


Visualizing pericardial inflammation as the cause of acute chest pain in a patient with a congenital pericardial cyst: the incremental diagnostic value of cardiac magnetic resonance

Jawad Mazhar1, Claire Lawley1, Anthony J. Gill2, Stuart M. Grieve3,4, and Gemma A. Figtree1,4*

1Department of Cardiology, Royal North Shore Hospital, Sydney, Australia; 2Department of Pathology, Royal North Shore Hospital, Sydney, Australia; 3Department of Radiology, Royal Prince Alfred Hospital, Sydney, Australia; and 4North Shore Heart Research Group, Kolling Institute, University of Sydney, St Leonards 2065 Sydney, NSW, Australia

* Corresponding author. Tel: +61 2 9926 8687, Fax: +61 2 9926 6521, Email: gfigtree@med.usyd.edu.au

A 29-year-old female presented with chest pain radiating to the back and worse on inspiration. An ECG was unremarkable. D-Dimer was 0.54 µg/mL (<0.5 µg/mL). Chest X-ray showed an abnormal left heart border (Panel A). CT pulmonary angiogram found no evidence of pulmonary embolism, but showed a 7.5 × 5.4 × 3.6 cm cyst, continuous with the pericardium (Panel B). An echocardiogram showed an echo-lucent mass adjacent to the left ventricle (Panel C). As the cause of chest pain in a cyst likely to have been present since birth was unclear, a cardiac MRI (CMR) was performed. This showed both the wall of the cyst, and the pericardium to have increased T2 signal intensity (Panel D), as well as early (Panel E) and delayed gadolinium enhancement (Panel F), suggesting pericarditis extending to involve the pericardial cyst. As a result of persisting, severe pain, the cyst was resected thoracoscopically. Histological examination confirmed that the pericardial cyst was actively inflamed: the wall was thickened due to a combination of fibrosis (white arrows) and fat necrosis (black arrows, Panel G). The inner cyst was lined by mesothelial cells showing reactive atypia (black arrows, Panel H) and contained an acute inflammatory exudate (white arrow), which was rich in macrophages and neutrophils (Panel I).

Congenital pericardial cysts are rare with an incidence of ~1 in 100,000. Most are asymptomatic, and are found incidentally. This case demonstrates the unique ability of CMR to visualize inflammation, assisting in the diagnosis of pericarditis as a cause of chest pain in a previously asymptomatic pericardial cyst.