

A Case of Unusual Cardiac Infiltration by Nhl Associates with Rv Thrombus

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Received: October 20, 2018; Published: November 16, 2018

Abstract

Introduction: Cardiac involvement by lymphoma ranges from 8.7% to 20%. Discrimination between cardiac infiltration by lymphoma, primary cardiac tumors and thrombus can be challenging and requires detailed imaging and pathoanatomical investigation. The existing literature contains only a few case reports on constrictive pericarditis caused by the infiltration of non-Hodgkin's lymphoma (NHL). The case is the rare presentation of advanced (Stage IV) follicular B - cell lymphoma with diffuse pericardial infiltration and right ventricle thrombus.

Case Report: A 56 years old female with advanced (Stage IV) follicular B - cell lymphoma with diffuse pericardial infiltration and right ventricle thrombus. Prompt work up with TTE and CTA chest revealed combination of the large mediasenal mass invading mediasenal structures and the chest wall with compression of the pulmonary artery, and infiltration of pericardium. Additional images studies revealed that the diffuse pericardial infiltration by the primary tumor with constrictive pathophysiology was responsible for the patient's symptoms of decompensated heart failure.

Conclusion: The case is the rare presentation of advanced (Stage IV) follicular B - cell lymphoma with diffuse pericardial infiltration and right ventricle thrombus. Patient manifest with ventricular dysfunction secondary to ventricular invasion which carries a dismal prognosis.

Keywords: Non-Hodgkin Lymphoma; Right Ventricular Thrombus; Pericardial Infiltration; Constrictive Pericarditis

Introduction

Non-Hodgkin lymphoma accounts for about 74,000 new cases a year, with 20,000 estimated deaths for 2018 [1]. The overall survival in 5 years is 71.4%, including the stage IV cases [1]. The initial presentation is usually painless peripheral adenopathy in the cervical, axillary, inguinal and/or femoral regions despite the staging at presentation. Widely metastatic disease can involve the spleen (40%), liver (50%) and bone marrow (60 - 80%). Involvement of organs other than lymphatic system is very uncommon, and usually primarily localized in the peripheral nervous system and in the gastro intestinal tract. Cardiac involvement by lymphoma ranges from 8.7% to 20% [2]. Discrimination between cardiac infiltration by lymphoma, primary cardiac tumors and thrombus can be challenging and requires detailed imaging and pathoanatomical investigation [3-6]. Review of the current data shows that the most frequent cardiac location of hematologic metastasis is pericardium (65 - 70%) presented often with pericardial effusion and extremely rare with constrictive pericarditis [2]. The existing literature contains only a few case reports on constrictive pericarditis caused by the infiltration of non-Hodgkin's lymphoma (NHL).

Case Report

In this case we present a 56 year old female with past medical history of hypertension, diabetes mellitus, hyperlipidemia and alcohol abuse who was diagnosed with Follicular B-cell lymphoma in March 2016. She was started on R-CHOP chemotherapy. Additionally, growth factor was added, to reduce the risk for developing febrile neutropenia. Patient completed six cycles R-CHOP without any complications. Immune therapy with Rituximab was held due to the presence of active hepatitis B, which was treated effectively. Further evaluation demonstrated complete treatment response to the disease.

On May 2017, during regular follow up visit patient reported weight loss, fever and night sweats, corresponding with B symptoms. PET scan reported recurrence of Non-Hodgkin disease (Figure 1) and patient was started on trial of Rituximab as a maintenance therapy.

