

Pericardial effusion of abnormal appearance in the setting of recent oesophageal surgery

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Accepted 26 November 2022

DESCRIPTION

A patient in their 40s with gastric adenocarcinoma and recent oesophageal stent insertion presented to the emergency department with haemodynamic compromise. The oesophageal stent was inserted 3 weeks prior due to dysphagia from local disease recurrence. On admission, the patient had a blood pressure of 80/60 mm Hg, a heart rate of 120 bpm and was afebrile. He had a white cell count of $20.9 \times 10^9/L$ with a predominant neutrophilia of $12.02 \times 10^9/L$ and a C reactive protein of 409.2 mg/L.

A transthoracic echocardiogram was urgently organised. It revealed a moderate-sized, complex-appearing global pericardial effusion with early signs of tamponade as evidenced by right ventricular and right atrial collapse, a dilated inferior vena cava with reduced inspiratory collapse and borderline significant inspiratory reduction of diastolic mitral inflow velocity. A pericardiocentesis was performed and 300 mL of a milky fluid was aspirated (figure 1).

The main differentials of a milky pericardial aspirate are a purulent effusion, chylopericardium and cholesterol pericarditis, which are all rare disorders.¹ Purulent pericarditis is a serious complication of bacterial pericarditis and is characterised by gross pus in the pericardium or microscopically purulent effusion.² It is caused by bacterial invasion of the pericardium or by haematogenous spread.² This condition is associated with a high mortality rate as it simultaneously threatens septicaemia and tamponade.¹ Chylopericardium is a pericardial effusion composed of chyle and is associated with damage to the thoracic duct. It is diagnosed on pericardial fluid analysis with a triglyceride level greater than 500 mg/dL and a cholesterol/triglyceride ratio



Figure 1 Collection bag of pericardial fluid aspirate.

less than one.³ Cholesterol pericarditis is seen in the setting of chronic pericardial effusions, secondary to tuberculosis or rheumatoid pericarditis. It has an elevated cholesterol and total lipid levels like a chylopericardium but contains cholesterol crystals and differs in appearance. The fluid may vary in colour from being cloudy to amber and classically has a glittering 'gold paint' appearance.¹ In this patient's case, the recent oesophageal surgery raises another possibility of a communication between the

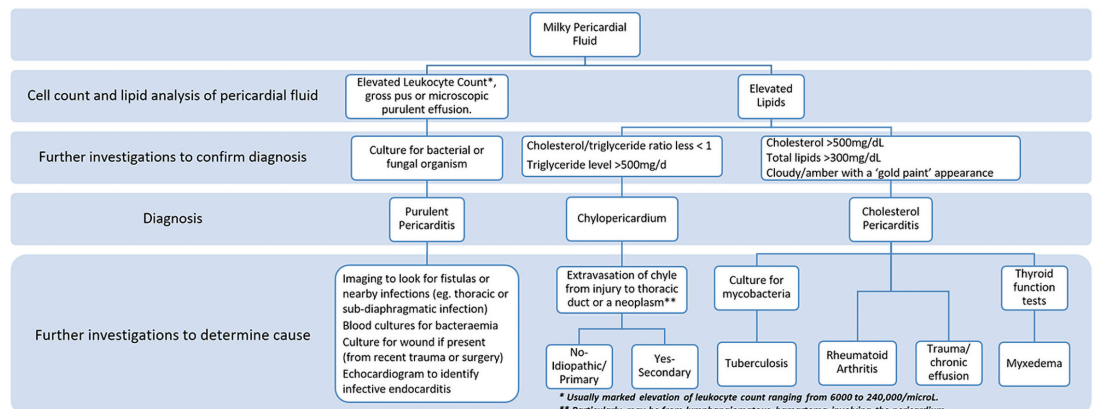


Figure 2 Diagnostic algorithm following pericardiocentesis of milky fluid. Created by ZF and TS.



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To cite: Farooq Z, Scully T, Dupuche D, et al. *BMJ Case Rep* 2022;**15**:e253391. doi:10.1136/bcr-2022-253391

