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CASE REPORT

Collateral Artery Aneurysm: A Unique Presentation of Thoracic Outlet Syndrome

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Aneurysms of collateral arteries are unusual. A case of transverse cervical artery aneurysm as the sole presentation of vascular thoracic outlet syndrome is presented and the relevant literature reviewed.

Keywords: Artery; Aneurysm; Thoracic outlet syndrome.

Collateral artery aneurysms are uncommon. Apart from posing unique management challenges these lesions also lend support to the biomechanical theory of aneurysm formation. We report an aneurysm of the right transverse cervical artery, which was a major collateral to an occluded subclavian artery due to thoracic outlet syndrome.

Case Report

A 67-year-old lady, presented with a 1-year history of a pulsatile swelling in the right supraclavicular fossa. She was otherwise asymptomatic. Her right radial and ulnar pulses were weaker than the left. Chest radiograph did not show a bony cervical rib. Digital subtraction angiography revealed, total occlusion of the second part of the right subclavian artery, with distal reformation through a grossly hypertrophied right transverse cervical artery. There was an aneurysm, partially filled with thrombus, arising from the transverse cervical artery (Fig. 1).

At operation, she was found to have a prominent scalene tubercle with a fibrous band compressing the subclavian artery. She underwent a scalenotomy, excision of the aneurysm and end-to-end anastomosis of the collateral artery. In view of her age and good limb perfusion, subclavian artery bypass was not performed. Postoperative recovery was uneventful. Histopathological examination of the excised specimen showed aneurysm wall formed by hyalinized

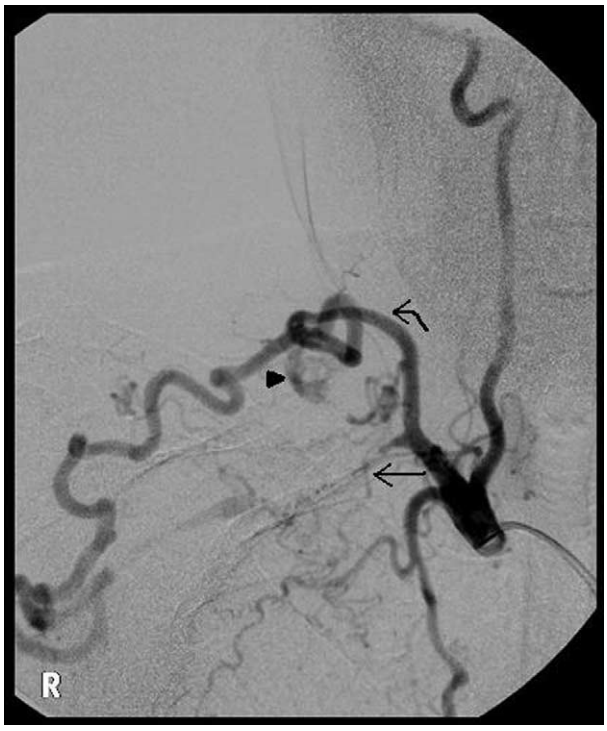

Fig. 1. DSA of the right subclavian artery showing total occlusion of the 2nd part of the subclavian artery (arrow) and the partially filling aneurysm (arrow head) arising from the hypertrophied transverse cervical artery (curved arrow).

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fibrocollagenous tissue and smooth muscle fibres enclosing a recanalising thrombus. At 1-year follow up she continued to be asymptomatic and her radial pulse was palpable.

Discussion

Arterial occlusion due to thoracic outlet syndrome often remains asymptomatic because of a rich collateral circulation in the upper limb. Symptomatic cases usually present with features of distal thromboembolism and ischaemia. Rarely, they can present with a pulsatile neck mass due to a subclavian artery aneurysm. The case presented above was unique in that, the collateral artery aneurysm was the sole presentation of the vascular thoracic outlet syndrome.

Collateral arterial aneurysms or flow-related aneurysms have been infrequently reported in world literature. The extra-cranial sites in which these aneurysms have been described include, inter-vertebral collaterals,[1] intercostal artery[2] and radial collateral artery.[3] Interestingly, there have been no reports of these aneurysms occurring in the lower limbs, probably reflecting the relative paucity of collateral circulation in the lower limbs as compared to the upper limbs and neck. Apart from the role of high flow in the pathogenesis of these lesions, their significance lies in their management. Angiography remains the gold standard to delineate the arterial occlusion and delineate the collaterals. Correction of the underlying obstruction may be needed to avoid recurrence. In the above case, the unusually large and tortuous collateral permitted an end-to-end anastomosis without resorting to bypass grafting.

This case is reported in order to emphasize the need to recognize the occurrence of flow-related aneurysms. The theoretical risk of developing these lesions following therapeutic embolization or ligation of non-essential arteries must be borne in mind.

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