Pneumopericardium as a first sign of oesophageal perforation: the role of echocardiography

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A 64-year-old male with a palliative metallic stent placed in for oesophageal carcinoma 7 months ago presented to the hospital with acute dyspnoea. He was found to have small air bubbles swirling in the pericardial space giving 'fish tank' appearance with moderate effusion (Panel A; see Supplementary data online, Video S1), suggestive of pneumopericardium on the echocardiogram. With a suspicion for gastrointestinal perforation, he later underwent a computed tomography of the chest (Panels B and D) that showed oesophageal perforation with pneumopericardium and pneumomediastinum. There is a central role of radiographic findings in diagnosing this condition. Pneumopericardium is most often seen as a radiolucent space along the left border of the heart in the chest radiograph as in our patient (Panel C). Echocardiography played an important part in the diagnosis of pneumopericardium in our case. In some cases, however, air within the pericardium may interfere with the echo images acquisition creating echo dropouts. Once no evident cause is found, oesophageal studies should be performed to look for perforation and possible fistula formation. Pneumopericardium occurring as an unusual complication of perforated oesophagus with a metallic stent placed in for palliation of dysphagia. It is a lethal condition and is an emergency indication for surgical repair. In our case, the patient refused any surgical interventions. Patient expired on the fifth day of hospitalization.

Supplementary data are available at European Heart Journal – Cardiovascular Imaging online.

Panel A. Apical four-chamber view showing air bubbles in the pericardial space.
Panel B. Computed tomographic scan of the chest showing oesophageal perforation leading to air tracking into the mediastinum and entering the pericardial space.
Panel C. Chest X-ray showing air around the left heart border.
Panel D. Computed tomographic scan of the chest showing oesophageal perforation with air tracking into the mediastinum and communicating with the left bronchus.

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