International Journal of Research in Medical Sciences
Bhatt Y et al. Int J Res Med Sci. 2018 Jan;6(1):359-361
www.msjonline.org
pISSN 2320-6071 | eISSN 2320-6012
DOI: http://dx.doi.org/10.18203/2320-6012.ijrms20175750

Case Report

An unusual cause of hemoptysis due to leaking subclavian artery pseudoaneurysm secondary to trauma

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Received: 16 October 2017
Accepted: 20 November 2017

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ABSTRACT

Pseudoneurysms of the subclavian artery after blunting thoracic trauma presenting with a complication of hemoptysis are rare, most of which occur early, within days of trauma and represent a challenging surgical problem. Only a few scattered case reports are found in the literature. Here, we present the case of a 36-year-old male, with a history of blunt injury to the chest with right clavicular fracture, a few years back, who presented with cough, hemoptysis and shortness of breath of five days duration. On complete evaluation it was found that these complaints were due to a sub clavian artery pseudo aneurysm in the proximal part, which is compressing on the right upper lobe bronchus and blood leaking into the parenchyma and airways producing the symptoms. He was managed conservatively and stabilized. Later aneurysm resection and anastomosis was done electively. The patient is now asymptomatic and healthy.

Keywords: Hemoptysis, Pseudo aneurysm, Subclavian artery, Thoracic trauma

INTRODUCTION

Blunt injury to the thoracic great vessels is relatively rare, representing less than 5% of traumatic vascular injuries, with the penetrating mechanism predominating.[1]

The true incidence of lesions in the supraaortic vessels secondary to a blunt trauma is difficult to determine, being underestimated because most of the patients die suddenly and are rarely included in clinical series of vascular lesions.[2] Aneurysms of the sub clavian artery are rare and presentation with hemoptysis as a late complication appears to be unusual.

CASE REPORT

A written informed consent was taken from the patient and also the institutional ethical committee permission was obtained. A 36-year-old male non-smoker presented to Bhaskar hospital, with complaints of cough, shortness of breath (grade2-mMRC) and blood in sputum (hemoptysis) for the last five days. Hemoptysis was of mild to moderate quantities and was streaky.

There are no complaints of fever, chest pain, wheezing, loss of weight or anorexia. He had no similar complaints in the past. He had a history of road traffic accident four years back when he had blunt chest injuries for which he was managed conservatively and discharged. He is completely asymptomatic ever since. There were no such complaints in his family nor there is a history of tuberculosis or malignancies. His vital signs like pulse rate, blood pressure, oxygen saturation, temperature was all within normal limits. Respiratory examination showed decreased respiratory movements on the right upper chest, dullness on light percussion and diminished breath sounds in the areas corresponding to right upper lobe.

Another systems examination was normal. Routine blood investigations and coagulation parameters were normal. Sputum for acid-fast bacilli was negative. His chest radiograph showed a right upper zone homogenous opacity with hemi diaphragm elevation on the same side and right fracture clavicle (Figure 1) Contrast enhanced CT scan was performed which showed a moderately enhancing homogenous opacity adjacent to right upper lobe bronchus compressing over it externally causing its collapse.

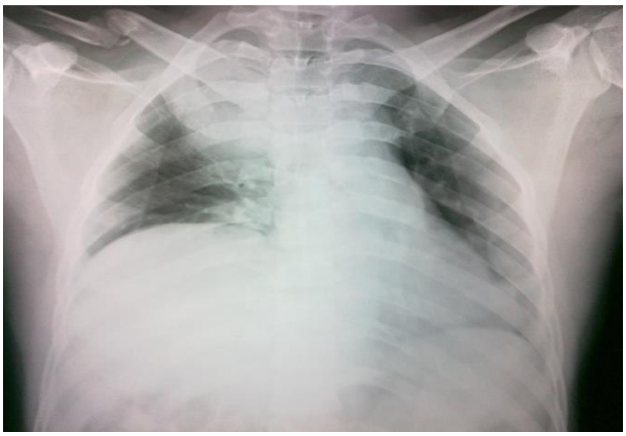

Figure 1: Chest x-ray showing right upper zone homogenous opacity with hemidiaphragm elevation and fracture right clavicle.

The patient deferred a bronchoscopic evaluation. A vascular lesion was suspected, and CT pulmonary angiogram was performed for further confirmation. CTPA revealed a well delineated aneurysm in the proximal part of the right subclavian artery (Figure 2) which has resulted from the blunt injury of the chest the patient had four years back. Compression on the bronchus and leaking of blood from the pseudo aneurysm into the parenchyma and airways lead to the present symptoms in this patient. The patient was managed conservatively and was stabilized. Later resection of the aneurysm and anastomosis were done electively.

Figure 2: CT pulmonary angiogram showing subclavian artery aneurysm in the proximal part.

DISCUSSION

Blunt injuries to the subclavian artery usually result from a rapid deceleration force applied to the neck, chest, and upper extremities, most frequently from motor vehicle accidents or falls.[3] Clavicle fractures are frequently associated with these injuries (up to 50%) although vascular injury is rarely seen with clavicular fracture alone.[4]

After trauma if the mechanism of injury results in vessel avulsion the patient may die prior to arriving at the hospital, or may not survive operation. More commonly, thoracic trauma results in arterial wall disruption with pseudoaneurysm formation, which may not become symptomatic until years later.[5] Pseudoaneurysms are defined as a contained rupture of the arterial wall, in which true blood collection without walls, is still in contact with the artery through a channel.

The most frequent traumatic pseudoaneurysms are in the common femoral artery; the majority are secondary to arterial catheterization, infections, surgical procedures, and/or radiology interventions, and in a very few cases have been described the injury of the subclavian artery secondary to a blunt trauma.[6] The sequence of injury involves rupture of the inner intimal and medial layers with subsequent delayed rupture of the adventitia. Hyperextension and traction on blood vessels due to Callus have been postulated as additional mechanisms.[7]

Most patients with aneurysms of the subclavian artery are symptomatic with localized pain, Horner's syndrome, hoarseness, and paresthesia of an arm. However, hemoptysis is an unusual presentation.[8]

On the basis of history, physical examination, and chest x-ray findings, if subclavian artery injury is suspected and clinical conditions allow, one should proceed to angiography.[4,9] Angiography not only confirms the clinical diagnosis but also is essential to the expeditious exposure of the injury, which may be difficult and may require multiple time-consuming incisions.[9,10]

Blunt subclavian artery trauma can be successfully managed with early use of arteriography and prompt surgical correction by a variety of vascular techniques. Vascular morbidity is usually low, but long-term disability because of chronic neuropathy may result from associated brachial plexus nerve injury despite a successful arterial repair.[11]

CONCLUSION

Subclavian artery aneurysms should be considered in the differential diagnosis of any hemoptysis and chest mass noted on a chest x-ray, especially with a history of blunt injury to the thorax with clavicular fracture. Arteriography is the diagnostic study of choice as it allows for surgical planning. Aneurysm resection and

anatomic vascular reconstruction is the preferred treatment.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not required

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Cite this article as: Bhatt Y, Waseem MA, Zahera M. An unusual cause of hemoptysis due to leaking subclavian artery pseudoaneurysm secondary to trauma. Int J Res Med Sci 2018;6:359-61.