www.jmscr.igmpublication.org
Impact Factor 5.84
Index Copernicus Value: 83.27
ISSN (e)-2347-176x ISSN (p) 2455-0450
crossref DOI: https://dx.doi.org/10.18535/jmscr/v5i4.47

IGM Publication
Journal Of Medical Science And Clinical Research
An Official Publication Of IGM Publication

Pulsatile Neck: A Rare Case Report

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Abstract
Common carotid artery aneurysms are rare but lethal whenever present. Early diagnosis and adequate treatment is required in order to prevent rupture or neurologic sequelae. We represent a rare case of asymptomatic pulsatile swelling in the right side of neck.
Keywords: *Common carotid artery, aneurysms, asymptomatic.*

Introduction

A mass appearing in the neck in carotid region can be either of vascular or lymphatic neurogenic in origin. The aneurysms of extracranial carotid arteries are rare, but since they may cause thromboembolic complications leading to stroke they deserve special attention in differential diagnosis of lesions at carotid region. Clinical findings and treatment depends on the type, dimensions and localization of the aneurysm. Surgical approach is preferred to medical therapy due to complications such as stroke due to thromboembolism, rupture, cranial nerve injury originating from large aneurysms. The main goal in the management of extracranial common artery aneurysms is to prevent thrombo-embolic complications of the aneurysm.

Case Report

A 75 year old male was admitted in the department of medicine for increased shortness of breath, bilateral pedal edema and pain abdomen. On examination there was cyanosis, pulse was 86/ minute, blood pressure was 132/76 mmhg. He was on treatment for Chronic Obstructive Pulmonary Disease.

There was a pulsatile swelling on the right side of neck (Figure 1). There was no pain, no difficulty in deglutition, no ptosis, no horseness of voice. Patient as well as attendent was unaware of the swelling. On ultrasound of the neck aneurysmal dilatation of size 3.5cm×3.5 cm of right common carotid artery was found. (figure 2).

Discussion

An aneurysm is a bulge or ballooning of the wall of a blood vessel. This can occur in any of the

arteries including the carotid arteries in the neck, which carry blood to the brain, Extracranial carotid artery aneurysms are uncommon. Overall, extracranial carotid artery aneurysm accounts for less than 1 percent of all arterial aneurysms and approximately 4 percent of peripheral artery aneurysms [1]. A true aneurysm is one that involves all three layers of the wall of an artery. A false aneurysm also called as pseudo aneurysm, is a collection of blood leaking out of an artery or vein, but confined to the vessel and enclosed by the surrounding tissue. This blood-filled cavity will eventually form either thrombosis enough to seal the leak, or rupture out of the surrounding tissue. Pseudoaneurysms can be caused by trauma that punctures the artery, such as knife and bullet wounds, as a result of percutaneous surgical procedures such as coronary angiography or arterial grafting or use of an artery for injection.

Figure 1 Swelling on the right side of neck.

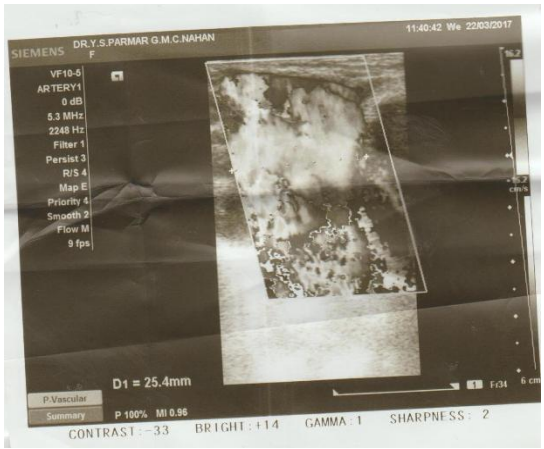

Figure 2 Dilatation of external carotid artery

Causes of aneurysmal dilatation of vessels can be degenerative and atherosclerotic, post-traumatic, post-endarterectomy, arterial dysplasia or may be related to infections, irradiation or cervical surgery [2], Currently, atherosclerosis is the most cause, accounting for 40 to 70% of cases [3]. These aneurysms tend to be fusiform and habitually involve the carotid bifurcation. Penetrating traumatic injuries to the cervical region can compromise the carotid artery in 12 to 17% of cases and a small number of these can develop pseudoaneurysms [4].

As the diameter of the aneurysm increases, adjacent structures are compressed, causing localized symptoms, pain, dislocation of the trachea and esophagus and neurological involvement. Embolization can cause strokes and although rupture is rare, but the consequences are devastating [5].

Early diagnosis and anatomical characteristics of the aneurysms are important in terms of both surgical and endovascular treatments. Ultrasound imaging is initially useful for cases with palpable pulsatile mass at neck region [6]. It determine the size and extension of the aneurysm .The diagnosis may be established by Doppler ultrasound, which has the advantage of being relatively inexpensive, non-invasive and does not expose the patient to ionizing radiation. Conventional digital subtra-ction angiography remains the "gold standard" but has been largely supplanted by CT angiography, which may provide extra-vascular anatomical details which may be utilized to plan the surgical approach. 3 dimensional -CT angiography have advantages such as easy and rapid applicability, it is a minimally invasive method, having no manifest complication besides contrast medium allergy, capability of rotating the images 360°[7]. The most important advantage of CT angiography is its capability of evaluating images on preferred planes and angles on the screen. Magnetic resonance angiography (MRA) is a non-invasive method that can visualize vascular structures without a need for contrast medium or X-ray. Magnetic resonance angiography (MRA) can

manifest the thrombosed portions of aneurysms, residual lumina and flow characteristics.

The natural course of extracranial carotid arttery aneurysm is still hardly understood. Since knowledge of the natural course is required to give benefit of any type of treatment, thus far no treatment guideline or expert consensus for the management of extracranial carotid artery aneurysm has been developed [8]. The main goal in the management of extracranial carotid arttery aneurysm is to prevent thrombo-embolic compli-cations of the aneurysm. Medical therapy in extracranial carotid arttery aneurysm remains unexplored and needs to be further investigated.

Operative therapy has been advocated for any extracranial carotid arttery aneurysm because of the high mortality risk in non-operated cases [9]. Endovascular treatment with a stent may be the most favored option of the invasive treatments.

In the case described here, the exclusive involvement of the external carotid artery and size may be still increasing to reach a considerable diameter before any significant symptoms emerged. Patient may be unaware of the swelling because of very slow progression aneurysm.

Conclusion

Extracranial Common Carotid artery aneurysm are rare but lethal if present. There is no consensus in treatment. The early and long-term outcome of invasive treatment in Extracranial Common Carotid artery aneurysm is favorable; however, cranial nerve damage after surgery occurs frequently.

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