

ABERRANT RIGHT SUBCLAVIAN ARTERY: INCIDENTAL FINDING IN 2 CASES

Fuad Abdul Aziz, Aimi Ngah, Husna Mohd Zaki, Mubarak Mohd Yusof

Department of Radiology, Serdang Hospital, Malaysia.

PJR July - September 2016; 26(3): 252-254

Case 1

A 53 year-old man has elective Computed Tomography (CT) scan of the thorax for the investigation of cough and opacities noted on chest radiograph. The CT scan revealed bilateral upper lobes lung consolidations. He also had extensive

thoracic aorta calcifications and aberrant right subclavian artery. The aberrant artery was traversing posterior to the oesophagus and trachea. There was compression onto the oesophagus but he has no dysphagia (Fig. 1)

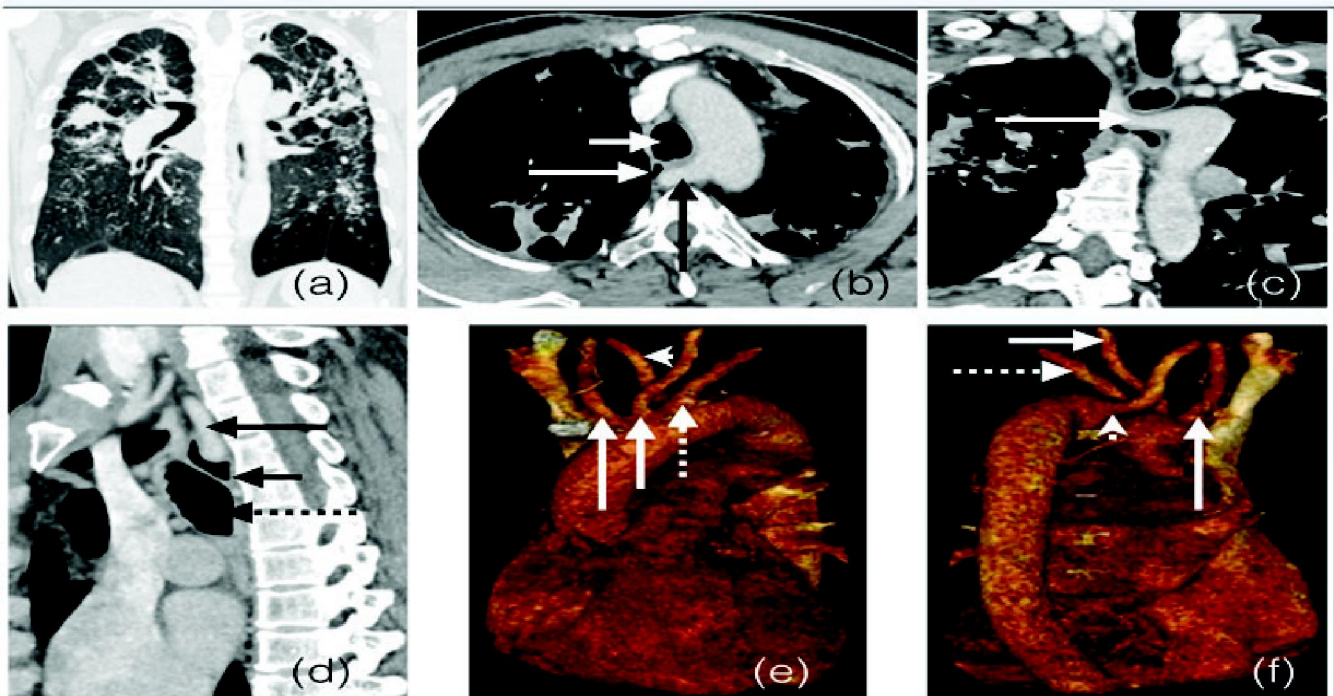


Figure 1: (a) Coronal reconstruction CT Thorax image in lung window showed bilateral lung consolidations. (b) Axial CT Thorax image demonstrated the ARSA (black arrow), oesophageal compression (white arrow) and trachea (short white arrow). (c) Coronal reconstruction CT Thorax image in mediastinal window to show the course of the ARSA (white arrow) from the aortic arch. (d) Sagittal reconstruction CT Thorax image showed the ARSA (long arrow) with oesophageal compression (short arrow). The trachea is normal (dashed arrow). Volume rendering image anterior view (e) and posterior view (f) showed the ARSA (arrow head) originated after the right carotid artery (long arrow), left carotid artery (short arrow) and left subclavian artery (dashed arrow).

