

Shruti Hegde¹, Jennifer Bell¹, Benoy Zachariah², Emani Sitaram³, Michael Mayskiy¹

Division of Cardiology, St. Elizabeth's Medical Center, Tufts University School of Medicine, Boston, MA, United States.

Division of Cardiology, Good Samaritan Medical Center, Boston, MA, USA

Division of Cardiothoracic Surgery, Boston Children Hospital, MA, USA

Email correspondence: shruti.hegde@steward.org

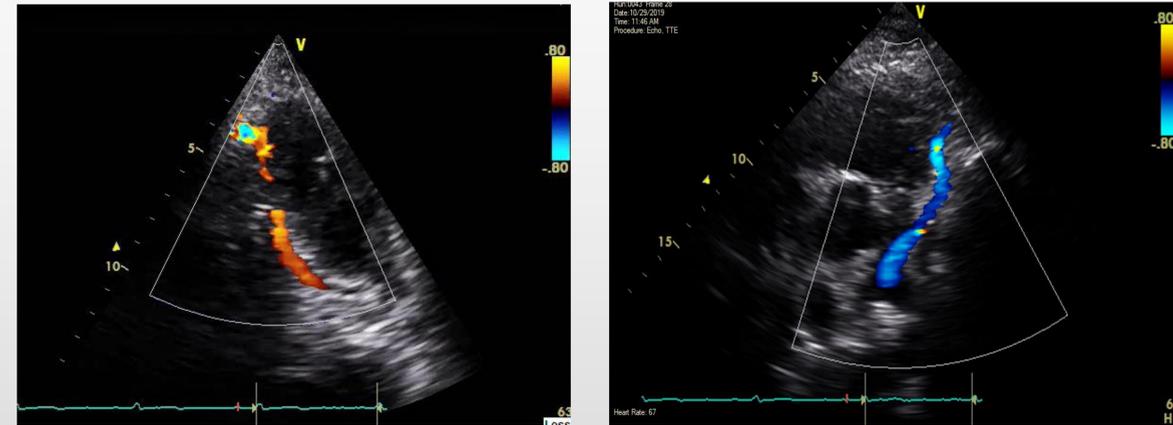
1. Background

- ❖ Anomalous origin of the left coronary artery from the pulmonary artery (ALCAPA) is a rare congenital defect and usually diagnosed within the first 2 months of life.
- ❖ We present a case of ALCAPA diagnosed in an asymptomatic adult through a transthoracic echocardiogram (TTE).

