



## Cardiac Involvement with Diffuse Large B Cell Lymphoma

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► *Implication for health policy/practice/research/medical education:*

Simultaneous intra-cardiac and extra-cardiac interapericardial mass resulting in tricuspid stenosis is unusual and should be considered in patients with lymphoma.

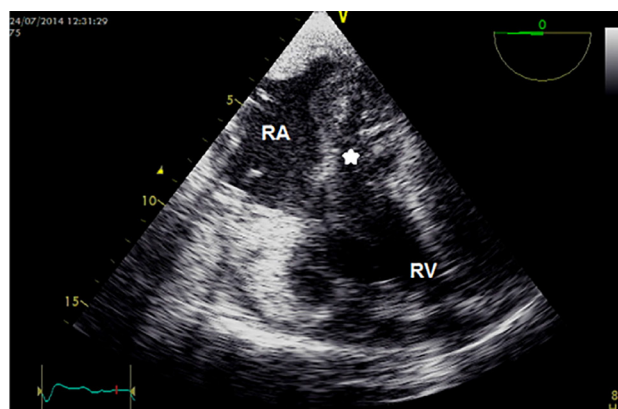
### 1. Introduction

A 62-year-old man with dyspnea on exertion New York Heart Association (NYHA) functional class III was admitted to our hospital. He had dyspnea on exertion since several months ago that aggravated since two weeks ago. In the past medical history, he had generalized lymphadenopathy that was diagnosed as non-specific reactive response in lymph nodes. Physical examinations showed diastolic rumbles in the left sternal border and generalized lymphadenopathy. Additionally, transthoracic and transesophageal echocardiography showed large heterogeneous mobile mass (80 \* 60 mm) attached to the inter-atrial septum protruding to the right ventricular inflow, which resulted in severe tricuspid stenosis (mean gradient = 13 mmHg). It seemed that base of this mass invaded into the interatrial septum. There was also another heterogeneous extra-cardiac interapericardial mass around the right ventricle that invaded into right ventricular and atrial walls (Figures 1 and 2). Right and left ventricular

systolic function was moderately impaired. Cardiac CT angiography (256 slices) also revealed these intra- and extra-cardiac masses (Figure 3).

*What is the nature of these masses?*

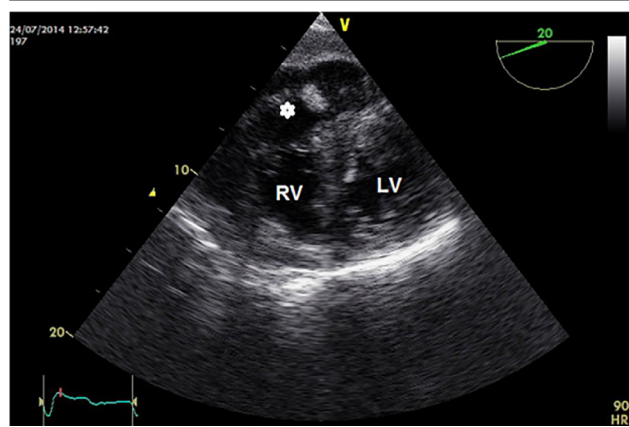
**Figure 1.** Heterogeneous Large Mass Attached to Inter-Atrial Septum Protruding to the Right Ventricular Inflow in Transesophageal Echocardiography



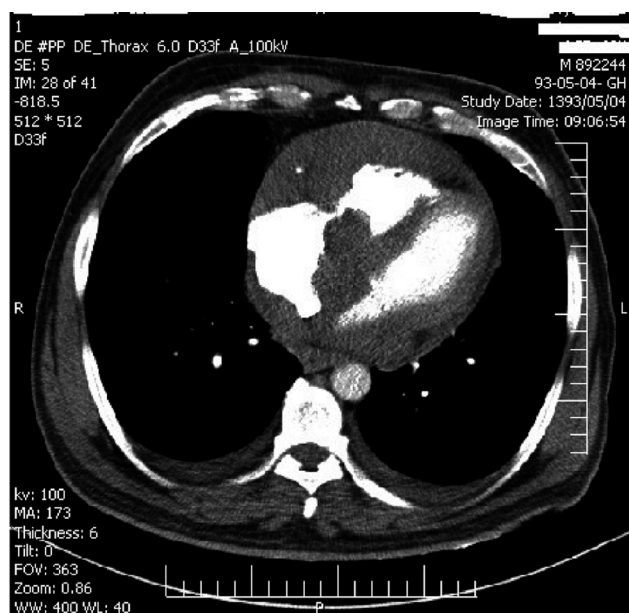
RA, right atrium; RV, right ventricle; \*, mass

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**Figure 2.** Heterogeneous Extra-Cardiac Mass in the Posterior Walls of Left and Right Ventricles in Transesophageal Echocardiography



LV, left ventricle; RV, right ventricle; \*, mass



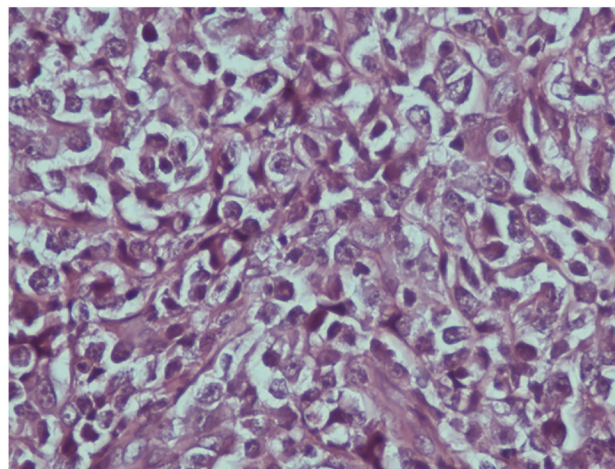
**Figure 3.** Extra-Cardiac and Intra-Cardiac Masses in Cardiac CT Angiography

**2. Answer**

Surgical biopsy from the extra-cardiac mass was done. Pathological examinations showed diffused large B cell lymphoma (Figure 4) and the patient was referred to a hematologist for treatment (Video 1 and 2 [to watch the videos, please go the html format]).

**Video 1.** Heterogeneous Large Mass Attached to Interatrial Septum Protruding to the Right Ventricular Inflow in Transesophageal Echocardiography

**Video 2.** Heterogeneous Extra-cardiac Mass in the Posterior Walls of Left and Right Ventricles in Transesophageal Echocardiography



**Figure 4.** High Magnification of Neoplastic Cells Consisted of Large Cells with Prominent Nucleoli and Moderate amount of Cytoplasm, Confirmed by Immunohistochemistry Staining as Diffuse Large B Cell Lymphoma

**3. Comment**

Cardiac involvement with B-cell lymphoma can occur (1-3), but its presentation as simultaneous intra-cardiac and extra-cardiac interapericardial masses resulting in tricuspid stenosis is unusual. Hence, this presentation should be considered in patients with lymphoma.

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**Authors' Contribution**

Study concept and design: Ali Hosseinsabet; Acquisition of data: both authors; Analysis and interpretation of data: both authors; Drafting of the manuscript: Ali Hosseinsabet; Critical revision of the manuscript for important intellectual content: both authors; Statistical analysis: Ali Hosseinsabet; Administrative, technical, and material support: Ali Hosseinsabet; Study supervision: both

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