



# A Watchful Wait: Monitoring A Large Malignant Pericardial Effusion In A 23 Year Old Female

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## Introduction

Pericardial effusion is an infrequent (5% to 24%) initial presentation of patients with Hodgkin's Lymphoma. The underlying pathophysiology is thought to be due to impedance of lymphatic and venous return from mass effect in the mediastinum or pericardial metastasis[1]. Lymphomas especially, can block the lymphatic channels in the visceral pericardium which combine to form a single outlet for drainage at the aortic root [2,3]. Pericardial effusion could be small to large and could be symptomatic or clinically silent. Patients with large effusions can present with or without tamponade physiology. Echocardiography is a non-invasive accessible tool which could be used to closely monitor various parameters and response to therapy/interventions. We propose serial echocardiographic quantification of malignant large pericardial effusions to closely monitor for early signs of decompensation, where a prompt decompression may be warranted [4]. While in cases where such signs are not seen and the

effusion remains stable, it is reasonable to await response to chemotherapy. Here we report a case of a young female with a large malignant pericardial effusion, which we monitored with serial echocardiograms until chemotherapy could be initiated. This patient was eventually diagnosed with classical nodular sclerosing Hodgkin's Lymphoma; the subtype of which seems to be prone to developing pericardial effusions [5].

## Case summary

A 23 year old female without any known past medical history presented with dyspnea and chest discomfort for two weeks. She was hemodynamically stable and had normal routine blood work. A CT Chest with contrast was obtained, which demonstrated a large anterior mediastinal mass with accompanying moderate to large pericardial effusion (Figure 1). Serial echocardiograms were obtained approximately every four days to monitor the large pericardial effusion (Video 1, Video 2, Video 3)



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for any evolving features of tamponade. Mediastinal mass core biopsy revealed Hodgkin's Lymphoma (Stage II, nodular sclerosing) with immunohistochemistry positive for CD15, CD30, CD20, weak expression of PAX-5, positive CD45, negative AE1/AE3 and cytomorphology suggesting classical Hodgkin's Lymphoma. Further imaging for staging including CT of the abdomen/pelvis did not reveal any lymphadenopathy below the diaphragm, no evidence of disease in the bone marrow as well. She was initiated on Dexamethasone 40 mg IV daily for four days and planned for ABVD regimen. She was discharged with cardiology follow up for monitoring of pericardial effusion and PET-CT as an outpatient.

### Discussion

The differential diagnosis of pericardial effusion includes idiopathic causes, infection, drug or radiation induced, pericardial seeding from metastatic disease and invasion from primary mediastinal tumors [2,3]. We believe it would be prudent to have a low threshold to obtain an initial echocardiogram in a patient who presents with B symptoms and/or dyspnea, to evaluate for a pericardial effusion. Echocardiogram remains superior and the most specific imaging modality to elucidate the presence, location, size and hemodynamic effect of pericardial effusion. Serial cardiac echocardiograms can be pivotal to monitoring large effusions, as it can reveal chamber collapse or abnormal respiratory variations which may occur prior to a clinical hemodynamic compromise [5].

Common findings on echocardiogram which may suggest tamponade are collapse of the right atrium at the end of diastole (earliest change), right ventricular collapse in early diastole (high specificity), reciprocal changes in left and right ventricular volumes with respiration, respiratory cycle changes in mitral and tricuspid valve in-flow velocities, and inferior vena cava dilation with less than a 50% reduction in IVC diameter during inspiration [6]. In patients without evidence of features suggested above, cautious monitoring with serial echocardiograms

can be utilized to monitor closely for decompensation. Emphasis must be placed on targeted therapy being initiated to address the underlying cause of effusion, regardless of size [5]. Drainage of a pericardial effusion should be performed when a patient is symptomatic and there is evidence of chamber collapse. However, it may be reasonable to await response to directed therapy in an asymptomatic patient. Systemic therapy is superior to invasive intervention in pericardial effusions that do not cause hemodynamic instability and develop chronically. In a hemodynamically stable patient with a moderate to large malignant pericardial effusion, close monitoring with serial echocardiograms, while awaiting response to cancer directed therapy is an effective way to mitigate risks of an urgent pericardiocentesis when it may not be indicated.

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