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A GIANT RIGHT SUBCLAVIAN- AXILLARY ARTERY ANEURYSM PRESENTING AS BRACHIAL PLEXOPATHY

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ABSTRACT

We present a rare case of 60 years old lady with diabetes and uncontrolled systemic hypertension, who was referred to the Surgical Department of Civil Hospital Karachi in September 2016 with rapidly progressive mass at right shoulder region and acute onset of ipsilateral limb sensory and motor deficit for last 3 weeks. The nerve conduction studies (NCS) revealed right brachial plexopathy. Computed Tomography demonstrated an 8.2x8.7cm (width x length) fusiform giant aneurysm of right subclavian-axillary artery with reactive axillary lymphadenitis. Early Aneurysmectomy and arterial reconstruction with saphenous vein graft interposition was planned. Unfortunately, she succumbed to death due to spontaneous aneurysm rupture. Aneurysms of the subclavian- axillary artery are rare in the clinical setting, accounting for less than 1% of all peripheral arterial aneurysms.

Key Words:

Subclavian- Axillary artery aneurysm; SAA; Computed Tomography; brachial plexopathy; NCS.

INTRODUCTION

True SAA are rare. They represent about 1% of all peripheral arterial aneurysms^{1, 2}. They fall into two distinct groups in terms of etiology, presentation, and treatment: those of the intrathoracic and those of the extrathoracic portion of the subclavian artery. Aneurysms of extrathoracic subclavian artery are usually post traumatic or related to thoracic outlet syndrome and intrathoracic segmental involvement is mainly due to atherosclerosis but can be due to medial degeneration, Ehler Danlos syndrome, Marfan's syndrome, giant cell arteritis, Takayasu's arteritis, infection, or injuries.

SAA usually require treatment for an array of complications: distal embolization and ischemia, neurological symptoms from brachial plexus stretching, thrombosis causing ischemia, or rupture. Reconstruction techniques using 3-D cross sectional imaging can be used to for visualization of all arteries connecting to the aneurysm. Conventional angiography is the gold standard for the diagnosis of aneurysm. Current elective surgical treatment involves both resection of the aneurysm and reconstruction via an

end-to-end anastomosis or an interposition bypass graft³⁻⁵. Endovascular embolization techniques have been used to control small and medium size vessels and are appropriate for pseudoaneurysms in relatively inaccessible locations¹. Herein, we discuss the rare case of giant right subclavian-axillary artery aneurysm presenting as brachial plexopathy in a 60 years old hypertensive patient.

CASE REPORT

60 years old female patient was referred to the Surgical Department of Civil Hospital Karachi in September 2016 with presenting complains of right sided upper chest mass, Difficulty in moving the shoulder and arm with loss of sensation for last 3 weeks. The mass was present for last 2 years; initially it was pea size and in last few weeks has rapidly grown to the size of tennis ball. It was associated with large areas of bruises and ecchymosis over right upper limb, chest and abdomen. The patient was known hypertensive and diabetic -not compliant to the treatment. The hematological examination was unremarkable except for mildly raises total leukocyte count i.e 12,900 per microliter. On Physical examination, blood pressure of 170/90 mm

Hg was noted. Right upper limb was congested & edematous. All the peripheral pulses were unremarkable. A 10x20cm mass with brownish discoloration was seen at right clavi-pectoral region, firmly attached to skin, not mobile. The right axillary lymph nodes were enlarged and palpable. The neurological examination revealed the right upper limb with complete loss of power in all muscles, diminished reflexes, and sensory impairment over right deltoid region with winging of scapula and lateral deviation. Nerve conduction studies (NCS) NCS and cross-sectional imaging were performed subsequently. Side-to-side comparisons of sensory amplitudes in the median, ulnar, radial nerve and Medial and lateral antebrachial cutaneous nerve were made. Sensory nerve action potential amplitude (SNAP) was reduced with increased distal latencies in all the sensory nerves of right upper limb as compared to left side – consistent with brachial plexopathy.

Computed tomography of Chest was performed on 16 slice Toshiba Spiral CT scanner in pre and post contrast phases and scanning parameters of 120 KV, 150mA and 5mm slice thickness. CT Angiography was also performed - MSCT images were obtained after a bolus of Ultravist 370mg/ml injected with a power injector at a flow rate of 4ml/sec. There is aneurysmal dilatation of the right extra thoracic – subclavian and proximal segment for the length of 9.2cm. The sac measures 8.2cm; it showed mural thrombus and foci of calcification. It is causing pressure effects over the adjacent vessels No evidence of intraluminal filling defect, contrast extravasation, perilesional hematoma or fluid collection seen (Figure 1 &2). There is increased transverse cardiac diameter with cardiothoracic ratio of 15/24.5cm. Multiple enlarged

