ESC European Society of Cardiology

European Heart Journal - Case Reports (2020) **4**, 1–2
doi:10.1093/ehjcr/ytaa054

Anomalous Left Circumflex Coronary Artery from Pulmonary Artery (ALXCAPA): an unusual cause of exertional chest pain in an octogenarian

Mohit Dayal Gupta *, Girish Meennahalli Palleda , Abhishek Gupta, and Vishal Batra

Department of Cardiology, GB Pant Hospital, Maulana Azad Medical College, Room 125, Academic Block, First floor, New Delhi 110002, India

Received 27 December 2019; first decision 16 January 2020; accepted 12 February 2020; online publish-ahead-of-print 12 March 2020

Case description

A 71-year-old gentleman, non-smoker, non-diabetic, recently detected hypertensive presented with progressively increasing angina over the last 3 years. His electrocardiogram showed left ventricular hypertrophy (LVH). Echocardiography also showed mild LVH with normal ejection fraction. His treadmill test was strongly positive for reversible myocardial ischaemia with changes persisting in recovery. His routine biochemical parameters were within normal limits. His coronary angiogram revealed Anomalous Left Circumflex Coronary Artery from Pulmonary Artery (ALXCAPA) (*Figure 1* and Supplementary material online, *Videos S1 and S2*). His right coronary artery was normal. His coronary computed tomography angiography confirmed the findings and did not show any malignant course of the left circumflex artery (LCX) (*Figure 2*).

Shriki *et al.*[1] divided coronary artery anomalies into (i) haemodynamically significant anomalies, which may be associated with shunting, ischaemia, or sudden cardiac death and (ii) anomalies that are usually not haemodynamically significant. Haemodynamically

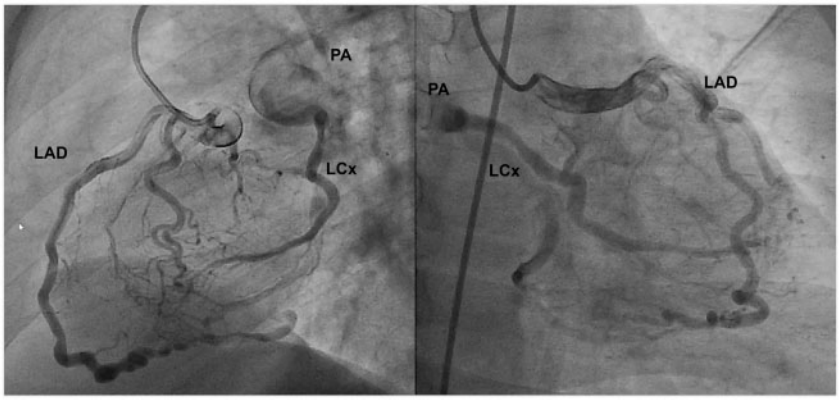

Figure 1 Coronary angiogram in lateral and right anterior oblique view showing anomalous origin of left circumflex artery from pulmonary artery. LAD, left anterior descending artery; LCx, left circumflex artery; PA, pulmonary artery.

* Corresponding author. Tel: +91 11 23234242, Ext 5125, Email: drmohitgupta@yahoo.com
Handling Editor: Mohamed F. Farag

Peer-reviewers: Ying Xuan Gue and Mohamed Hassan

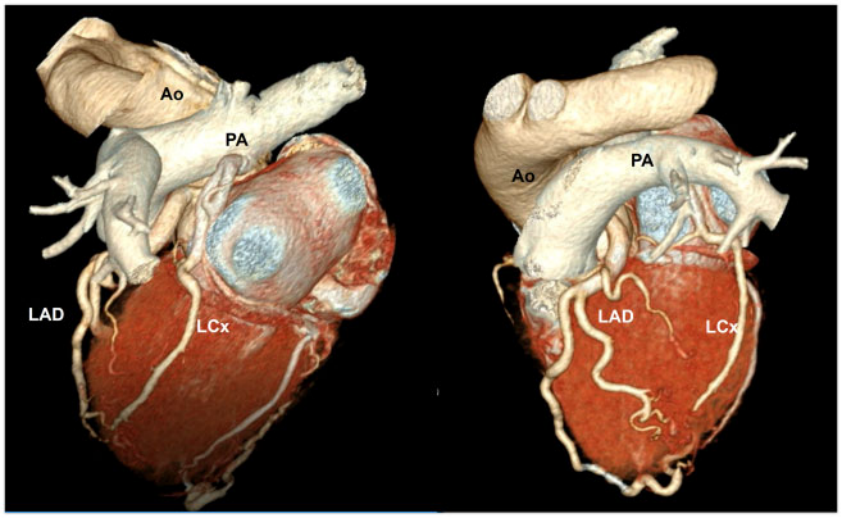

Figure 2 Computed tomography coronary angiography showing anomalous origin of left circumflex artery from pulmonary artery. Ao, aorta; LAD, left anterior descending artery; LCx, left circumflex artery; PA, pulmonary artery.

significant anomalies can be further divided into atresia, origin from the pulmonary artery, interarterial course, and congenital fistula. Anomalous origin of the left coronary artery from the pulmonary artery (ALCAPA) is a well-recognized syndrome that causes haemodynamic compromise. ALCAPA is rare variant and constitutes 0.5% of the total congenital anomalies. Most of the cases die in early infancy unless intervened early. Origin of circumflex artery from pulmonary artery (ALXCAPA) is a much rare type of ALCAPA and till date only few cases have been described.[2,3] Of all the reports, this is the first one to describe detection of this in an octogenarian. Our patient may have remained asymptomatic throughout his initial life because of the degree of collateralization and relatively small area of myocardium supplied by the LCX as compared to ALCAPA, where large part of myocardium is at jeopardy. Recent increase in myocardium demand due to LVH could have made him symptomatic. However, a presence of balanced microvascular ischaemia and the anomaly being an incidental finding cannot be ruled out. Though there are no definite standard indications for operative procedures and its timings but based on literature, surgical correction is necessary as this can lead to ischaemia, LV dysfunction, and rarely sudden cardiac death.[4] This patient was managed conservatively on optimal antianginal medications.

Supplementary material

Supplementary material is available at *European Heart Journal - Case Reports* online.

Consent: The author/s confirm that written consent for submission and publication of this case report including image(s) and associated text has been obtained from the patient in line with COPE guidance.

Conflict of interest: none declared.

References

1. Shriki JE, Shinbane JS, Rashid MA, Hindoyan A, Withey JG, DeFrance A, Cunningham M, Oliveira GR, Warren BH, Wilcox A. Identifying, characterizing, and classifying congenital anomalies of the coronary arteries. *Radiographics* 2012; **32**:453–468.
2. Garcia CM, Chandler J, Russell R. Anomalous left circumflex coronary artery from the right pulmonary artery: first adult case report. *Am Heart J* 1992;**123**:526–528.
3. Liu B, Fursevich D, O'Dell MC, Flores M, Feranec N. Anomalous left circumflex coronary artery arising from the right pulmonary artery: a rare cause of aborted sudden cardiac death. *Cureus* 2016;**8**:e499.
4. Bolognesi R, Alfieri O, Tsialtas D, Manca C. Surgical treatment of the left circumflex coronary artery from the pulmonary artery in an adult patient. *Ann Thorac Surg* 2003;**75**:1642–1643.