Correspondence : Dr. Fuad Abdul Aziz
Department of Radiology,
Serdang Hospital,
Malaysia.
Email: fuadabaziz86@gmail.com

Submitted 27 November 2015, Accepted 14 January 2016

Case 2

A 66 year-old man presented with chest pain for a week. He has no previous medical illness and no constitutional symptoms. His electrocardiography (ECG) revealed T inversion and chest radiograph showed pericardial effusion. His blood investigation for cardiac enzymes was normal. He was later subjected for Computed Tomography Angiography (CTA) scan of thoracic aorta to look for aortic dissection.

The CTA revealed hypo dense intimal flap suggestive of dissection from the posterior wall of the ascending aorta extending superiorly to involve the brachiocephalic trunk and right common carotid artery. The pericardial effusion was gross. There was aberrant right subclavian artery which crosses in between the thoracic vertebra and the oesophagus. There was compression onto the oesophagus, however the trachea was not compressed (Fig. 2). The left common carotid and left subclavian arteries were normal.

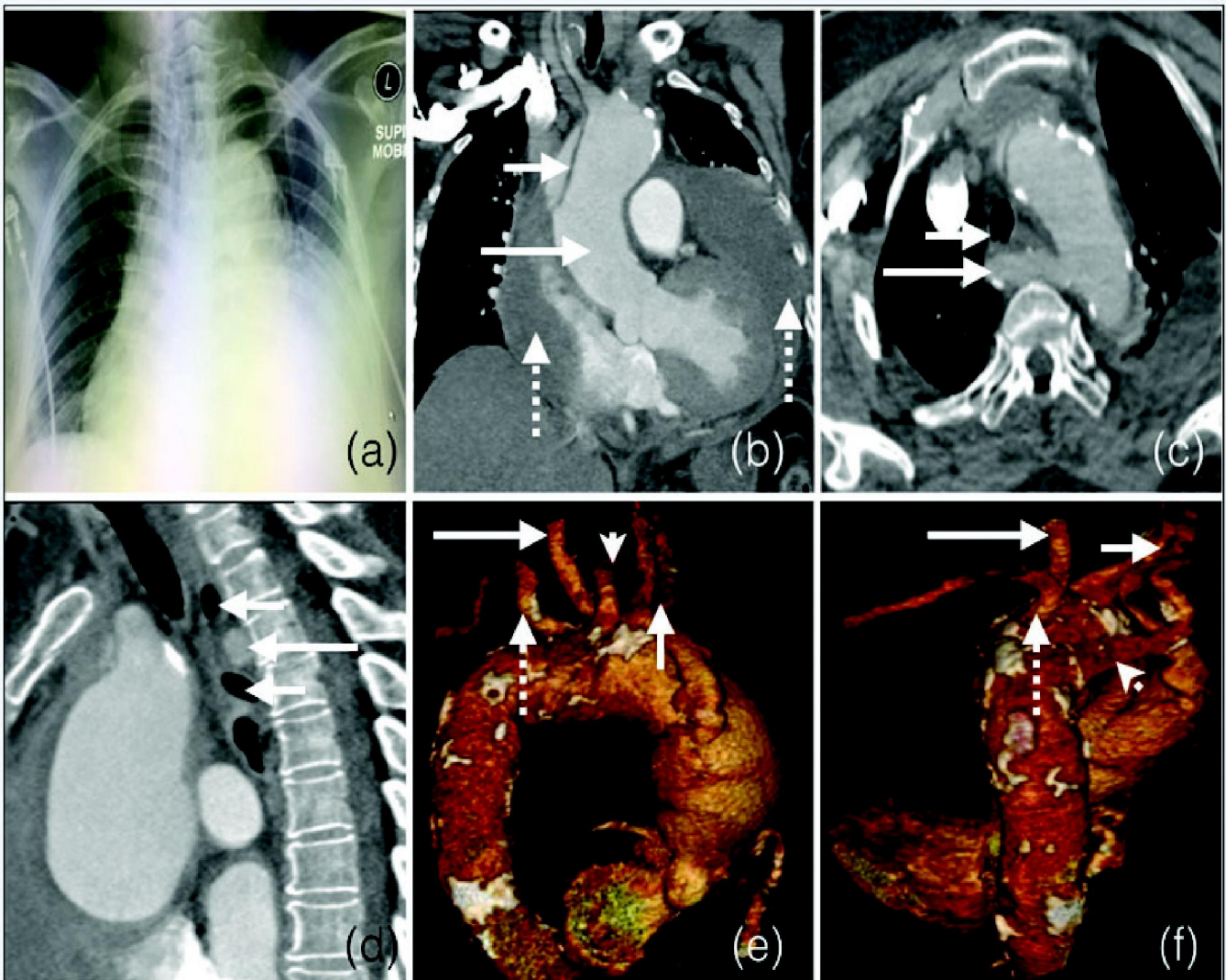


Figure 2: (a) The chest radiograph revealed pericardial effusion. (b) Coronal reconstruction CTA image in mediastinal window showed the intima flap (short arrow) involving the ascending aorta (long arrow) and right carotid artery with pericardial effusion (dashed arrow). (c) Axial CTA image demonstrated the ARSA (long arrow) and normal trachea (short arrow). (d) Sagittal reconstruction CTA image showed the ARSA (long arrow) with oesophageal compression (short arrow). Volume rendering image right lateral view (e) and posterior view (f) showed the ARSA (arrow head) as the last branch after the dissected right carotid artery (short arrow), left carotid artery (long arrow) and left subclavian artery (dashed arrow).

Discussion

The incidence of ARSA with left aortic arch was 0.5% to 2.0% and it was the most common aortic arch anomaly involving the subclavian artery.¹ Embryologically, the ARSA results from developmental anomaly of the aortic arch. There was interruption of dorsal segment of right arch between right carotid artery and right subclavian artery with regression of right ductus arteriosus.² The ARSA branches out as the last artery from the left aortic arch after the right common carotid, left common carotid and left subclavian arteries.³

