

IMAGES IN EMERGENCY MEDICINE

Cardiology

Man with hypotension and chest pain

João Ferreira MD | Flávio Freitas MD | Lino Gonçalves MD, PhD

Cardiology Department, Centro Hospitalar e Universitário de Coimbra, Coimbra, Portugal

Correspondence

João Ferreira, MD, Cardiology Department, Centro Hospitalar e Universitário de Coimbra, Praceta Prof Mota Pinto, 3000-075 Coimbra, Portugal.

Email: joaoferreira29@gmail.com

1 | PATIENT PRESENTATION

A 76-year-old man presented to the emergency department with dyspnea and chest pressure radiating to the back starting 1 hour ago. He had a blood pressure of 80/45 mmHg, pulse rate of 120 beats/minute, and pulse oximetry 95% on 3L/minute oxygen. He was diaphoretic with cold extremities. Laboratory evaluation showed a lactate level of 4.7 mmol/L and a hemoglobin level of 10.7 g/dL. Chest radiograph was taken at admission (Figure 1). The cardiologist performed transthoracic echocardiography (Figure 2 and Video 1). The diagnosis was confirmed with computed tomographic scanning (Figure 3).

2 | DIAGNOSIS

Ruptured aneurysm of the descending thoracic aorta with cardiac compression. Transthoracic echocardiography revealed compression of left cardiac cavities by a large extrinsic mass adjacent to the lateral and posterior walls, especially during ventricular diastole (Figure 2 and Video 1). Computed tomography revealed a ruptured aneurysm of the descending aorta with a diameter of 7 cm, forming a large posterior mediastinal hematoma that compressed the left atrium and ventricle (Figure 3). As the patient was leaving the emergency department to undergo surgery, he went into cardiac arrest and died despite all resuscitation maneuvers.

3 | DISCUSSION

Cardiac compression is a rare presentation of ruptured thoracic aortic aneurysms.^{1,2} Although echocardiography is a useful tool for the

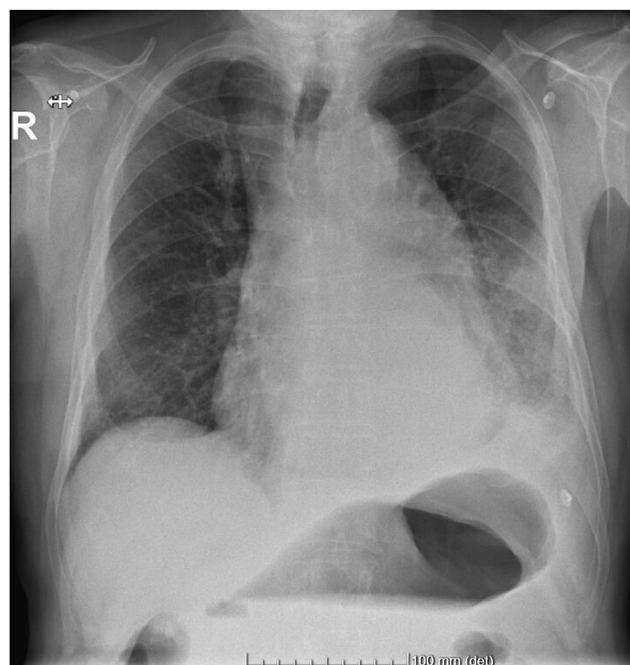


FIGURE 1 Chest radiograph showing mediastinum widening, deviation of trachea to the right, and indistinct aortic contour

management of shock, as it promptly solves the etiology of shock, computed tomography is still decisive for the confirmation of diagnosis. The mortality rate of ruptured thoracic aorta aneurysms remains unacceptably high, even after massive transfusion and a high dose of catecholaminergic support.³

This is an open access article under the terms of the [Creative Commons Attribution-NonCommercial-NoDerivs](https://creativecommons.org/licenses/by-nc-nd/4.0/) License, which permits use and distribution in any medium, provided the original work is properly cited, the use is non-commercial and no modifications or adaptations are made.