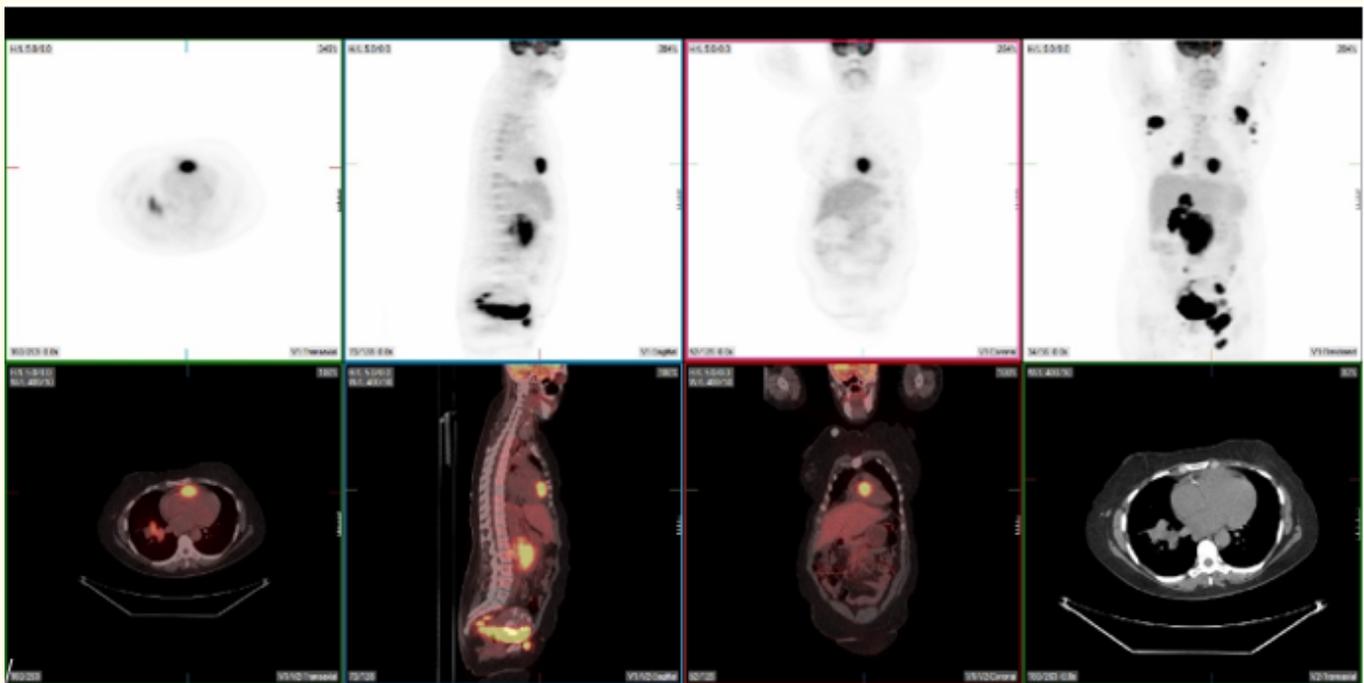


Figure 1: PET Scan: Metastases detected on PET/CT. MIP image of PET body scan shows intense tracer concentration in a mass lesion in the heart, lymph nodes and retroperitoneum.

On August 2017, she was referred to ED by her primary oncologist with symptoms of decompensated heart failure and acute hypoxic respiratory failure. Upon admission, patient was in moderate respiratory distress and exhibited signs of heart failure including elevated JVD, bibasilar pulmonary crackles and lower limb edema. Telemetry monitoring showed tachycardia (HR 135/min) and tachypnea (RR 25/min). Laboratory work up was consistent with leukocytosis (WBC 14.2); anemia (Hb 10.7); lactic acidosis (LA 2.7), elevated N-terminal pro-brain natriuretic peptide (NT-pro BNP) (4961 ng/L). ECG revealed sinus tachycardia, short PR interval and new RBBB. Performed CXR was positive for bilateral pleural effusions. Empiric antibiotic treatment for suspected pneumonia was initiated. Patient was started on full anticoagulation with low molecular heparin (LMWH) - Enoxaparin for high likely pulmonary embolism.

As part of diagnostic work up, transthoracic echocardiography (TTE) was done and showed EF 40% and mobile mass in the right ventricle extended to the outflow tract. Repeated TTE confirmed impaired left and right systolic function (EF 30%), and described attached right ventricle mass and a large mediasenal mass infiltrates the right ventricle wall (Figure 2).

