Chylopericardium associated with constrictive pericarditis assessed by multimodality imaging

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Abstract

An 80-year-old male patient developed exertional dyspnea and bilateral peripheral oedema whilst on holiday in Australia. Investigations including an echocardiogram, cardiac computed tomography and cardiac magnetic resonance suggested calcific pericardial thickening encapsulating the heart with associated constriction. This is an interesting case as constriction was associated with a large chylopericardium of unknown cause.

Clinical key message:

Acute onset presentation with breathlessness and calcific pericardial thickening encapsulating the heart. Chylous pericardium, which is by itself rare, with extremely chylous pericardium in combination with constriction.

Case Report

An 80-year-old male patient developed exertional dyspnea and bilateral peripheral oedema whilst on holiday in Australia. There was no history of fever, productive cough or joint pain. Initial investigations including an echocardiogram and a cardiac computed tomography (CT) **(Figures 1, 2, Videos 1,2)** suggested calcific pericardial thickening encapsulating the heart with associated constriction. A diagnostic angiogram was normal. The diagnosis of constrictive pericarditis was confirmed with right heart catheterization.

The patient was referred for further assessment with cardiac magnetic resonance imaging (CMR). Biventricular size and global systolic function were in the normal range with no evidence of myocardial necrosis. There was pprominent pericardial thickening of both layers and mild to moderate pericardial effusion with inspiratory left ventricular (LV) septal bounce in mid LV short-axis free-breathing sequences. The findings were consistent with a diagnosis of an effusive constrictive pericarditis.

The patient was referred for surgical treatment and underwent pericardial resection via median sternotomy without cardiopulmonary bypass. Multiple membranous cream pieces of tissue showing patchy areas of extensive calcification were identified, the largest one measuring 1.52x1.65x3mm in thickness **(Figure 3, Videos 3,4)**. No discrete nodule or mass was detected. A collection of chylous effusion was evacuated which is particularly unusual in association with constrictive pericarditis. Cytology demonstrated an abundance of lymphocytes. Further biochemistry, histology and microbiology assessment was negative.

Discussion

Chylopericardium is a pericardial effusion comprised of chyle, the normal content of the lacteals (lymphatics of the small intestine) and thoracic duct.[1] Chylopericardium may be primary (idiopathic) or, much more often, secondary to a communication between the pericardial sac and the thoracic duct as a result of trauma, congenital anomalies, or as a complication of open-heart surgery, mediastinal lymphangiomas, lymphangiomatous hamartomas, lymphangiectasis, and obstruction or anomalies of the thoracic duct.[2,3]

When the diagnosis of chylopericardium has been established, investigations specifically looking for malignant disease, lymphoma, and tuberculosis should be carried out. A history of trauma caused by thoracic surgery or blunt injury, the introduction of subclavian venous catheters, or episodes of vomiting or violent coughing should be looked for.[4] Our patient did not have a history of treatment for tuberculosis nor any other conditions of the above-mentioned, which is consistent with primary idiopathic chylopericardium.

Legend to Figure 1A-B: Appearance of pericardial calcification on antero-posterior (A) and lateral chest radiograph (B) (localizers).

Legend to Figure 2A-B: Appearance of pericardial calcification on chest computed tomography.

Conflict of interest

None to be declared

Authors contribution

EA is corresponding author and took full responsibility for the contents of this manuscript; KB diagnosed and followed-up the patient and conceived of the case report; TC diagnosed and follow-up the patient; CV operated and was the responsible surgeon.

Ethical statement

All procedures were in accordance with the ethical standards of the institutional and national research committee and with the Helsinki Declaration and its later amendments or comparable ethical standards. Also, informed consent was obtained from the patient involved in this case report.

Acknowledgement statement

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