Right hemothorax due to a ruptured descending thoracic aortic aneurysm

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IMAGE IN CARDIOLOGY

Right hemothorax due to a ruptured descending thoracic aortic aneurysm

Hemotórax direito devido a rutura de aneurisma da aorta torácica descendente

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Right hemothorax is a rare presentation of a ruptured descending thoracic aortic aneurysm.[1] A 42-year-old male patient without any physical characteristics of connective tissue diseases underwent aortic replacement (from the 9th intercostal level as far as the proximal to the superior mesenteric artery origin) with celiac artery reconstruction for a thoracoabdominal aortic aneurysm.

Twelve years after surgery, the patient now aged 54 complained of right chest and back pain and subsequently deteriorated into cardiopulmonary arrest. Immediate resuscitation (short-time cardiac massage) was successfully completed. Contrast-enhanced computed-tomography scans revealed a ruptured 58-mm descending thoracic aortic aneurysm with right hemothorax (Figure 1A, transverse plane, asterisk; Video 1 in supplemental material) and mediastinal hematoma (Figure 1A, dagger) (Figure 1B, three-dimensional computed-tomography angiograph, left anterior oblique position, red shadow; Video 2 in supplemental material). Urgent thoracic endovascular aortic repair and right pleural drainage were performed. The patient was discharged without complications including paraplegia or paraparesis two weeks after the intervention.

Thoracoabdominal aortic aneurysms sometimes rupture into the right pleural cavity, because it is located ventrally of the thoracic vertebrae (in the median).[2,3] A descending thoracic aortic aneurysm generally ruptures into the left, NOT right, pleural cavity, because it is located in the left side of the thoracic vertebrae. Although uncommon, ruptured thoracic aortic aneurysms form mediastinal hematoma on the right side of the aneurysm, which in rare circumstances perforate into the right pleural cavity leading to right hemothorax.[1]

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Conflicts of interest

The author has no conflicts of interest to declare.

Appendix A. Supplementary material

Supplementary material associated with this article can be found in the online version at ….

Ethics in publishing

1. Does your research involve experimentation on animals?:

No

2. Does your study include human subjects?:

Yes

- If yes; please provide name of the ethical committee approving these experiments and the registration number. :

  N/A

- If yes; please confirm authors compliance with all relevant ethical regulations. :

  Yes

- If yes; please confirm that written consent has been obtained from all patients. :

  Yes

3. Does your study include a clinical trial?:

No

4. Are all data shown in the figures and tables also shown in the text of the Results section and discussed in the Conclusions?:

Yes

References

1. Tatebayashi T, Yuda A, Noji S. Successful treatment of ruptured descending thoracic aortic aneurysm associated with right tension hemothorax during operation. Kyobu Geka. 2009;**62**:388-90.
2. Miller M, Pascoe EA, Guzman RP, et al. Staged operations for a Crawford Type II thoracoabdominal aortic aneurysm with subacute contained rupture and massive right hemothorax. J Cardiothorac Vasc Anesth. 2006;**20**:401-4.
3. Miller SF, Shah HR, Pritchard RS, et al. CT diagnosis of right hemothorax secondary to ruptured thoracoabdominal aneurysm: case report. Cardiovasc Intervent Radiol. 1989 Nov-1990 Dec;**12**:326-8.

Figure captions

Figure 1 Ruptured 58-mm descending thoracic aortic aneurysm with right hemothorax (A, transverse plane, asterisk; Video 1 in supplemental material) and mediastinal hematoma (A, dagger) (B, three-dimensional computed-tomography angiograph, left anterior oblique position, red shadow; Video 2 in supplemental material).