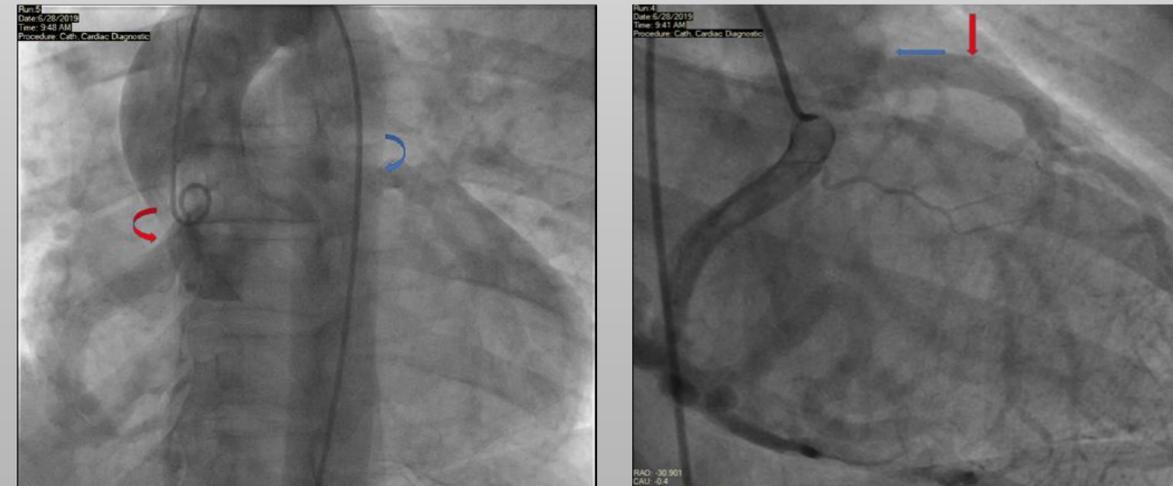
2. Clinical Presentation

- ❖ A 37 year old male was referred by his PCP for a TTE after a murmur was heard on physical exam.
- ❖ TTE revealed a mildly depressed LVEF of 45%, moderate mitral regurgitation (MR) and wall motion abnormalities in the anterior wall and apex.
- ❖ Color Doppler showed prominent low velocity linear flow in the septum in diastole from the infero-septum to the antero-septum as well as retrograde Doppler flow from the left main to the pulmonary artery (Figure 1).
- ❖ The patient underwent a stress echocardiogram which showed worsening hypokinesia of the antero-septal wall post stress.
- ❖ Cardiac catheterization revealed a markedly dilated RCA that filled the entire LCA retrograde via collaterals.
- ❖ There was flow reversal in the LCA and contrast emptying into the pulmonary artery.
- ❖ The patient then underwent successful reimplantation of the left coronary artery with concurrent mitral valve repair.

3. Investigations



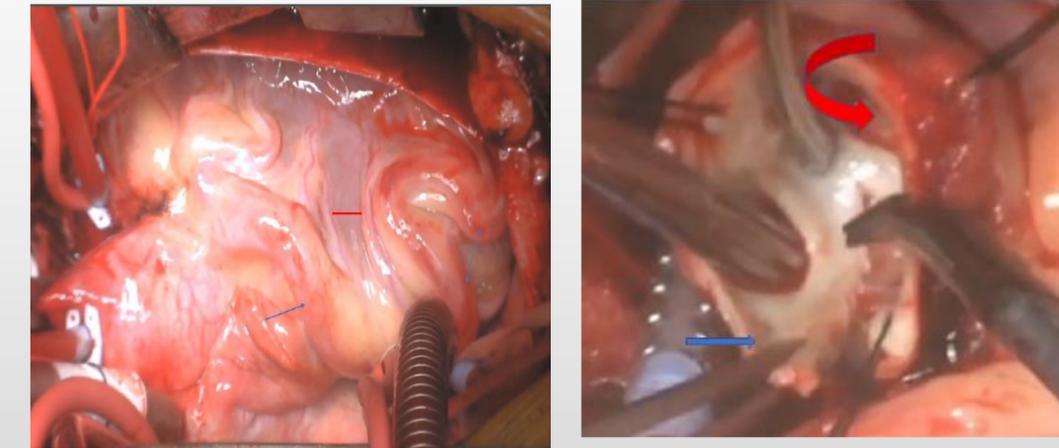
TTE Color Doppler showing slow velocity, diastolic linear flow in the septum from infero-septum to antero-septum (left), consistent with coronary vessel flow. Right- The low-velocity diastolic flow into the pulmonary artery, representing reversed flow from an anomalous left main emptying into the pulmonary artery.



Blue arrow – LCA arising from pulmonary artery. Red arrow-showing RCA arising from right coronary sinus.

Arrows showing dilated tortuous RCA with extensive collaterals to left. Blue arrow – LCA arising from pulmonary artery. Red arrow- following of LAD via collaterals RCA.

4. Intra-operative Images



Intra-operative image showing dilated RCA and collaterals.

Intra-operative image showing pulmonary artery being opened (blue arrow) and the origin of LCA (Red arrow).

5. Summary

- ❖ Mortality is high in infants with ALCAPA due to fatal ischemia, mitral regurgitation and heart failure.
- ❖ Only 10% of patients survive to adulthood largely in part to the formation of extensive collaterals from the RCA to the LCA.
- ❖ Making a diagnosis through echocardiogram can be challenging therefore it is important to know classic findings such as prominent diastolic flow in the septum and retrograde flow into the pulmonary artery.