

## Introduction

Delayed tamponade is a feared complication of cardiac surgery that warrants prompt treatment. The incidence of postoperative cardiac tamponade has been reported as 0.1%-6% in case series.<sup>1</sup> Late tamponade (typically defined as >48h postoperatively) can be challenging to diagnose due to its more insidious onset.<sup>2</sup> Rapid diagnosis of this complication is essential and can involve imaging in addition to clinical findings. Here, a spiral CT angiogram assisted not only in the diagnosis of tamponade, but also in identifying the culprit—active extravasation from a saphenous vein graft.

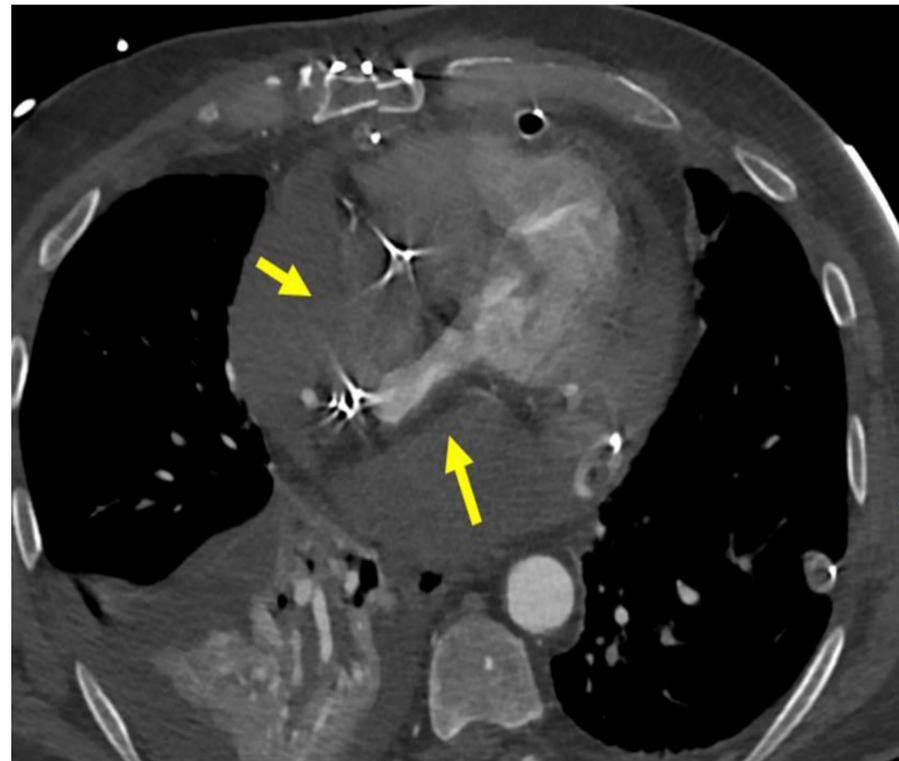
## Case Report

A 65-year-old gentleman underwent elective four-vessel coronary artery bypass grafting (left internal mammary artery to left anterior descending coronary artery; saphenous vein graft (SVG) sequentially to two obtuse marginal coronary arteries and SVG to the posterolateral branch of the right coronary artery (RCA)). He developed hypotension on postoperative day 4 with imaging raising concern for tamponade. He was returned to the operating room (OR) and a washout was performed; no source of bleeding was identified.

The patient progressed well for five days at which point he developed dyspnea, hypotension, and tachycardia. At this time, a multiphase spiral Computed tomography angiogram (CTA) was performed to rule out pulmonary embolism and any source of acute hemorrhage. These images revealed a moderate pericardial effusion compressing both atria with active extravasation from a SVG to the posterolateral branch of the RCA, more apparent on the delayed venous phase imaging compared to the arterial phase (Figures 1 and 2). He was taken back to the OR for repair of the leaking SVG branch and relief of tamponade. He subsequently recovered and was discharged home.

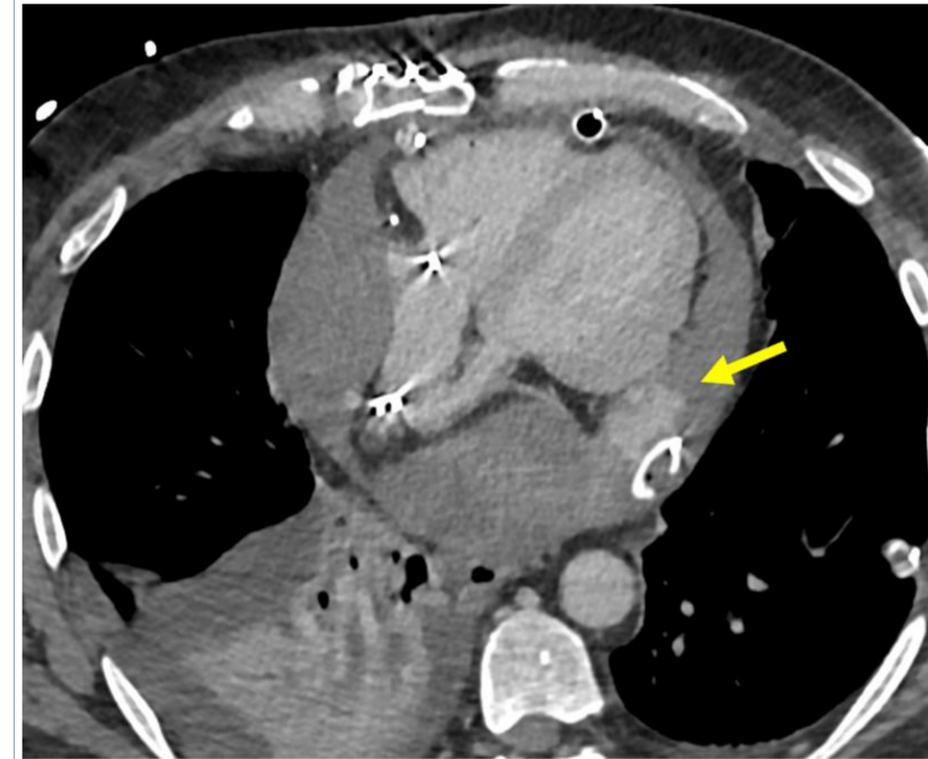
## Imaging

**Figure 1. Arterial phase Spiral CT angiogram**



**Figure 1.** Arterial phase Spiral CT angiogram showing acute tamponade with compression on the atria (arrows).

**Figure 2. Delayed venous phase spiral CT angiogram**



**Figure 2.** Delayed venous phase spiral CT angiogram showing active extravasation of contrast (arrow) from a vessel on the posterior left ventricle, adjacent to the pericardial drain. This is more apparent compared to arterial phase image at the corresponding axial slice.

## Conclusions

- Delayed tamponade is a life-threatening complication of cardiac surgery
- CT angiography may be helpful in diagnosing tamponade as well as in identifying the source, as active bleeding was not apparent on this patient's first reintervention but subsequently identified on venous phase spiral CT angiogram.

## References

1. Ofori-Krakye SK, Tyberg TI, Geha AS, Hammond GL, Cohen LS, Langou RA. Late cardiac tamponade after open heart surgery: incidence, role of anticoagulants in its pathogenesis and its relationship to the postpericardiotomy syndrome. *Circulation*. 1981;63(6):1323-1328. doi:10.1161/01.cir.63.6.1323
2. Leiva EH, Carreño M, Bucheli FR, Bonfanti AC, Umaña JP, Dennis RJ. Factors associated with delayed cardiac tamponade after cardiac surgery. *Ann Card Anaesth* 2018;21:158-66.