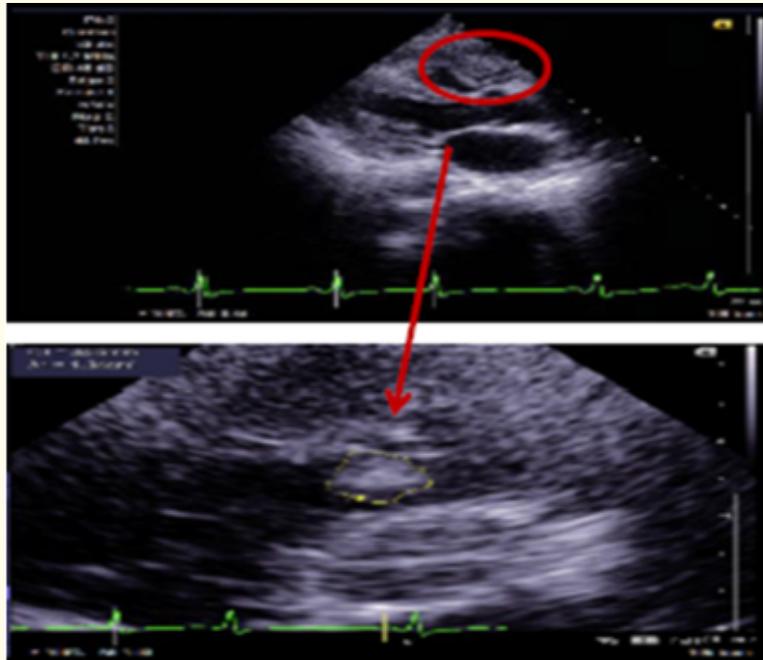


Figure 2: 2D ECHO: Large mediasenal mass infiltrates Right ventricular wall. Attached RV mass 1.4 cm.

Further investigation with CT angiogram (CTA) ruled out pulmonary embolism. However, it showed that predominantly anterior right ventricular mass aggressively infiltrated the pericardium and encased the heart resulting in abnormal septal motion suggestive for constrictive pericarditis (Figure 3).

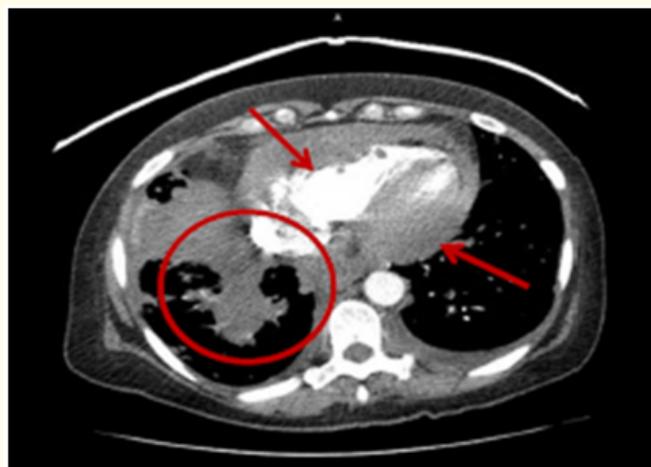


Figure 3: CT Angiogram: Right ventricular mass infiltrates pericardium suggestive for constrictive pericarditis

Myocardial biopsy was performed and Immunohistochemically stain was positive for CD3, CD19, CD20, WT1 and Calretinin consistent for lymphocytic and mesothelial origin. Material from intracavitary right ventricular mass had fragments of fibrous tissue with associate thrombus.

Discussion

Clinical presentation of cardiac involvement is determined by numerous factors such as primary tumor location size, growth rate, degree of invasion, and friability. Obstruction of blood flow or valve by a cardiac mass, invasion of the conduction pathway causing arrhythmias, invasion of pericardium producing pericardial effusion, tamponade, or tumor embolization, and are some of the mechanisms of presentation.

Our case is the rare presentation of advanced (Stage IV) follicular B - cell lymphoma with diffuse pericardial infiltration and right ventricle thrombus. Prompt work up with TTE and CTA chest revealed combination of the large mediasenal mass invading mediasenal structures and the chest wall with compression of the pulmonary artery, and infiltration of pericardium. Discrimination between cardiac infiltration by lymphoma and intracavitary involvement with external compression by the mass was achieved by myocardial biopsy. Additional image studies revealed that the diffuse pericardial infiltration by the primary tumor with constrictive pathophysiology was responsible for the patient's symptoms of decompensated heart failure.

Conclusion

The case is the rare presentation of advanced (Stage IV) follicular B - cell lymphoma with diffuse pericardial infiltration and right ventricle thrombus. Patient manifest with ventricular dysfunction secondary to ventricular invasion which carries a dismal prognosis.

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Volume 5 Issue 12 December 2018

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