Hiatal hernia causing extrapericardial tamponade after coronary bypass surgery

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Abstract

Cardiac tamponade is defined as compression of the heart due to accumulation of fluid in the pericardial sac, leading to raised pericardial pressures with haemodynamic compromise. We describe the case of a 76-year old female patient who underwent a routine off-pump coronary artery bypass graft operation and within 48 h developed classic signs of cardiac tamponade. The perioperative echocardiogram and operative findings at re-exploration revealed no clots or fluid collection. A giant hiatus hernia was found to be responsible for the tamponade through extrinsic compression. After insertion of a nasogastric tube and decompression of the stomach, there was a rapid improvement of the clinical picture. The remaining postoperative course was uneventful and the patient was discharged 5 days later, with referral to the general surgeon for further management. We conclude that, in cases of tamponade post-cardiac surgery, extrapericardial pathologies should be considered.

Keywords: Off-pump coronary bypass · Hiatus hernia · Cardiac tamponade · Cardiac surgery complications · Extrapericardial tamponade

CASE REPORT

A 76-year old asthmatic, hypertensive female with a previous history of inferior wall myocardial infarction and drug-eluting stent implantation to the right coronary artery re-presented 8 months later with ongoing dyspnoea and occasional chest pain. The coronary angiogram showed left main stem disease, with a patent stent to the right coronary artery. Transthoracic echocardiogram demonstrated an ejection fraction of 58% and no valvular pathology. A carotid Doppler ultrasound scan was normal and plain chest radiography suggested a large hiatus hernia (Fig. 1). The patient underwent off-pump double coronary artery bypass grafting. The left anterior descending and first marginal arteries were bypassed using, respectively, the left internal mammary artery and a venous graft. The patient was stable and extubated after 6 h.

The following day the patient became haemodynamically unstable with increasing inotropic requirements and a low urine output. An electrocardiogram showed no new ischaemic changes, and a repeated chest radiograph demonstrated clear lung fields, no evident effusions or enlarged pericardial shadow, but did reveal an increase in the size of the hiatus hernia. A bedside transthoracic echocardiogram was then performed and was suggestive of poor venous return and filling of all chambers, with mildly impaired ventricular function and extrinsic cardiac compression.

Owing to the patient’s clinical picture of cardiac tamponade and ongoing deterioration, she was returned to the theatre for urgent re-exploration.

On table, transoesophageal echocardiogram (Fig. 2) did not show any intrapericardial collection, but demonstrated extrinsic cardiac compression of the inferior wall and the giant hiatus hernia. Re-exploration revealed no pericardial collection and we concluded that the hiatus hernia was responsible for mimicking cardiac tamponade. A nasogastric tube was inserted to decompress the stomach and large amounts of gastric contents aspirated, resulting in improvement in the patient’s haemodynamic status. The patient was extubated the following day and proceeded to an uneventful recovery with discharge on the fifth postoperative day.

DISCUSSION

Cardiac tamponade is a life-threatening condition usually caused by active haemorrhage or clots and is thus frequently encountered postoperatively in cardiothoracic surgery. Gastric dilatation is also a common observation in the early postoperative period following cardiac surgery, but has rarely been reported to cause cardiac tamponade. Hiatus herniation is defined as the prolapsing of abdominal contents through the oesophageal hiatus. Its prevalence is higher in western countries and in men, and it has been associated with obesity and increasing age [1]. Most hiatal hernias are considered to be asymptomatic and are discovered incidentally. However, they can present most typically with symptoms of gastro-oesophageal reflux disease as well as peptic ulceration and are associated with oesophageal adenocarcinoma and idiopathic pulmonary fibrosis. Hiatal hernias can lead to fatal outcomes, such as gastric volvulus and incarceration. In a retrospective Finnish study of patients admitted due to symptomatic hiatal hernias and treated conservatively, the mortality rate related to the condition was 16.4% [2].

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There are cases of extrapericardial tamponade due to acute hiatal hernia recurrence post-repair reported in the literature. To the best of our knowledge, this is only the second case describing tamponade through extrinsic compression by a hiatus hernia after coronary artery bypass surgery [3], although a similar case was also described post-type A aortic dissection repair [4].

Routine placement of a nasogastric tube in cardiac surgery continues to remain debatable, although it was deemed superfluous in a randomized controlled trial by Russell et al. [5]. However, patients with hiatal hernias might benefit from a nasogastric tube in order to avoid an increased risk of gastric stasis, vomiting and aspiration pneumonia and, in the worst cases, haemodynamic compromise, increasing requirements for ionotropic support and the added insult of consequent re-exploration.

CONCLUSION

Hiatus hernia should be identified preoperatively and considered as a cause of cardiac tamponade, if present. Routine insertion of nasogastric tubes in patients with known hiatal hernias should be common practice as a pre-emptive measure to increase patient safety.

Conflict of interest: none declared.

REFERENCES