In 80% of cases, the ARSA usually courses between the oesophagus and the vertebra column, 15% between the oesophagus and trachea and 5% anterior to the oesophagus and trachea.⁴ Few authors have reported the presence of Kommerell's diverticulum in 60% cases of ARSA.³ It was a conical dilatation of the remnant of distal right aortic arch in cases of left aortic arch with ARSA.^{3,5} In our cases, the Kommerell's diverticulum is not present.

Majority of patients with ARSA are asymptomatic. The ARSA might cause oesophageal compression and dysphagia which is termed as "dysphagia lusoria".^{6,7} In these two discussed cases, though there were oesophageal compression, both patients were asymptomatic. However, symptoms might occur when there was aneurysm and atherosclerotic changes of the ARSA.² In lung cancer surgery and esophagectomy, the surgeon should be aware of the presence of ARSA to avoid injury to this artery which could be life threatening.^{8,9}

References

1. Darwazah AK, Eida M, Khalil RA, Ismail H, Hanbali N. Non-aneurysmal aberrant right subclavian artery causing dysphagia in a young girl: challenges encountered using supraclavicular approach. *Journal of Cardiothoracic Surgery* July 2015, **10**: 92.
2. Türkvatan A, Büyükbayraktar FG, Olçer T, Cumhuri T. Multidetector computed tomographic angiography of aberrant subclavian arteries. *Vasc Med* Feb 2009; **14**(1): 5-11.
3. Rosa P, Gillespie DL, Goff JM, O'donnell SD, Starnes B. Aberrant right subclavian artery syndrome: a case of chronic cough. *J Vasc Surg*. 2003; **37**: 1318-21.
4. Levitt B, Richter JE. Dysphagia lusoria: a compressive review. *Disease of the Esophagus*. 2007; **20**: 455-60.
5. Alvarez JR, Quiroga SJ, Nazar AB, Comendador MJ, Carro GJ. Aberrant right subclavian artery and calcified aneurysm of Kommerell's diverticulum: an alternative approach. *Journal of Cardiothoracic Surgery* 2008, **3**: 43.
6. Dandelooy J, Coveliers JP, Van Schil PE, Anguille S. Dysphagia lusoria. *CMAJ*. Oct 2009; **181**(8): 498.
7. Brauner E, Lapidot M, Kremer R, Best LA, Kluger Y. Aberrant right subclavian artery- suggested mechanism for esophageal foreign body impaction: Case report. *World Journal of Emergency Surgery* 2011; **6**: 12.
8. Mahmoulou R, Sepehrvand N, Hatami S. Aberrant Right Subclavian Artery: A Life-threatening Anomaly that should be considered during Esophagectomy. *Journal of Surgical Technique and Case Report*. 2014; **6**(2): 61-3.
9. Pan D, Cufari ME, Lim E. Beware of arteria lusoria during lymph node dissection of the right paratracheal fossa for lung cancer surgery. *Journal of Thoracic Disease* 2014, **6**(12): E264-6.