of subclavian artery branch; (b) arteriorrhaphy. It is suitable in cases of post contaminated aneurysm wound repair and without risk of leading to lumen stenosis or obliteration, and (c) blood vessel grafting. It is suitable for comparatively huge aneurysm over origination or trunk of subclavian artery, and the defected artery would be over 3 cm after excision. There are two common blood vessel substitutes: (a) Blood vessel from the great saphenous vein, and (b) polymer vessel. Each of the methods has its plus and minuses. The former can be followed by complications such as degeneration, calcification and aneurysm. The later is currently the most commonly applied

substitute. In order to avoid major thoracic surgery, a combined endovascular and open repair (through a supraclavicular incision) was considered the best, minimally invasive treatment option. Yet, its long-term effect remains to be established on further follow up. It is highly recommended not to open the aneurysm sac. If the aneurysm sac is adhered to the surrounding tissues a rich collateral circulation as ligation of bilateral ends is effective as well.

References

1. DENT TL, LINDENAUER SM, ERNEST CB, FRY WJ. Multiple atherosclerotic arterial aneurysms. *Arch Surg* 1972, 105:338–344
2. DAVIDOVIĆ L, MARKOVIĆ DM, PEJKIĆ SD, KOVACEVIĆ NS, COLIĆ MM, DORIĆ PM. Subclavian artery aneurysms. *Asian J Surg* 2003, 26:7–11
3. PAIROLERO PC, WALLS JT, PAYNE WS, HOLLIER LH, FAIRBAIRN JF 2nd. Subclavian-axillary artery aneurysms. *Surgery* 1981, 90:757–763
4. SCHODER M, CEJNA M, HÖLZENBEIN T, BISCHOF G, LOMOSCHITZ F, FUNOVICS M ET AL. Elective and emergent endovascular treatment of subclavian artery aneurysms and injuries. *J Endovasc Ther* 2003, 10:58–65
5. WITZ M, YAHEL J, LEHMANN JM. Subclavian artery aneurysms. A report of 2 cases and a review of the literature. *J Cardiovasc Surg (Torino)* 1998, 39:429–432
6. BIN HG, KIM MS, KIM SC, KEUN JB, LEE JH, KIM SS. Intrathoracic aneurysm of the right subclavian artery presenting with hoarseness: A case report. *J Korean Med Sci* 2005, 20:674–676
7. SALO JA, ALA-KULJU K, HEIKKINEN L, BONDESTAM S, KETONEN P, LUOSTO R. Diagnosis and treatment of subclavian artery aneurysms. *Eur J Vasc Surg* 1990, 4:271–274
8. McCANN RL. Basic data related to peripheral artery aneurysms. *Ann Vasc Surg* 1990, 4:411–414
9. HARDING GEJ, KRIBS SW, FORBES TL. Hybrid open and endovascular therapy for a proximal subclavian artery aneurysm. *Vascular* 2008, 16:236–238

Corresponding author:

A. Skarpas, Department of Surgery, General Hospital of Amfissa, 331 00 Amfissa, Fokis, Greece
e-mail: andrewskarpas@gmail.com