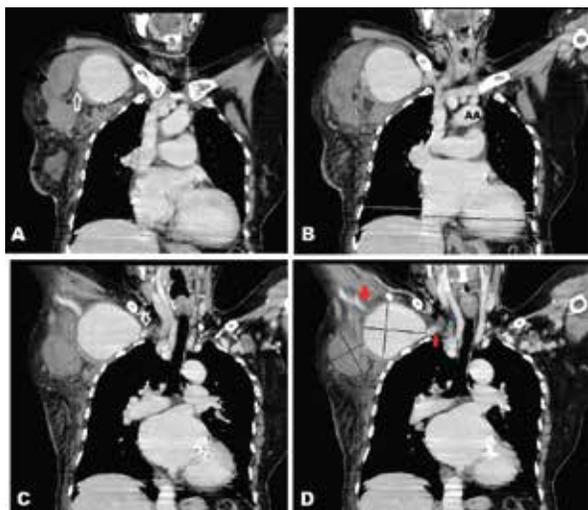


FIGURE 1: Post Contrast Arterial Phase Contiguous

Coronal reformatted CT images upper thorax (from anterior to posterior) showing the aneurysm on the right side arising from the subclavian and axillary artery [red arrows in Fig. D], entry and exit points of the aneurysm [white arrows in Fig. A & C], scattered calcifications and mural thrombus [thin black arrows in Fig. C]. Enlarged right axillary lymph nodes [black arrows in Fig. A] and cardiomegaly [thin black line in Fig. C]

heterogeneously enhancing lymph nodes were seen in the right axilla associated with fat stranding, largest of them measures 7.1x 4.0cm. Asymmetry of breasts seen; right breast is enlarged with trabecular and skin thickening measuring 1.1cm (Figure 3). The patient was further evaluated by vascular surgery unit.

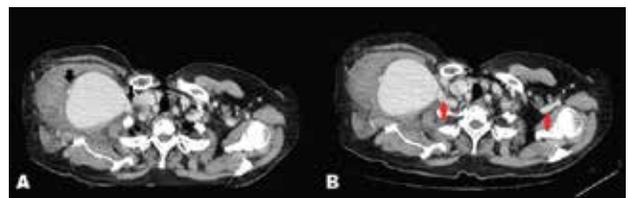


FIGURE 2: Post Contrast Contiguous axial CT sections showing aneurysm [black arrows in Fig. A.] Contralateral subclavian artery also visualized [red arrows in Fig. B]

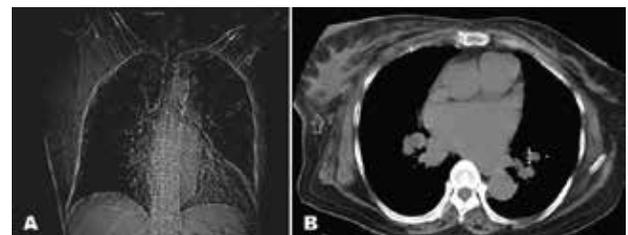


FIGURE 3A: Scout CT shows homogenous haze over the right shoulder and axilla. Fig. 3B-Plain CT displaying right breast edema [white arrow].

DISCUSSION

The present case describes a progressively enlarging firm mass adherent to the skin in the right upper chest of 60 years old hypertensive and diabetic female causing ipsilateral limb congestion, reactive axillary lymphadenitis, breast edema and brachial plexopathy as evident by EMG/NCVS. Our initial differentials in this case were chest wall rhabdomyosarcoma/angiosarcoma, with focal axillary lymphadenopathy and intumoural bleed and extravasation of blood in tissue planes. The CT scan unexpectedly reveals a giant aneurysm in the right subclavian axillary artery. True SAA are rare. They represent a significant risk for rupture, embolization, or thrombosis, and therefore should be considered for surgical treatment⁶. In a

literature review, Hobson et al identified 195 cases of aneurysms and found only 1% of all peripheral aneurysms originated from the subclavian artery. Dent et al⁷ reviewed the location of atherosclerotic aneurysms in 1,488 patients, with isolated subclavian lesions occurring in only 2 patients (0.13%). In Pakistan, Babar SM⁸ prospectively analyzed 51 upper limb aneurysms at DMC and Civil Hospital, Karachi, in a four-year period (1986- 1990) and found penetrating trauma as a main cause in 96% of the patients. Naz I et al⁹ at AKUH described the etiology, mode of presentation and outcome of surgical management of 10 patients presenting with Subclavian artery aneurysms between 1990 and 2010. Only one had it secondary to atherosclerosis.

Esteves FP et al¹⁰ in 2013 described two case reports of aneurysms of the subclavian-axillary segment, both successfully treated with aneurysmectomy and end-to-end anastomosis. The first case was a 71-year-old male with atherosclerotic right subclavian artery aneurysm and the second case was a 24-year-old female with congenital right axillary artery aneurysm. Our patient was further evaluated by vascular surgery unit; early aneurysmectomy and arterial reconstruction with saphenous vein graft interposition was planned, but due to financial issues, it was delayed. Unfortunately, she succumbed to death due to spontaneous aneurysm rupture. In 2013, Patra S et al¹¹ in India also reported death as a complication of spontaneous aneurysmal rupture of the common iliac artery in a 15 year child. Zhan B et al¹² present a case report of the patient with severe dyspnea due to compression of trachea by a 7 cm large subclavian artery aneurysm. The giant fusiform subclavian - axillary artery aneurysm (diameter=8.2cm), most likely of atherosclerotic origin, in concordance with clinical scenario, was unique to our case along with rare presentation of brachial plexopathy.

CONCLUSION

SAA although rare should be included in the differentials of subcutaneous chest mass particularly with predisposing history of atherosclerosis and should be further evaluated with CT scan/ CT angiography.

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Author's contribution:

Mahnoor Hafeez: Study concept and design, data collection, data analysis, manuscript writing, manuscript review

Ateeque Ahmed Khan: data analysis, manuscript writing, manuscript review