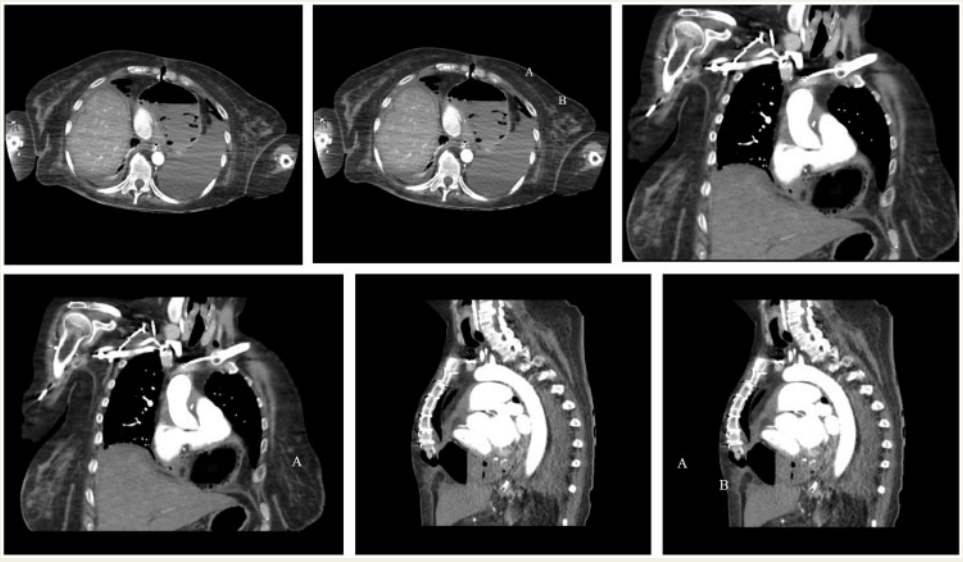
CARDIOVASCULAR FLASHLIGHT
doi:10.1093/eurheartj/ehab434
Online publish-ahead-of-print 9 July 2021

Infected emphysematous pericardial effusion with tamponade

Nilesh Anand Devanand * and Timothy Paul Webber

Intensive Care Unit, Level 4, Royal Adelaide Hospital, Port Road, Adelaide, SA 5000, Australia

* Corresponding author. Tel: +6411531341, Email: drnileshanand@gmail.com



A 66-year-old independent lady with a previous heart transplant history presented to the hospital in multiorgan failure from cardiogenic shock. She was cyanotic, peripherally cool, and profoundly hypotensive in the emergency department, requiring aggressive fluid resuscitation and vasopressor support.

An echocardiogram was immediately performed, which oddly demonstrated, an air-fluid-filled structure assumed to be the stomach compressing both cardiac ventricles. Given the undifferentiated shock, an urgent computed tomography (CT) scan was done, which surprisingly revealed a large pericardial fluid with multiple gas locules within along with a sizeable gas collection that tracked anteriorly towards a previous sternotomy site.

A bedside pericardiocentesis done in the intensive care unit later drained 160 ml of haemoserous fluid and air, which immediately relieved the external compression on both ventricular chambers, thus improving her haemodynamics significantly.

On historical review, she had recently been treated for *Escherichia coli* (*E. coli*) bacteraemia from a urinary tract infection and completed 1 week of intravenous ceftriaxone. She also underwent a concurrent myocardial biopsy at that time to investigate a possible graft vs. host disease.

Her pericardial fluid subsequently cultured *E. coli*, confirming our clinical suspicion of bacterial seeding at the myocardial biopsy site. The expected minor pericardial bleeding from the procedure likely became infected with the gas-producing bacteria, leading to the formation of a pneumopericardium.

Despite a pericardial washout, she deteriorated postoperatively into fulminant multiorgan failure and died on maximal life support therapy.

In conclusion, this case highlights the unique pathogenesis of an infected pneumopericardium causing pericardial tamponade and cardiogenic shock.

Axial chest CT scan demonstrating multiple gas locules within the pericardial fluid with an air-fluid level. Note the tracking of gas anteriorly towards the sternum. The right and left ventricles are completely compressed and do not appear on this contrasted scan. A: Formed gas tracking anteriorly towards sternum. B: Loculated pericardial effusion with an air-fluid level.

Coronal chest CT scan demonstrating a large collection of gas within the pericardium compressing the left ventricle with absent contrast follow through. Multiple gas locules are present within the pericardium. A: Gas collection within the pericardium compressing the left ventricle with absent contrast follow through.

Sagittal chest CT scan demonstrating an air-fluid level within the pericardium. The pericardial collection is compressing the left ventricle confirmed by the absent contrast follow through. Note the gas tracking anteriorly around the sternum. A: Gas tracking anteriorly around the sternum. B: Loculated pericardial collection with an air-fluid level.

Acknowledgements: We thank Mr.Dean Hogben for assisting with acquiring the images.

Funding: No funding sources to declare.

Conflict of interest: The authors have submitted their declaration which can be found in the article Supplementary Material online.

The authors confirm that the data and findings of this case are available within the article.