

Thoracic Aortic Ulcer: A Case Report-Differential Diagnosis for Hemoptysis

Francisco de Assis Cury¹, Celso Murilo Nalio Matias de Faria², Henrique Nietmann^{2*}, Isaac de Faria Rodrigues³ and Pacetti Marie⁴

¹Chief Discipline, FAMERP Thoracic Surgery, Brazil

²Thoracic Surgeon Assistant, FAMERP (Faculty of Medicine of Sao Jose do Rio Preto), Brazil

³Resident Thoracic Surgery, FAMERP (Faculty of Medicine of Sao Jose do Rio Preto), Brazil

⁴Academic, FAMERP (Faculty of Medicine of Sao Jose do Rio Preto), Brazil

*Corresponding Author: Henrique Nietmann, Thoracic Surgeon Assistant, FAMERP (Faculty of Medicine of Sao Jose do Rio Preto), Brazil.

Received: June 26, 2018; Published: August 20, 2018

Abstract

Hemoptysis is the bleeding from the lower airways and may vary from rays of live blood in the drain to large volumes of blood. Proper diagnosis and treatment and at the correct time diminish your morbidity-mortality. This work presents a rare case of penetrating thoracic aortic ulcer (UPA), which was the main clinical manifestation of hemoptysis, and the Protocol of our service for the massive bleeding of the airways. Case of an elderly patient, 73 years, with multiple comorbidities, Admitted In the emergency with a suggestive frame of hematemesis, evolving with acute respiratory failure. After the stabilisation of the frame, complementary examinations were carried out which identified the airways as probable site of bleeding. The evaluation of thoracic surgery, With Bronchoscopy and Angiotomography of Chest, allowed The diagnosis of UPA, being then performed joint therapeutic complementation with Vascular surgery with Arteriogram and endovascular prosthesis. After the procedure, the patient followed for recovery in intensive care unit (ICU) leaving the hospital after five days and is currently in ambulatory monitoring. The UPA must be Remembered As a rare cause of hemoptysis. As component of acute aortic syndrome (SAA); It makes differential diagnosis with intramural hematoma and aortic dissection. The Protocol of our service Before the Hemoptysis includes hemodynamic monitoring, conduct of bronchoscopy and clinical stabilization in UTI to allow treatment Definitive, be it surgical or hemodynamic. The Arteriogram has its character of invasive examination, but it has diagnostic and therapeutic importance.

Keywords: Hemoptysis; Penetrating Ulcer of the Aorta; Bronchoscopy; Arteriogram

Introduction

The definition of hemoptysis is the presence of blood in the tracheobronchial tree. This can be externalized by the upper airways and possibly be confused with bleeding from gastrointestinal origin, such as hematemesis, or even gengivorragia. The concept of massive hemoptysis corresponds to the amount of blood required to obstruct the dead space of the airways, a volume of 200 ml, approximately. The range of etiology for hemoptysis is broad, including from the most common diseases to the rarest causes, such as the pathologies that skin acute aortic syndrome [1].

The purpose of this report is to present a rare case of penetrating thoracic aortic ulcer, which was the main clinical manifestation of hemoptysis. The patient was initially evaluated by the thoracic surgery team and continued treatment with the vascular surgery team. After endovascular procedure, it was discharged and is currently outpatiently followed up with the thoracic surgery team.

Case Report

Female patient, 73 years old, hypertension, dyslipidemia and diabetic insulin-dependent, no surgical or smoking history; Admitted to the emergency with a suggestive picture of hematemesis.

Patient presented acute respiratory failure, with orotracheal intubation for airway protection. After hemodynamic stabilization, carried out Upper gastrointestinal Endoscopy (EDA) That showed blood-swallowed appearance and discreet lesion suggestive of Mallory-Weiss on the gastric background.

The diagnostic investigation proceeded with the evaluation of the thoracic surgery team, who opted for She's conducting a bronchoscopy and a CT scan. The Bronchoscopic study highlighted Large amount of clots Across the bronchial tree, mostly on the left, however No identification of Vegetative lesion, infiltrates Nte or Signs of bronchiectasis. Already the TC Evidenced lesion approximately 6, 5 cm x 5, 3 cm adjacent to the Croça of the aorta, with irregular appearance, which cringe trachea and cervical vessels Suggesting Expansive injury. Besides, only parietal calcifications of the thoracic aorta.

