CASE REPORT

Rare Cause of Horner's Syndrome: Pseudoaneurysm of Right Subclavian Artery in an Intravenous Drug User

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Summary

Pseudoaneurysms of the subclavian artery are extremely rare lesions despite the overall increase in the frequency of septic pseudoaneurysms caused by illicit parenteral drug abuse. A case of subclavian artery pseudoaneurysm presenting with Horner's syndrome in an intravenous drug user is discussed.

Key Words: Horner's syndrome, Subclavian artery pseudoaneurysm, Intravenous drug user

Introduction

Pseudoaneurysms of the subclavian artery are extremely rare[1]. The clinical findings and pathophysiology related to the location of these rare lesions are presented. Because of the complexity of symptoms, delay in diagnosis is common. A high index of suspicion based on history and physical examination should prompt emergency angiography that will confirm the diagnosis. Only an aggressive surgical approach can reduce the morbidity and mortality rates associated with these rare but potentially fatal lesions.

Case Report

A 25-year-old HIV positive intravenous drug user (IVDU) was admitted to the medical ward with right-sided neck, chest, shoulder and right arm pain of one-week duration. He also had a productive cough and was managed by the medical team before being referred to the vascular unit. He has been injecting heroin into various part of his body including his right and left supraclavicular region for sometime. On physical examination, he was afebrile with multiple bilateral cervical lymphadenopathies. The right side of his neck, chest, shoulder and supraclavicular area was markedly swollen and tender. Miosis of the right eye and right-sided ptosis and facial anhidrosis was also noted. The right brachial, radial and ulnar pulses were also not palpable but were faintly audible with a monophasic waveform on Doppler ultrasonography. All his cranial nerves were intact. His right upper limb was congested but capillary return was still normal. There was no loss of power and sensation.

Chest X-ray showed a mass in the superior mediastinum. This was confirmed by chest CT to be a pseudoaneurysm of the proximal right subclavian artery (Fig.1). Colour Duplex ultrasonography examination confirmed the pseudoaneurysm of the right subclavian artery with possible compression on the axillary artery causing a reduction in blood flow.

An arteriogram was arranged prior to further surgical intervention. However, he absconded from the ward on the night before the angiogram and only returned to the

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ward again the next day with symptoms of leaking pseudoaneurysm. He was pale, tachycardic, dyspnoeic and in hypovolumic shock. He also had an episode of haemoptysis. He subsequently succumbed to the rupture of the pseudoaneurysm despite resuscitation.

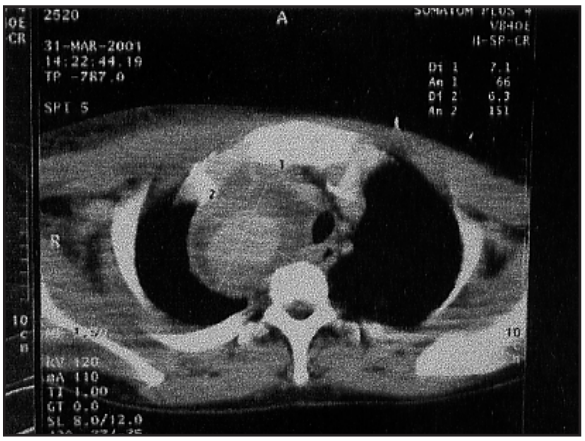

Fig. 1: Chest CT show the right subclavian artery pseudoaneurysm

Discussion

Horner's syndrome is characterized by an interruption of the oculosympathetic nerve pathway somewhere between its origin in the hypothalamus and the eye. The classic clinical findings associated with Horner's syndrome are ptosis, pupillary miosis and facial anhidrosis. Other findings may include apparent enophthalmos, increased amplitude of accommodation, heterochromia of the irides (if it occurs before age 2), paradoxical contralateral eyelid retraction, transient decrease in intraocular pressure and changes in viscosity of tears.

Interruption at any location along the preganglionic or postganglionic pathways will induce an ipsilateral Horner's syndrome. The common etiologies of Horner's syndrome include trauma, aortic dissection, carotid dissection, tuberculosis, Pancoast tumor, cluster migraine headache, neck or thyroid surgery and very rarely pseudoaneurysms of the subclavian artery.

Pseudoaneurysms of the subclavian artery itself are extremely rare lesions despite the overall increase in the frequency of septic pseudoaneurysms caused by intravenous drug users. Repeated attempts at deep venous injection will commonly result in inadvertent arterial wall injury with the following consequences, intimal flap, arteriovenous fistula, or pseudoaneurysm formation[1].

The overall increase in incidence of infected pseudoaneurysms in general can be explained on a multifactorial basis. With frequent injection of venous systems in long-term drug users, the superficial veins would have long since sclerosed. Therefore the deep veins become the target for the drug users. There is also no regard for aseptic precautions. Arterial and periarterial sepsis commonly occurred along with the emergence of more virulent organisms. These factors, coupled with an accidental arterial puncture, led to the formation of a septic haematoma. In this environment, there is a continued deterioration of the vessel wall, with eventual rupture and formation of an infected pseudoaneurysm[2].

The clinical presentations include an obviously septic patient with a tender supraclavicular mass related to the vessel involved and the pressure effect on the surrounding structures in the supraclavicular region. Nerve compression causing brachial plexus palsy and Horner's syndrome, a swollen edematous arm due to venous stasis, and haemoptysis due to erosion of the infected pseudoaneurysm into the apical lung parenchyma may be observed. Although our patient did not show an obvious septic picture, he presented with tender right supraclavicular mass, swollen and oedematous right arm and miosis of he right pupil, right-sided ptosis and right facial anhidrosis. The right Horner's syndrome was probably due to the compression by the expanding lesion, even though direct needle injury to the distal sympathetic fibers in the neck cannot be ruled out[3].

A careful history, physical examination and a high index of suspicion for supraclavicular swelling should always be maintained. These lesions may be misdiagnosed as cellulitis or subcutaneous abscess. A history of rapid enlargement of a neck mass, the presence of a thrill or bruit, or aspiration of brownish, bloody, purulent material should always raise the suspicion of an infected pseudoaneurysm[4].

It is emphasized that the recognition of this constellation of symptoms should prompt the physician to perform emergency angiography followed by immediate surgery. Diagnosis can usually be made using angiography and

computed tomography. The angiography should be utilized liberally when a patient presents with an inflamed mass located near a major artery[2].

Treatment consists of appropriate antibiotics and resuscitative measures followed by urgent surgical intervention. Transcatheter embolization is technically feasible and effective enough to treat the infected pseudoaneurysm of the subclavian artery even in the situation in which the surgical option seems to be difficult or risky.

The trapdoor approach provides better proximal exposure and control as compared to the supraclavicular approach, but may be associated with a higher morbidity caused by the invasion of multiple anatomic areas adjacent to the septic lesion. Attempts at vascular reconstruction should be made only after excision of the pseudoaneurysm results in signs of limb-threatening ischemia.

With increasing intravenous drug use, this rare presentation of Horner's syndrome may become more common. A high index of suspicion should prompt emergency angiography that will confirm the diagnosis. An aggressive surgical intervention is required in order to reduce the morbidity and mortality rates associated with these rare, potentially fatal lesions.

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