

# Chylous Pericardial effusion causing cardiac tamponade: a rare manifestation of superior vena cava obstruction

Arindam Sharma, Abhishek Thandra

Division of Cardiology, Creighton University School of Medicine

## Introduction:

Chylous pericardial effusion is rare and occurs in 0.2% to 1% of patients after open-heart surgery. Other causes include blunt or penetrating chest trauma, lymphangiectasia, mediastinal tumors, radiation or primary idiopathic. We present a complex case of chylous pericardial effusion with tamponade physiology occurring because of superior vena cava (SVC) thrombosis.

## Case Description:

A 48-year-old male with prior history of protein S deficiency, venous thromboembolism (deep vein thrombosis/pulmonary embolism), morbid obesity, obstructive sleep apnea, and on chronic oral anticoagulation with rivaroxaban presented to the emergency department with complaints of shortness of breath and cough for 10 days. On initial examination, patient was in severe respiratory distress and hemodynamically stable. He was kept on supplemental oxygen via nonrebreather mask. CT scan of the Chest (Image 1) showed a large thrombus in the right atrium, SVC and innominate vein. Along with pulmonary embolism of the right middle and lower pulmonary artery, and a moderate to large pericardial effusion. Upon review of prior imaging from a year ago, the nature of the SVC thrombus was assumed to be acute on chronic. The patient was started on therapeutic anticoagulation with intravenous heparin. A transthoracic echocardiogram revealed a moderate sized circumferential pericardial effusion with tamponade physiology (need to mention the findings). An emergent pericardiocentesis was performed and 650 cc of brown turbid pericardial fluid was drained.

Pericardial fluid analysis revealed white blood cell count of 26,248/ul, red blood cell count of 91,100/ul, Triglyceride level of 2,726 mg/dl, cholesterol of <200 mg/dl, LDH 373 u/l, protein of 4.8 g/dl, glucose of 158 mg/dl, lipase of 25 u/l and amylase of 20 u/l. The bacterial/fungal cultures and cell cytology were negative.

The results led to the diagnosis of chylous pericardial effusion (with elevated TG and Cholesterol/TG ratio <1). The mechanism of this effusion was considered to be from obstruction of the thoracic duct at the SVC/ left brachiocephalic vein junction leading to increased intrathoracic duct pressure and leakage of chyle into the pericardium. The patient further underwent catheter directed thrombolysis of the left innominate vein. His clinical status gradually improved, and he was discharged. Serial follow up echocardiograms in clinic revealed resolution of the pericardial effusion in one month.

## Discussion:

The mainstay treatment of chylous pericardial effusion are conservative management or emergent pericardiocentesis in hemodynamically unstable patients. If conservative treatment fails, surgical intervention may be required which may include video-assisted thoracoscopic

surgery, open thoracotomy, thoracic-duct ligation with a pericardial window, or pericardial-peritoneal shunting. Subcutaneously administered octreotide had also been helpful by inhibiting triglyceride absorption, splanchnic and thoracic duct flow thereby reducing accumulation of chyle.

Images:



Image 1 : CT scan of the chest showing SVC thrombus