

Hemorrhagic infiltration of the aortopulmonary adventitia: A complication of acute aortic dissection



J. Guilmette^a, A. Semionov^b, C. Dennie^c, G. Gahide^d, J. Pressacco^e, R. Fraser^f, M.-P. Cordeau^g, C. Chartrand-Lefebvre^{g,*}

^a Department of Pathology, Centre Hospitalier de l'Université de Montréal, Hôpital Saint-Luc, 1058 rue Saint-Denis, Montréal, Québec H2X 3J4, Canada

^b Department of Radiology, Royal Victoria Hospital, 687 Pine Avenue West, Montreal, Québec H3A 2B4, Canada

^c Department of Diagnostic Imaging, The Ottawa Hospital General Campus, Room S2, Box 232, 501 Smyth Road, Ottawa, Ontario K1H 8L6, Canada

^d Department of Radiology, Faculté de médecine et des sciences de la santé, Université de Sherbrooke, 3001, 12e Avenue Nord, Sherbrooke, Québec J1H 5N4, Canada

^e Department of Radiology, Hôpital du Sacré-Cœur de Montréal, 5400 ouest, boul. Gouin, Montréal, Québec H4J 1C5, Canada

^f Department of Pathology, Montreal General Hospital, 1650 Cedar Ave, Montreal, Quebec H3G 1A4, Canada

^g Department of Radiology, Centre Hospitalier de l'Université de Montréal, Hôtel-Dieu du CHUM, 3840 rue Saint-Urbain, Montréal, Québec H2W 1T8, Canada

ARTICLE INFO

Article history:

Received 29 September 2015

Received in revised form

15 November 2015

Accepted 20 November 2015

Keywords:

Aortic dissection

Mediastinal hemorrhage

Aortic rupture

Aortopulmonary adventitia

Computed tomography

Aorta

ABSTRACT

Background: Hemorrhagic infiltration of the common aortopulmonary adventitia is an infrequent complication of acute aortic dissection, most frequently Stanford type A. The radiological interpretation of this finding may be a diagnostic challenge. The objective of this multicenter case series is to review the radiological and pathological findings of hemorrhagic infiltration of the aortopulmonary adventitia secondary to acute aortic dissection, and to describe the pathophysiology underlying this complication.

Material and methods: The study includes 20 cases of aortic dissection with hemorrhagic infiltration of the aortopulmonary adventitia. These are 17 cases with computed tomography (CT) data obtained from 5 academic centers. Three other cases were retrieved through a search of autopsy reports. Clinical, radiological and pathological data were collected.

Results: Linear foci of moderately increased attenuation were seen along the wall of the proximal pulmonary arteries in 4 cases on unenhanced CT. Contrast-enhanced CT showed soft-tissue thickening along these walls in all imaging cases, with some degree of narrowing of the lumen of the pulmonary arteries. Peribronchovascular ground-glass opacities or consolidation were present in 4 cases.

Conclusion: Hemorrhagic infiltration of the common aortopulmonary adventitia is an infrequent complication of acute type A aortic dissection. The radiologist should be aware of its pathophysiology and imaging findings in order to make a prompt diagnosis in an urgent setting.

© 2015 Elsevier Ireland Ltd. All rights reserved.

1. Introduction

A rupture of the thoracic aorta, secondary to acute dissection, is a critical complication, resulting in a 20% mortality rate in the first 24 h, and a 30% mortality rate within 48 h [1]. Rupture into the mediastinum is often diffuse, resulting in hemomediastinum. Extravasated blood can then extend into the pleural or pericardial spaces, and result in hemothorax or hemopericardium, with tamponade [2,3], respectively. Blood extravasation into the

extrapleural space along the left subclavian artery can create the so-called 'apical cap' [4,5] on the chest radiograph.

Infrequently, rupture of an acute aortic dissection may result in hemorrhagic infiltration along the common connective sheath or adventitia shared by the aorta and the central pulmonary arteries [6]. Perivascular extravasation of blood may then spread along the pulmonary arteries to the peribronchovascular pulmonary interstitium [2,7–9]. Prompt recognition of this unusual complication on CT requires an understanding of the basic anatomic pathways and pathophysiologic mechanisms that lead to this phenomenon.

The objective of this multicenter case series is to review the radiological and pathological findings of hemorrhagic infiltration of the aortopulmonary adventitia secondary to acute aortic dissection, and to describe the pathophysiology underlying this complication.

* Corresponding author. Fax: +1 514 412 7193.

E-mail address: chartrandlef@videotron.ca (C. Chartrand-Lefebvre).