Patient had hospital discharge with programming for complementary diagnostic research. About 30 days after the first episode, he presented Relapse, Being again Admitted to the emergency with a similar frame to the previous one.

Requested evaluation of Vascular surgery of the service, according to the Protocol of control of massive hemoptysis, for the realization of Arteriogram. During examination was diagnosed the penetrating ulcer of the aorta, and then opted for endovascular correction. The chimney technique was carried out, which consists of allocating stent in some of the branches above a stent. In the case, the procedure positioned a endoprosthesis (Braille 34 x 130 mm) in an aortic arch, covering left subclavian artery (inserted V12 stent 10 x 59 mm). After the endoprosthesis has been carried out, control of images with injection of contrast, with no signs of leakage (Figure 1).

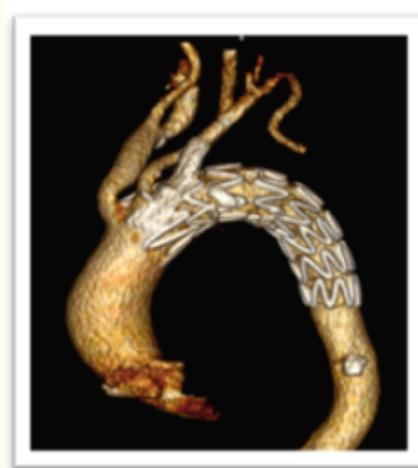


Figure 1: Reconstruction with stent in the aortic arch and prosthesis in Aa Braquicefálica Left.

Patient followed to bed in intensive therapy unit, still under mechanical ventilation. Had hospital discharge from the bed of ICU for home, seventh post-operative, without recurrence or recurrence of hemoptysis, maintaining ambulatory monitoring in the institution.

Discussion

Hemoptysis is the sputum of blood from the lungs and/or bronchi. The massive hemoptysis consists of a volume of blood in the tracheobronchial tree between 200 - 1000 ml, sufficient volume to cause obstruction and repercussion ventilatory and Hemodynamics. The severity of the frame and the evolution for death are determined by asphyxiation, which stems from the flooding of the airways [1,2]. The mortality rate for hemoptysis lower 200 ml varies between 2.5% and 6%, while massive hemoptysis can reach a mortality greater than 38% [3].

In adults, the most common causes are bronchiectasis, bronchogenetic carcinoma and pneumonia [2,3]. The hemoptysis has the main etiology of tuberculosis. The penetrating ulcer of thoracic aorta is one of the components of acute aortic syndrome (SAA), being a rare etiology of hemoptysis (corresponds to 5%). The SAA consists of three pathologies, all medical emergencies, which have similar clinical manifestations: aortic dissection, aortic intramural hematoma and penetrating aortic ulcer (Table 1) [4].

	Ulcer	Hematoma	Dissection
Epidemiology	Patient middle-aged, hypertensive	Patient middle-aged, hypertensive	Young, hypertensive patient
Symptoms	Acute chest pain and/or back	Acute chest pain and/or back	Acute chest pain and/or back
Physical examination	Absence of pulse deficit, aortic insufficiency or compromise of other vessels	Absence of pulse deficit, aortic insufficiency or compromise of other vessels	Presence of pulse deficit, aortic valve insufficiency, hypoflux in visceral vessels
Location	Descending portion	Descending portion	Ascending and descending portion
Degree of atherosclerosis	Severe	Variable	Variable/Minimum
Concomitant abdominal aortic aneurysm	Common	Common	Occasional
Image	Ulceration on the wall of the aorta, usually associated with intramural hematoma	Hematoma by the aorta wall, no ulceration.	Presence of false lumen, filled by contrast

Table 1: Differential diagnosis: SAA-penetrating ulcer, intramural hematoma and aortic dissection. Modified from [6].

