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Case Report

Giant Pseudo Aneurysm of Ascending Aorta

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Abstract

Aortic pseudo aneurysms are rare, life-threatening complication that usually occurs after cardiac or aortic surgery. In most cases, pseudo aneurysms of the ascending aorta are asymptomatic. We report the case of a 54-year-old Brazilian man, asymptomatic, who presented with a giant pseudo aneurysm of the ascending aorta, without previous history of cardiac surgery. The aneurysm size was 8.5 × 7.4 × 10.3 cm showing signs of old rupture. The patient died on the sixth postoperative day due to infectious complications.

Learning Objective

To elucidate the diagnosis, treatment and survival of aortic pseudo aneurysm, especially in an atypical case due to exuberance in the clinical manifestation.

Introduction

Aortic pseudo aneurysms result from disruption of the intima and media of a vessel. They are contained by the adventitia and surrounding structures of the mediastinum [1] The incidence of ascending aortic pseudo aneurysm is rare (<1%) and mortality is high [2-4]. In most cases, ascending aortic pseudo aneurysms are asymptomatic.

Case report

In October 2015, a 54-year-old Brazilian man, hypertensive and smoker, arrived at the hospital with a 2-year history of mass with progressive increase initially located in a region of furcular sternal and extending later to the left cervical region (Figure1). He denied any other symptoms, chest trauma, surgery or genetic disorders. Chest radiography showed mediastinal enlargement (Figure2).

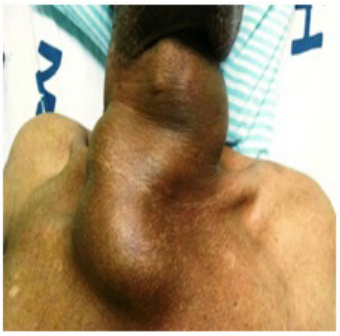

Figure 1: Patient's neck -> Showing tortuous tumor in the anterior thoracic and cervical left.

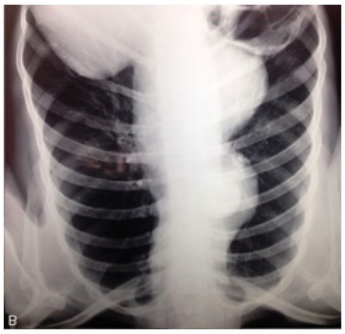

Figure 2: Chest radiography.

Computed tomography (CT) with contrast agent revealed a massive pseudo aneurysm of the ascending aorta, [5] measuring in its largest axes 8.5 × 7.4 × 10.3 determining cm and showing a proximal right and wide neck, measuring 3.7 cm and distal neck measuring 1.6 cm, posterior compression on the trachea and left bronchus, in addition to erosion of the retrosternal bony structures (Figure 3 and 4).

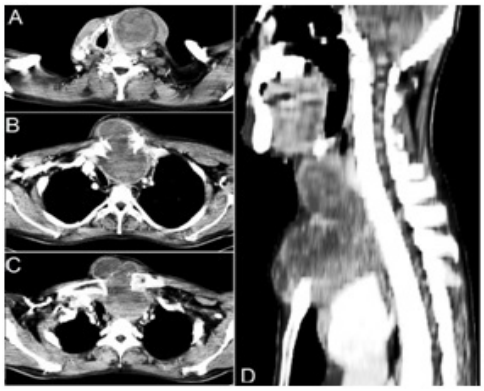

Figure 3 (A-D): Chest computed tomography with axial reconstructing showing a large pseudo anerysm in ascending aorta and with sagittal reconstructing showing a large pseudo aneurysm in ascending aorta in cranio caudal extent with deviation of trachea and erosion of retrosternal bony structures.

The surgery was performed with great technical difficulty. Before sternotomy, cardiopulmonary bypass (CPB) was instituted by means of right femoral artery perfusion and right femoral venous drainage. Hypothermic circulatory arrest was established. Durin sternotomy, noted destruction of the sternal manubrium and the presence of thrombus in the aortic arch. Made surgical repair with patch (Dacron), which was placed and fixed in the area of aortic rupture and removed the trombis. CPB time was 135 minutes and circulatory arrest was 57 minutes. Unfortunately, the patient died 6 days after surgery due to septic shock secondary to nosocomial pneumonia.

Discussion

Aortic pseudo aneurysms result from the rupture of the intima and media of a vessel. They are contained by the adventitia and surrounding structures of the mediastinum [1].

The incidence of ascending aortic pseudo aneurysm is rare (<1%), and usually results from complications of cardiac surgery in which the ascending aorta is cannulated or incised [2]. Other possible causes are infection, genetic disorders or trauma, but a large percentage is due to mechanical rupture of sutures in the aorta [1,6].

In most cases, as in this case, the pseudo aneurysms of the ascending aorta are asymptomatic. A simple chest x-ray may detect enlargement of the mediastinum and the diagnosis can be confirmed with computed tomography and echocardiogram [7].

The risk of rupture of pseudo aneurysms should be taken into account, especially of large masses, to indicate emergency treatment [6]. Despite reports of percutaneous exclusion of false aneurysms, surgery is still required for most cases [8].

From the surgical point of view, the treatment of pseudo aneurysms of the ascending aorta remains a challenge. A major surgical challenge is to choose an approach that enables safe entry into the chest when a pseudo aneurysm has eroded the bony structures. The use of appropriate technique will avoid catastrophic hemorrhage during sternotomy. The chief objectives are to control the aortic defect during mediastinal dissection and to preserve adequate cerebral perfusion [1].The best approach to CBP remains undefined and depends upon the site and size of the ascending aortic pseudo aneurysm. Femoral or auxiliary arterial cannulation for CPB has been suggested, [1,9-11] but the risk of stroke remains.

The mortality is not clear in the literature, ranging from 6.7 to 46%, being in most cases, as a result of fatal hemorrhage, due to rupture of the pseudo aneurysm during surgical maneuvers for its treatment [1,3,4]. Pettersson and associates used an intra-aortic occlusion balloon catheter to minimize the risk of rupture of an aortic wall defect [11]. Although this novel technique could be used in the treatment of small-necked ascending aortic pseudo aneurysms, it does not minimize ventricular distention in patients with aortic insufficiency.

In patients with giant pseudo aneurysms of the ascending aorta, sternal entry is a formidable challenge. Careful preoperative planning can enable safe entry. A combination of techniques can mitigate and minimize blood loss. Methods for preservation of cerebral perfusion should be considered [1].

Every case of ascending aortic pseudo aneurysm is individual and should be managed accordingly. In this case, the surgery was successful, but the patient died of septic shock secondary to nosocomial pneumonia.

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We would like to Ana Nery Hospital Staff.

Disclosure Statement

The authors have no conflicts of interest to disclose.

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