An exceptional clinical scenario

Chest pain after surgical repair of Bland-Garland-White syndrome

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Case description

A 19-year-old female with a past history of a surgical correction of a Bland-Garland-White syndrome was admitted to the emergency department complaining of chest pain precipitated by exercise. One year before, the patient underwent a left main closure by a pulmonary artery patch and a left internal mammary artery (LIMA) bypass to the left anterior descending (LAD) artery, with a substantial clinical improvement at the time. However, over the previous 3 months, the patient suffered symptom recurrence with a progressive worsening of the chest pain on physical exertion. The physical examination and the laboratory analysis (including serial cardiac troponin levels) were unremarkable. Electrocardiography showed sinus rhythm and a left

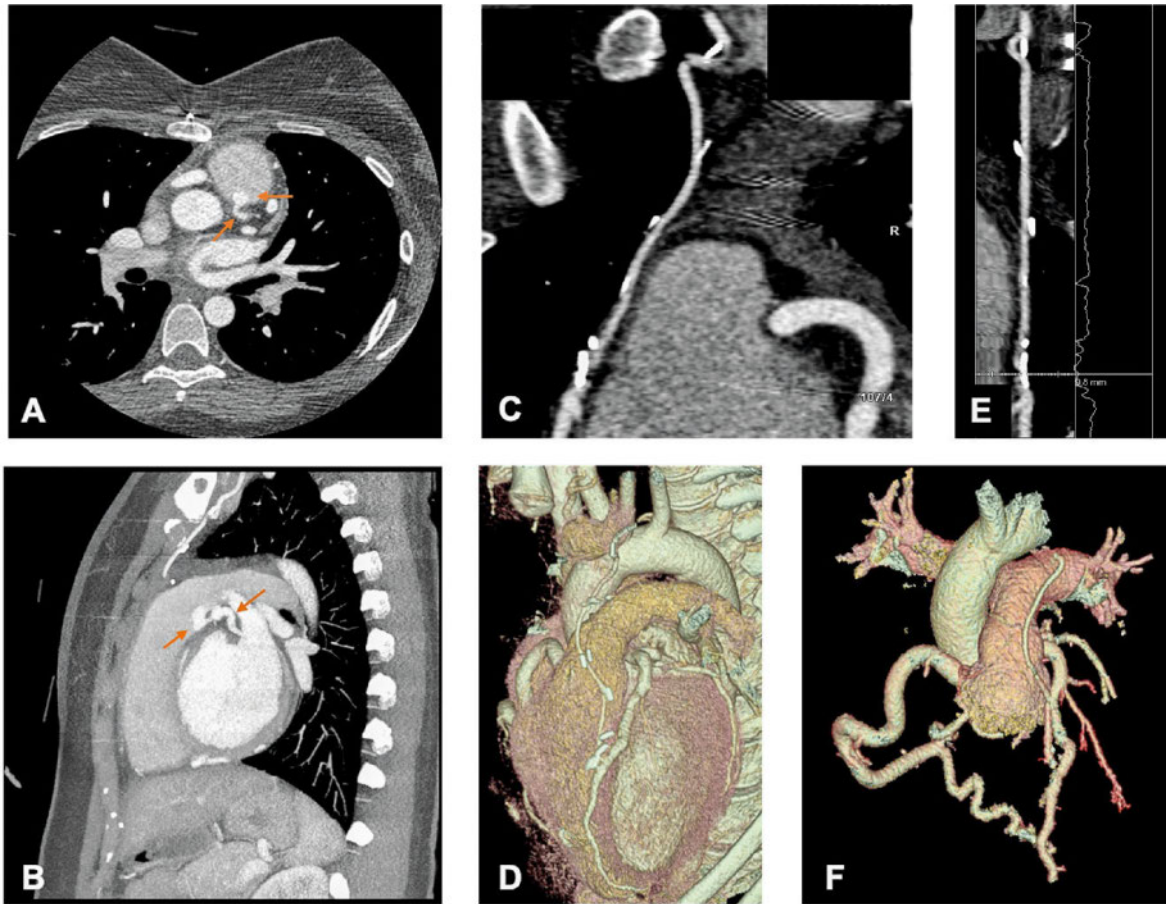

Figure 1: Axial and sagittal coronary computed tomography angiography images showing an anomalous left coronary artery from the pulmonary artery with signs of contrast flowing to the pulmonary artery suggestive of a left-to-right shunt (**A** and **B**). A patent left internal mammary artery to left anterior descending artery bypass can be observed in multiplanar reconstructed (**C** and **E**) and volume rendered (**D**) images. Coronary ectasia is also evident (**F**) as a result of a compensatory mechanism and a high-flow state originated by a coronary steal phenomenon. In this situation, blood is diverted from the right coronary artery and collateral circulation to the left coronary artery and the pulmonary trunk. In order to avoid myocardial ischaemia, the coronary arteries dilate to allow an increase of blood flow.

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anterior fascicular block. An echocardiogram revealed a preserved left ventricle ejection fraction, anterior hypokinesia and a systolic jet in right ventricular outflow tract that was suggestive of a left-to-right shunt (video 1: Echocardiogram showing a left ventricle with preserved ejection fraction, an anterior hypokinesia and a systolic jet in right ventricular outflow tract).

Coronary computed tomography (CT) angiography revealed a patent LIMA to LAD bypass, ectasia of right coronary artery and a suture dehiscence with a recanalisation of the left coronary artery ostium with signs of arterial flow from the left main to the pulmonary trunk (fig. 1) The patient underwent new cardiac surgery, and an ostium closure was performed with a polypropylene suture in an autologous pericardium patch. The patient was discharged from the hospital and after a 6-month follow-up remained asymptomatic.

This case highlights the increasing importance of noninvasive imaging in the evaluation of patients after surgical correction of coronary abnormalities.

Bland-Garland-White syndrome rarely presents in adults and data regarding the surgical strategy is limited and controversial [1–3]. In this patient, the heart team decided to perform ostium closure and LIMA bypass rather than reimplantation, as coronary mobilisation would not be adequately performed. Chest pain after this surgical correction may have several causes. Cardiovascular CT has high spatial resolution and rapid acquisition time, being the preferred technique for the evaluation of coronary artery anomalies and allowing the assessment of high-risk anatomy features [4]. In this particular case, cardiovascular CT allowed the identification of an ostium recanalisation and excluded other important causes of thoracic pain, including bypass failure.

This case describes an exceptional clinical scenario and highlights the increasing importance of noninvasive imaging in the evaluation of patients after surgical correction of coronary abnormalities when a complication or technique failure is suspected.

You will find the video file in the multimedia collection of «Cardiovascular Medicine»:
https://cardiovascmed.ch/online-only-content

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