The typical epidemiology of the atheromatous ulcer penetrating the thoracic aorta UPA They are patients around the 5th and 6th decade of life, with multiple risk factors for cardiovascular disease (systemic arterial hypertension and significant atherosclerosis, in addition to dyslipidemia, coronary artery disease and smoking) and a framework that presents with pain to guide in the chest and/or back [5-10].

Cough and hemoptysis can also be part of the Sintomatologia da UPA [8-12]. The hemoptysis may be due to formation of aortic fistula-bronchial, secondary to the formation of pseudoaneurysm of the thoracic aorta and progressive dilation of this. In all cases described in the literature of Fistulização, this occurred after surgical approach [10,11]. Table 2 details the symptoms and characteristics of the UPA.

Typical symptoms	Acute thoracic pain and/or back, cough, hemoptysis
Atypical symptoms	Tachycardia, arrhythmias, severe dysphagia
Physical examination	Absence of pulse deficit, aortic insufficiency or compromise of other vessels
Affected portion	Descending portion of the thoracic aorta, there may be more than one ulcer, as well as concomitant ulcers in other arteries
Extent of injury	5 - 20 mm diameter and 5 - 30 mm deep
diameter of the artery	Increased in relation to cases of acute dissection

Table 2: Symptoms and characteristics of atheromatous ulcer penetrating thoracic aorta [5-10].

The term “Úlcera Ateromatosa penetrating” refers to a atherosclerotic lesion with ulceration, which penetrates the inner elastic blade, affecting all layers of the aorta and allowing the formation of hematoma in the TU aortic wall Average [5-10,12].

It is not uncommon that atheromatous lesions of the ulcered intima layer and are surrounded by degeneration zones, containing elastic and muscular components of the media layer [5,6]. However, it is rare that these perforating ulcers lead to a dissection of the aorta (< 4% of cases). However, when the dissection occurs, this usually involves the distal thoracic aorta and has typical characteristics in the Arteriogram [5,8].

The concept of a segmental dissection of the aorta wall at the site of a atherosclerotic plate is not recent. Virchow and other pathologists before him already considered that the Main cause of dissection of aortic aneurysms is the ulceration of a atheromatous plaque, with blood penetrating the edges of the ulcer and causing dissection enTre the intima and media layers [5,7].

The intramural hematomas that are formed have higher rupture rates than the classic aortic dissections, probably because the blood collection level is more superficial and closer to the adventícia compared to a classical dissect. As penetrating aortic ulcers also occur near Adventícia, they can also rupture [8,9].

As the dissection advances, the penetrating aortic ulcer can be complicated with extra-aortic hematoma formation, Pseudoaneurysm, with the progressive dilation of the pseudo-aneurysm and even with embolization [6-8,10]. The rupture of the Pseudoaneurysm can cause hemoptysis With hemodynamic repercussions [10,11].

The Initial approach of Hemoptysis It is based on four main points: Clinical stabilization in ICU, Clin treatment to minimize the symptoms, Early location of the bleeding source (with bronchoscopy or Radioló Exams Logical) and, finally, Elective definitive treatment with Surgical section 1.

Anamnesis and Detailed physical examination can provide us Evidence of the etiology of the bleeding. Imaging exams, such as Rx and Chest CT, They can determine the etiology and the location of the bleeding. No then Nto, may be little informatives if all the blood has already been expectorated [1]. First Makes the bronchoscopy the most efficient method for identifying the bleeding site.

Established the diagnosis, the Should be treated in ICU, being guaranteed to be Onitorização, Access and, if necessary, Oxygen Supplementary. Laboratory tests for blood typing and coags should be requested. If the patient has a cough, this should be terminated with medication. Happening Hemodynamic or airway commitment, The bronchoscopy is indicated 1.

The bronchoscopy allows us Locate and treat the bleeding. The Bronchoscopic rigid It is more efficient in keeping the airways Pérvias, but it does not inspect the upper lobes and the more peripheral portions of the bronchial tree. During the examination, a selective orotracheal intubation can be performed, isolating the lung with bleeding and ensuring unaffected lung ventilation 1. Patients Stable and No bleeding ATIVO they receive ambulatory clinical follow-up.

