Case report - Thoracic general
Chylopericardial tamponade

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Abstract

Pericardial tamponade is a life-threatening emergency. Chyle is a rare cause of pericardial effusion and can lead to cardiac tamponade. This case illustrates the presentation, work-up and operative video of a patient in pericardial tamponade secondary to chylopericardium.

Keywords: Pericardial tamponade; Chyle; Pericardium; Pericardial window

1. Case report

A 45-year-old man presented to hospital in respiratory distress and shock. Past medical history revealed an admission (14 years prior) for symptomatic pericardial effusion which resolved with conservative management and NSAIDs. There was no history of trauma or malignancy.

The patient was found to have an enlarged pericardial silhouette on chest X-ray which was treated by emergent percutaneous pericardiocentesis, alleviating his symptoms. The fluid was of a milky color and consistency. Fluid analysis revealed a high triglyceride level (38 mmol/l). Gram stain, culture and cytology were negative.

Pedal \textsuperscript{99m}Tc-SC lymphoscintigraphy (Fig. 1) at 4 h post-injection revealed an abnormal V pattern at the level of the brachiocephalic trunks and a discrete region of increased uptake at the pericardial level. Symptomatic effusion recurred while in hospital and the patient was, therefore, taken to the operating room where he underwent pericardial window (Video 1) and mass ligation of the thoracic duct via right-sided video-assisted thoracoscopic approach. Note the pressure with which the fluid is released following incision into the pericardium.

At 4 years follow-up, the patient is in good health and has not had recurrence of his pericardial effusion.

2. Discussion

Chylopericardium is a rare cause of pericardial effusion and occurs secondary to a congenital, traumatic \cite{1} or iatrogenic (cardiac surgery) \cite{2} communication between the thoracic duct and pericardium. It can also occur secondary to thoracic duct obstruction from malignancy or an intrathoracic mass \cite{3}. We recently reviewed 342 patients, who required pericardial window for pericardial effusion over a ten-year period and did not find chyle to be the cause of effusion in any case \cite{4}.

Primary isolated idiopathic chylous pericardial effusion is a rare disease where chyle accumulates in the pericardium in a patient without a history of trauma, surgery or intrathoracic malignancy. Lymphatic leakage into or lymphatic connections to the pericardial sac can be demonstrated by pre-operative lymphoscintigraphy or intra-operative thoracic ductogram \cite{5}. Primary chylopericardial effusions can also rarely be associated with chylothorax \cite{6,7}.

Definitive treatment for primary idiopathic chylopericardial effusion includes thoracic duct ligation and creation of a pericardial window (partial pericardiectomy) \cite{5,8}. This is usually done through a right anterior or posterolateral thoracotomy. Recently, the minimally invasive approach (video assisted thorascoscopic surgery – VATS) has been successfully applied to the treatment of pericardial effusion. There have been two reports of the treatment of chylopericardium using VATS techniques \cite{9,10}. Pericardial window performed by VATS is a simple procedure with minimal morbidity and, if successful, avoids thoracotomy in these patients. Mass ligation of the thoracic duct requires the ability to perform thorascoscopic suturing, however, it can be easily applied once these skills are attained. Alter-
Video 1. Video Assisted Thoracoscopic Surgical (VATS) approach to right sided pericardial window.

Alternatively, if found, the thoracic duct can be clipped using metallic or plastic clips.

References