© 2021 The Authors. *JACEP Open* published by Wiley Periodicals LLC on behalf of American College of Emergency Physicians

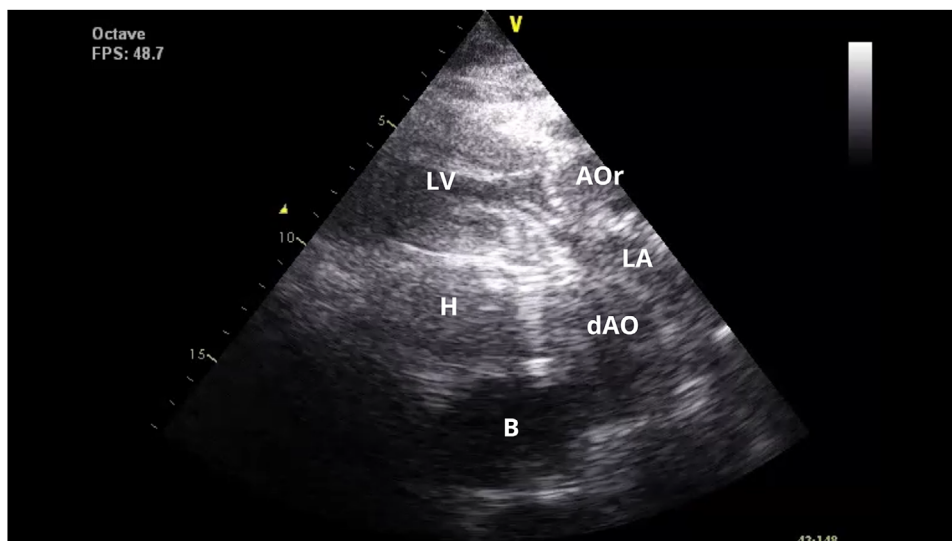


FIGURE 2 Transthoracic echocardiography findings. Parasternal long-axis view showing left ventricular and left atrial compression during diastole owing to a large hematoma adjacent to the cardiac posterior wall. AOr, aortic root; B, bleeding originating from descending aorta; dAO, descending thoracic aorta; H, hematoma compressing left ventricle and left atrium; LA, left atrium; LV, left ventricle

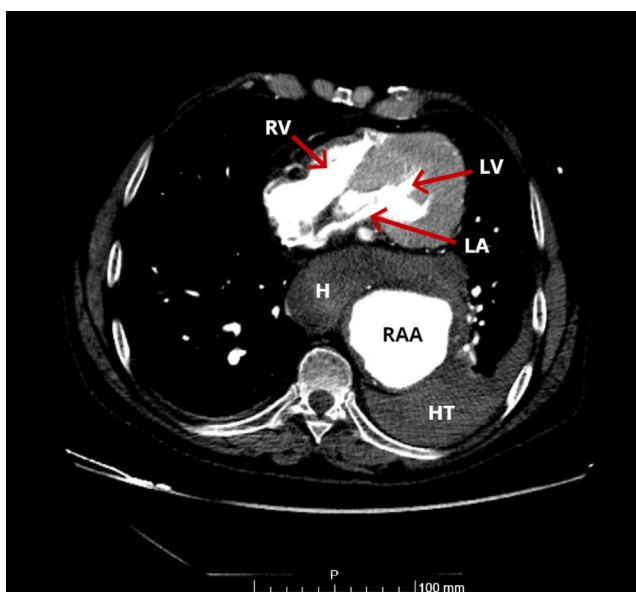


FIGURE 3 Computed tomography showing a ruptured aneurysm of the descending thoracic aorta with a diameter of 7 cm, with cardiac compression owing to a large dorsal hematoma. H, mediastinal hematoma compressing left ventricle and left atrium; HT, hemothorax; LA, left atrium; LV, left ventricle; RAA, ruptured descending thoracic aorta aneurysm; RV, right ventricle

REFERENCES

1. Gandhi NM, Greaves M, Brooks NH. Rare case of heart failure caused by compression of the left atrium by a thoracic aortic aneurysm. *Heart*. 2004;90(2):e9.
2. Schmidli J, Carrel T. Images in clinical medicine. Cardiac compression by a ruptured aneurysm of the descending thoracic aorta. *N Engl J Med*. 2003;348(18):1776.
3. Fukui T. Management of acute aortic dissection and thoracic aortic rupture. *J Intensive Care*. 2018;6:15.

SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of the article.

How to cite this article: Ferreira J, Freitas F, Gonçalves L. Man with hypotension and chest pain. *JACEP Open*. 2021;2:e12365. <https://doi.org/10.1002/emp2.12365>