The Ideal therapeutic for hemoptysis is the resection of the pulmonary parenchyma compromised, through Thoracotomy anterolateral. However, patients Clinically unstable can be subjected to arteriogram with embolization Paliat Vat. The response to bronchial embolization is expressive, allowing these patients to wait for definitive surgical treatment 1.

The Exams and image are fundamental to the DiThe UPA agnostic. CT and MRI contrasted chest they reveal crater lesion in the lumen, with an aortic wall of thin thickness and invasion of the inner layer by a hematoma. Generally, there is evidence of severe atherosclerosis in other portions of the aorta. The image can also show pleural fluid or pericardial, mediastinal hematoma or Pseudoaneurysm [6,7,9]. Arteriogram has not been the first diagnostic choice due to its invasive character, and is already being recommended for therapeutic purposes [6].

As for the natural evolution of the UPA, The pain may cease if the ulcer stabilizes, or persists if the pathological process progresses. If no complications occur, the ulcer may remain unchanged for many years [6]. The UPA treatment can be invasive, which consists of open surgery with Local excision of the ulcer and graft or conservative interposition with Stent uses endovascular [6,9,10].

The UPA, therefore, is a rare cause of hemoptysis. As an SAA component, it makes differential diagnosis with intramural hematoma and aortic dissection. In the management of Hemoptysis, Should always be indicated for diagnostic elucidation and Possible containment of bleeding. The Arteriogram, although invasive, allows the TR Definitive tying of the UPA, with endoprosthesis allocation, and the palliative containment of the hemoptysis, through embolization.

Conclusion

Despite advances in medical treatment, massive haemoptysis is still a life threatening condition. Proper diagnosis and treatment nowadays involve a multidisciplinary approach including radiology, endoscopy and endovascular procedures. This particular case elucidates the importance of following all the steps in order to diagnose and offer definitive care for this disease.

Bibliography

1. The NH Gomes. "Hemoptysis: Therapeutic alternatives". In: Update topics in Thoracic surgery. Brazilian Society of Thoracic Surgery (2015): 1-16.
2. Bidwell JL and Pachner RW. "Hemoptysis: diagnosis and management". *American Family Physician* 72.7 (2005): 1253-1260.
3. Hirshberg B., et al. "Hemoptysis: etiology, evaluation, and outcome in a tertiary referral hospital". *Chest* 112.2 (1997): 440-444.
4. Nienaber CA and Powell JT. "Management of acute aortic syndromes". *European Heart Journal* 33.1 (2012): 26-35b.
5. Stanson AW., et al. "Penetrating atherosclerotic ulcers of the thoracic aorta: natural history and clinicopathologic correlations". *Annals of Vascular Surgery* 1.1 (1986): 15-23.
6. Troxler M., et al. "Penetrating atherosclerotic ulcers of the aorta". *British Journal of Surgery* 88.9 (2001): 1169-1177.
7. Coady MA., et al. "Penetrating ulcer of the thoracic aorta: what is it? How do we recognize it? How do we manage it?" *Journal of Vascular Surgery* 27.6 (1998): 1006-1015.
8. Fukushima M., et al. "A case of penetrating aortic atherosclerotic ulcer with hemoptysis". *Japanese Heart Journal* 41.6 (2000): 781-785.
9. Pauls S., et al. "Endovascular repair of symptomatic penetrating atherosclerotic ulcer of the thoracic aorta". *European Journal of Vascular and Endovascular Surgery* 34.1 (2007): 66-73.
10. Schoder M., et al. "Endovascular stent- graft repair of complicated penetrating atherosclerotic ulcers of the descending thoracic aorta". *Journal of Vascular Surgery* 36.4 (2002): 720-726.
11. Bakhos CT., et al. "Management of aortic brucellosis with infection of a descending thoracic aortic stent graft". *Annals of Thoracic Surgery* 89.6 (2010): 2038-2040.
12. Avlonitis VS., et al. "Penetrating ulcer of the aortic arch presenting with hemoptysis". *Journal of Thoracic and Cardiovascular Surgery* 137.1 (2009): e10-e12.

Volume 7 Issue 9 September 2018

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