Double Aortic Arch Causing Prolonged Cough in a Child

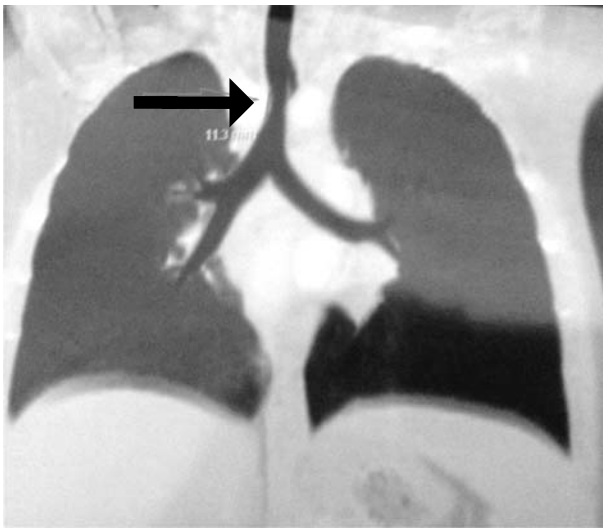
A 7-year-old girl presented in the pediatric tuberculosis clinic with cough for 15 days. There was no fever or contact with an adult having tuberculosis. She was tested in another hospital with a Mantoux test that was positive, and was referred to us to start anti-tuberculous therapy. On examination, weight was 20 kg with no abnormal findings. Chest *X*-ray showed superior mediastinal widening. High resolution computed tomography (HRCT) of chest showed a double aortic arch forming a vascular ring (the right arch measured 14 mm and the left arch measured 12 mm) around the lower trachea and proximal thoracic esophagus with the right arch indenting upon and causing mild narrowing of the tracheal lumen (***Fig.* 1**). She was subsequently referred to the cardiac surgeon for further treatment.

Double arched aorta is a rare congenital cardiovascular abnormality. Embryologically, one aortic branch arises from each of the 4th branchial arches. Double aortic arch occurs as a result of failure of involution of the right sided aortic branch which persists beyond the embryonic stage. These two separate aortic arches may join each other to form a vascular ring that can compress over the trachea and esophagus manifesting as stridor, cough, wheezing and recurrent pneumonias and/or with symptoms of esophageal compression resulting in obstructive symptoms such as choking, regurgitation and dysphagia [1]. All of these symptoms are non-specific; hence, these patients can remain undiagnosed for many years. Chest *X*-ray may show right sided aortic arch indenting the trachea and an increase in paratracheal soft tissue thickness; sometimes bilateral aortic notches can be seen at the level of aorta. A contrast enhanced computed tomography (CT) or Magnetic resonance imaging is required to confirm the diagnosis as well as aid in planning of surgical management, depending on the type of arch dominance [2]. Management of these patients is surgical with most patients having an excellent outcome and good long-term prognosis [3].

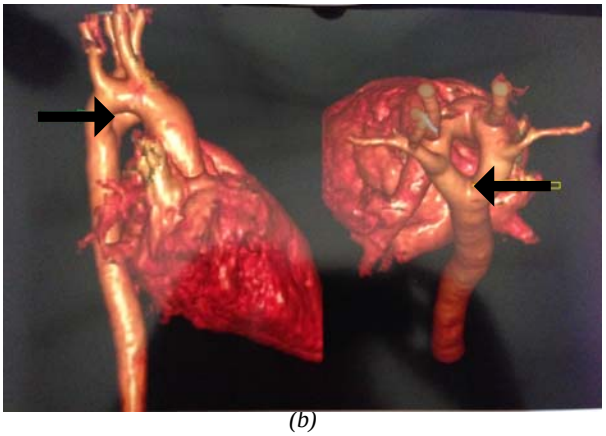
IRA SHAH[1] AND APURVA SHRIGIRIWAR[2]

[1]Pediatric TB Clinic, Department of Pedeatric Infectious Diseases, BJ Wadia Hospital for Children, and [2]Department of Pediatrics, Seth GS Medical College and KEM Hospital, Mumbai, Maharashtra, India.

[1]irashah@pediatriconcall.com



(a)



(b)

FIG. 1 *(a) CT chest showing mild narrowing of the tracheal lumen (arrow); 3D-reconstruction from CT chest showing vascular ring around the lower trachea and proximal thoracic esophagus (b).*

REFERENCES

1. Fenández-Tena A, Martínez-González C. Double aortic arch diagnosed in a 44-year-old woman with recurring respiratory infections. Respir Med Case Rep. 2017;20: 176-8.
2. Radiopedia. Double Aortic Arch. Available from: *https://radiopaedia.org/articles/double-aortic-arch*: Accessed Febuary 25, 2019.
3. Alsenaidi K, Gurofsky R, Karamlou T, Williams W, MxCrindle. Management and outcomes of double aortic arch in 81 patients. Pediatrics. 2006;118:e1336-41.