FALSE ANEURYSM OF THE CAROTID ARTERY WITH HORNER'S SYNDROME DUE TO BLUNT TRAUMA

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Introduction

Traumatic aneurysms of the Common Carotid artery are very rare, occurring in 1.7% of all patients with penetrating neck trauma [1] and much less following blunt trauma [2]. There has been a rising trend in trauma; a case is presented to highlight Physician awareness and the management of such cases.

Case Report

A 30-year-old Airman sustained injuries in a road-traffic-accident and had severe pain in the left shoulder region and multiple abrasions. At a zonal hospital, clinical and radiological exam revealed a left side clavicle fracture with no complications. He was fully awake and able to move all his limbs. He was treated with a figure of eight bandage and analgesics. After seven days he was noticed to have an expanding soft tissue swelling on the left side of the neck. The patient was evacuated to a tertiary care centre. Further examination confirmed a large pulsatile neck swelling with a thrill, which was painful and had increased in size. A detailed neurological examination showed a left Horner's syndrome. The patient had no lateralising sign. Duplex scan and an angiogram (Fig-1) showed a large false aneurysm of the common carotid artery alongwith a Carotid Jugular fistula.

The patient was operated and an incision was made anterior to the sternocleidomastoid muscle. Proximal and distal vessel control was achieved and the aneurysm sac was exposed and opened after clamping the Carotid artery and placement of a shunt. A rent in the Jugular vein was closed by 5/0 Prolene suture and the hole of 3x2 cm on the anterolateral aspect of the common carotid artery (Fig-2) was repaired with a patch of the Great Saphenous vein. The patient recovered uneventfully and follow up has revealed no adverse effect except for the persistence of the Horner's syndrome.

Discussion

Carotid arteries may be injured by penetrating or blunt trauma and are the most difficult and life threatening of all neck injuries. Mortality rates of 20-40% and permanent neurological impairment in 40-80% are reported [4]. Davis et al reported only 0.08% incidence of carotid artery dissection in blunt trauma patients [5]. The pathogenesis of carotid injury is trac-

tion, followed by a tear in the intima or the media, platelet aggregation and subsequent thrombosis, embolism and cerebral ischaemia. Carotid injury due to hyperextension of the neck causing longitudinal traction and impingement against the lateral mass of the atlas [6] and transverse process of the spine [7] is reported. It can also occur following acute hyperflexion injury, causing compression between the mandible and spine[3]. The other reported factors in literature are injury by a high riding shoulder strap or a safety belt [8], a long styloid process' [5], mandible fracture [9], and traction of the hypoglossal nerve against the carotid artery [10].

Li et al [3] reviewed the last 100 cases of blunt carotid injury and found that 70% presented with some lateralising sign and facial or extremity weakness. They also found false aneurysm in only 1 case clinically and 8 of 100 cases by angiogram. Horner's syndrome was seen in 5 cases but no association with false aneurysm is mentioned. False aneurysm is more common in penetrating than blunt trauma and can develop immediately or months after injury, and half of these are missed initially [11]. Frykberg et al [12] studied the natural history of clinically occult arterial injuries and found 1 false aneurysm in 19 patients. It was the only lesion needing surgery of all vascular injuries in his study. False aneurysms can be associated with arteriovenous fistulae at the initial stage or later on due to local erosion. Blunt carotid trauma should be suspected in young patients who have a sudden unexplained change in the mental status or who demonstrate neurologic deficit after trauma. The CT scan of the head is usually normal. Duplex scan (colour Doppler) is a useful screening modality with a great future promise. Angiography is the Gold standard and should be done in obvious clinical signs of a thrill, expanding mass or any neck injury associated

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Fig. 1 : Angiogram is showing a large carotid artery aneurysm and venous fistula

with a change in the level of consciousness or lateralising neurologic findings unexplained by CT scanning. Literature review [3] suggests that carotid vessel occlusion, without a false aneurysm or an AV fistula, with or without cerebral vessel occlusion may be better treated with anticoagulation. If anticoagulation fails and CT scan does not show cerebral infarction then revascularisation may be considered. Also patients with severe neurologic deficit at initial examination do better with surgical revascularisation. The patients in coma with advanced infarction on CT scan do not improve with surgery and there is serious risk of reperfusion haemorrhage. A false aneurysm presents as a pulsating tumour and a bruit can be heard over it. Duplex scan and angiography can visualize these. False aneurysms must be treated if they enlarge or become symptomatic. The danger is rupture, thromboembolism, septicaemia, local compression and damage to neck structures. Management of false aneurysm depends upon the size and location of the lesion; Common carotid and accessible location aneurysms are repaired. If they are located in inaccessible areas, then the larger ones are embolised while the smaller aneurysms can be treated with anticoagulation. Some require extra cranial to intracranial bypass [4]. The treatment of choice is resection and primary repair. If the defect of the artery is big, a patch graft or an interposition graft

Fig. 2 : Operative photograph showing the hole in the carotid artery, with a shunt in the lumen

is needed to restore vascular continuity. The preference is for an autogenous tissue than prosthetic material, especially in a child. The Great saphenous vein is the most useful graft. Awareness and prompt treatment is recommended in such cases.

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