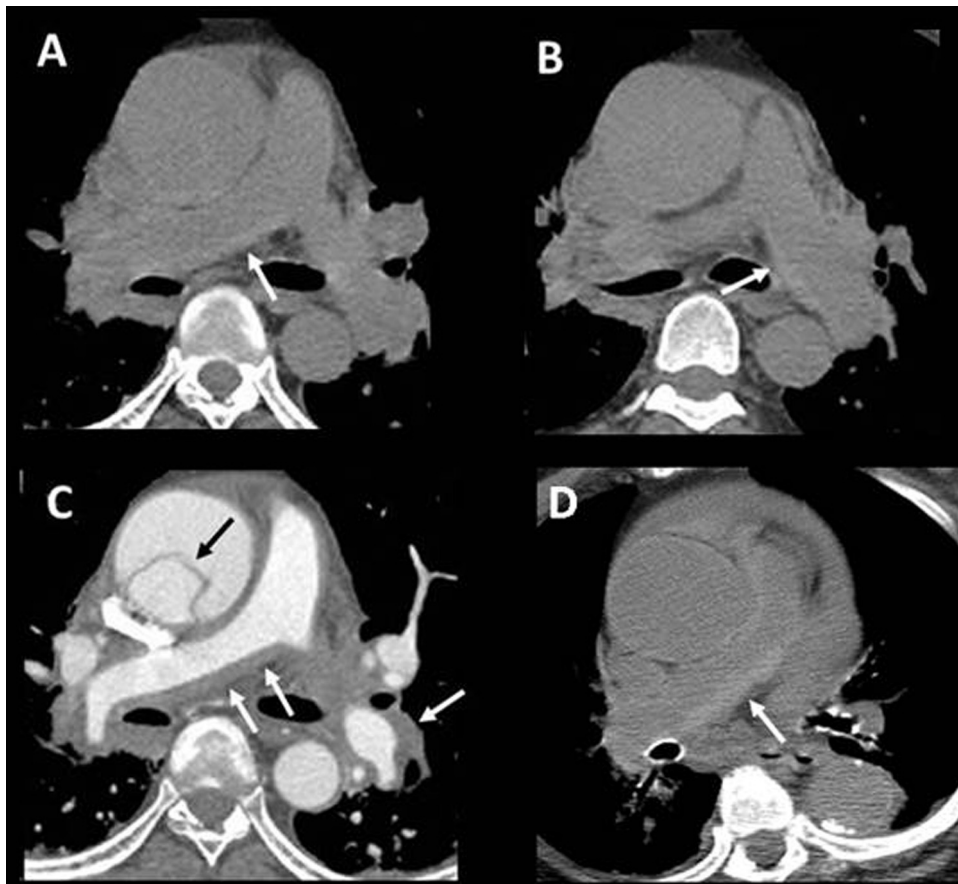


Fig. 1. A–C 49-year-old man with chest pain (Patient 2). A conventional coronary angiogram was performed and followed by a non-enhanced (A, B) and contrast-enhanced (C) chest CT. (A, B) Linear increased attenuation is seen along the wall of the proximal pulmonary arteries (white arrows). (C) There is an intimal flap (black arrow) in the ascending aorta, and mural thickening of the pulmonary arteries (white arrows). (D) 89-year-old woman with acute type A aortic dissection (Patient 6). Non-enhanced chest CT shows increased attenuation along the wall of the right pulmonary artery (white arrow).

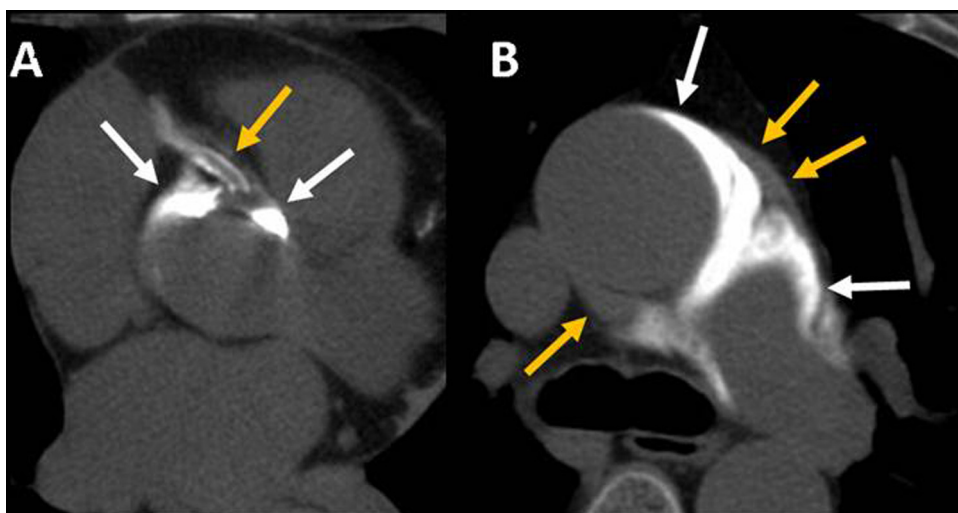


Fig. 2. 70-year-old woman presented with angina (Patient 5). A conventional coronary angiogram was performed, during which an iatrogenic right coronary dissection occurred with retrograde aortic extension. Successful right coronary artery stenting sealed the origin of the dissection, and restored the patency of the coronary artery lumen. (A) A non-enhanced ECG-gated 64-slice CT obtained immediately after cardiac catheterization shows the persistent, highly dense extravascular contrast material (white arrows) in the wall of the right sinus of Valsalva. A stent in the proximal right coronary artery is seen (yellow arrow). (B) Dense extravascular contrast material (white arrows) is also seen along the main pulmonary artery and the ascending aorta, presumably contained in the aortopulmonary adventitia (white arrows). The retroaortic (one yellow arrow) and anterior (two yellow arrows) portions of the superior recess of the transverse sinus of the pericardium are also seen. The superior pericardial recess is normal, without contrast material, and clearly distinct from the infiltrated and dense aortopulmonary adventitia. (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)

Download English Version:

<https://daneshyari.com/en/article/6243218>

Download Persian Version:

<https://daneshyari.com/article/6243218>

[Daneshyari.com](https://daneshyari.com)