Calcium sign of thoracic aortic dissection in Takayasu's arteritis

Vorarit Lertsuwunseri,¹ Pairoj Chattranukulchai,¹ Monravee Tumkosit,² Smonporn Boonyaratavej¹

¹Division of Cardiovascular Medicine, Department of Medicine, Faculty of Medicine, King Chulalongkorn Memorial Hospital, Chulalongkorn University, Bangkok, Thailand
²Department of Radiology, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand

Correspondence to
Dr Pairoj Chattranukulchai,
pairoj.md@gmail.com

Accepted 6 February 2018

DESCRIPTION

A 53-year-old woman with known chronic atrial fibrillation was referred for evaluation of abnormal chest film. She has been diagnosed with Takayasu's arteritis 10 years earlier when she underwent right subclavian-to-common carotid artery bypass grafting due to major aortic branches occlusion. Initial examination revealed totally irregular pulse with cardiomegaly. The blood pressure was normotensive without significant difference among all extremities.

Chest film unveiled cardiomegaly with long, diffuse calcified descending thoracic aorta (figure 1A, arrowheads). Notably, dilatation of the proximal descending thoracic aorta was suggestive of aortic aneurysm. The curvilinear calcification (figure 1A, arrow) medial to the aortic wall corresponded with the splitting of intimal calcification in CT scan (figure 1B,C: contrast-enhanced CT in coronal and axial planes, figure 1D: non contrast-enhanced CT in axial plane). The true lumen (T) was smaller and located medially to the false lumen (F).

Since there was no associated organ ischaemia, the patient was treated conservatively with the diagnosis of chronic, type B aortic dissection.

The risk factors of thoracic aortic dissection include bicuspid aortic valve, Marfan syndrome, uncontrolled hypertension, pregnancy and iatrogenic intimal tear during cardiac catheterisation. The atherosclerosis of the aorta also predisposes to dissection either from senile degenerative change or healed aortopathy as a result of chronic inflammation such as in Takayasu's arteritis. The common abnormal chest film findings include a widening of the mediastinum, deviation of the trachea or nasogastric tube to the right and left pleural effusion. The 'calcium or calcium split sign' was defined as a separation of two layers of the displaced intimal calcification from the outer aortic wall by at least 10 mm. However, the calcium sign is rather specific for the aortic arch dissection but it has low sensitivity.¹

Figure 1 (A) Chest film showed cardiomegaly with diffuse calcified descending thoracic aorta (arrowheads). The curvilinear calcification (arrow) corresponded to the splitting of intimal calcification in CT scan (B and C: contrast-enhanced CT in coronal and axial planes, D: non-contrast-enhanced CT in axial plane). F, false lumen; T, true lumen.

Learning points

- ▶ Healed aortopathy from chronic inflammation found in Takayasu's arteritis is one of the risk factors of aortic dissection.
- ▶ The 'calcium or calcium split sign' was defined as a separation of two layers of the displaced intimal calcification from the outer aortic wall by at least 10 mm.
- ▶ The calcium sign is rather specific for the aortic arch dissection but it has low sensitivity.

Contributors VL and PC drafted the manuscript. MT edited the image. SB reviewed and revised the manuscript.

Competing interests None declared.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

© BMJ Publishing Group Ltd (unless otherwise stated in the text of the article) 2018. All rights reserved. No commercial use is permitted unless otherwise expressly granted.

REFERENCE

- 1 Wang YC, Hwang JJ, Lai LP, *et al.* Iatrogenic aortic dissection during left subclavian artery stenting: immediate detection by calcium sign under fluoroscopy. *Cardiovasc Intervent Radiol* 2011;34:36–9.

To cite: Lertsuwunseri V, Chattranukulchai P, Tumkosit M, *et al.* *BMJ Case Rep* Published Online First: [please include Day Month Year]. doi:10.1136/bcr-2018-224313

Copyright 2018 BMJ Publishing Group. All rights reserved. For permission to reuse any of this content visit <http://group.bmj.com/group/rights-licensing/permissions>.
BMJ Case Report Fellows may re-use this article for personal use and teaching without any further permission.

Become a Fellow of BMJ Case Reports today and you can:

- ▶ Submit as many cases as you like
- ▶ Enjoy fast sympathetic peer review and rapid publication of accepted articles
- ▶ Access all the published articles
- ▶ Re-use any of the published material for personal use and teaching without further permission

For information on Institutional Fellowships contact consortiasales@bmjgroup.com

Visit casereports.bmj.com for more articles like this and to become a Fellow