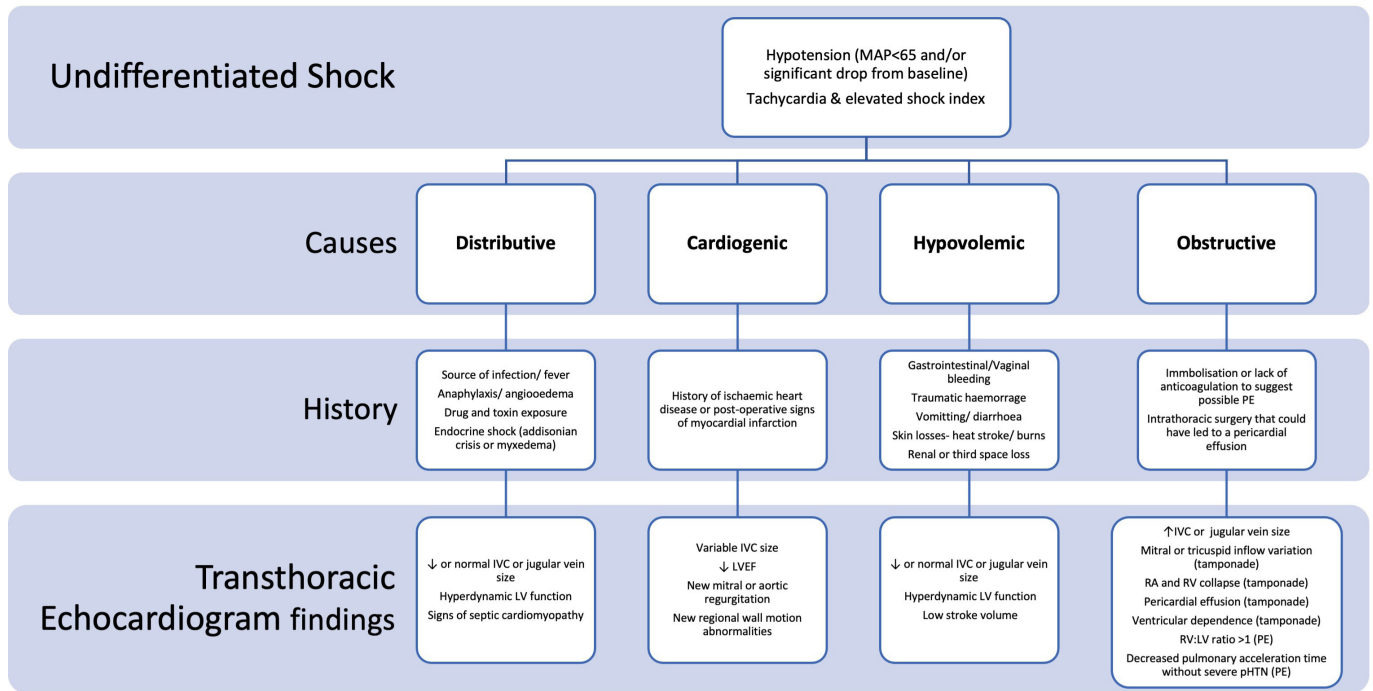


Figure 3 Algorithm to determine cause of undifferentiated shock in the post-operative setting using transthoracic echocardiogram. Created by ZF and TS. IVC, inferior vena cava; LV, left ventricle; PE, pulmonary emboli; PTx, pneumothorax; RV, right ventricle; MAP, mean arterial pressure; LVEF, left ventricular ejection fraction

oesophagus and the pericardial space with possible enteral feeds accumulating in the pericardium.

The key to diagnosis is an analysis of the fluid, with particular focus on the triglyceride level and white cell count (figure 2). In this setting, a CT scan to assess for the presence of an oesophago-pericardial fistula is required. On analysis of the pericardial fluid, the triglyceride level was 9 mg/dL, the cholesterol/triglyceride ratio was 2.8 and the polymorphs >50 000×10⁶/L. The fluid analysis was not consistent with enteral feed fluids. The pericardial fluid culture grew a streptococcus anginosus species and a purulent pericardium was diagnosed. A subsequent CT scan showed that there was evidence of mediastinitis and possible oesophageal perforation with a posterior mediastinal collection.

The patient developed increasing vasopressor requirements and was commenced on intravenous meropenem, vancomycin and fluconazole but unfortunately died. Purulent pericarditis due to an oesophago-pericardial fistula is rare and is particularly

devastating with an in-hospital mortality of 83%.⁴ The early diagnosis and management of this condition is therefore paramount to improve patient outcomes (figure 3).

Contributors In terms of the contribution of each author, BC was the imaging cardiologist for the case who performed the pericardiocentesis and DD was the sonographer who obtained the initial images. ZF and TS collected all images and have cowritten the manuscript.

Funding The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Competing interests None declared.

Patient consent for publication Consent obtained from next of kin.

Provenance and peer review Not commissioned; externally peer reviewed.

Case reports provide a valuable learning resource for the scientific community and can indicate areas of interest for future research. They should not be used in isolation to guide treatment choices or public health policy.

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Learning points

- ▶ Differentials of a milky pericardial aspirate include chylopericardium, cholesterol pericarditis and purulent pericarditis.
- ▶ Purulent pericardial effusion is associated with a high mortality rate and early recognition and management is paramount.

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