

Shahana Zaman, Deb Dulal Debnath, Shaila Nabi, Muhammad Abdur Rahim, Mohammad Ullah, M Atahar Ali.
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CASE REPORT

CARDIAC INVOLVEMENT BY LYMPHOMA: REPORT OF A FATAL CASE

Shahana Zaman, FCPS¹, Deb Dulal Debnath, MD¹, Shaila Nabi, FCPS¹, Muhammad Abdur Rahim, FCPS²,
 Mohammad Ullah, FCPS, MD³, M Atahar Ali, FCPS, MD¹

ABSTRACT

Lymphomas are one of the most common malignant neoplasms of the heart. Cardiac lymphomas may be primary but most of the cases are part of disseminated disease. A young Bangladeshi man, diagnosed with non-Hodgkin lymphoma and on chemotherapy, presented with features of heart failure. Initial evaluation revealed complete heart block with narrow QRS complexes and intra-cardiac mass lesion suggesting lymphomatous deposit. The patient expired while awaiting an endo-myocardial biopsy.

Key words: cardiac lymphoma, complete heart block, non-Hodgkin lymphoma.

INTRODUCTION

Lymphomas are one of the most common malignant cardiac neoplasms. Cardiac lymphomas may be primary or cardiac involvement may be a part of disseminated disease or metastatic in nature.(1,2) In most cases, cardiac lymphomas are diagnosed after death; ante-mortem diagnosis needs a high index of clinical suspicion. If patients with lymphoma present with features of cardiac outflow obstruction, heart failure, pericardial effusion, cardiac tamponade, arrhythmia or conduction block, a thorough cardiac evaluation is mandatory. Patients with cardiac lymphoma receiving chemotherapy may be complicated by cardiac rupture and sudden death is not uncommon in such instances.(3) Here, we present a case of non-Hodgkin lymphoma complicated with cardiac involvement.

CASE REPORT

A 26-year-old Bangladeshi male patient, diagnosed with non-Hodgkin lymphoma, involving the cervical, axillary and inguinal lymph nodes, presented with one-week history of worsening oedema and breathlessness. He received 5 cycles of chemotherapy with initial clinical improvement before presenting to our facility.

The patient was dyspneic with a respiratory rate of 20/min and had ankle oedema. He had a surgical scar in left side of neck resulting from the previous lymph node biopsy and enlarged left supra-clavicular lymph node. His pulse was 60/min and blood pressure was 100/50 mm Hg. He had raised jugular venous pressure with intermittent cannon waves, left parasternal lift and palpable P2. Pulmonary component of 2nd heart sound was loud and there was a pan-systolic

murmur (grade 3/6) in left para-sternal area. He had few bi-basal crepitations and 4-cm hepatomegaly below the costal margin. He had anaemia (haemoglobin 10.5 gm/dl) and high erythrocyte sedimentation rate (78 mm/1-h). Electrocardiogram revealed complete heart block with narrow QRS complexes (Figure 1). Chest radiograph revealed cardiomegaly and left lower lobe consolidation (Figure 2). Transthoracic echocardiography revealed a fixed non-homogenous intra-cardiac mass occupying right atrium adherent to inter-atrial and inter-ventricular septum encroaching the tricuspid valve (Figure 3a, 3b) with spontaneous echo-contrast in inferior vena cava, mild pulmonary hypertension, impaired right ventricular systolic function and mild pericardial effusion. Computed tomography (CT) scan revealed diffuse intra-cardiac mass involving right atrium, inter-atrial septum, inter-ventricular septum, superior vena cava and left innominate vein and thrombus in the left sub-clavian vein (Figure 4). Blood culture revealed no growth.

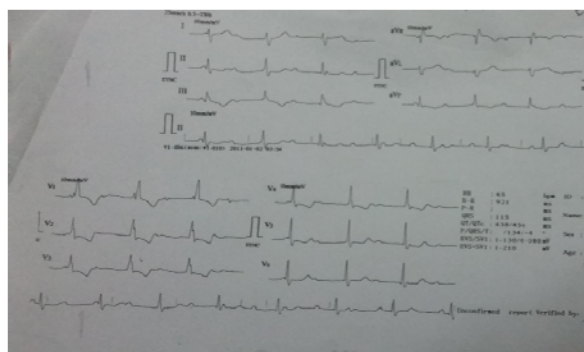


Figure 1: Electrocardiogram showing complete heart block with normal QRS complex, Bangladesh, 2020.

¹Cardiology, NICVD, Dhaka, Bangladesh

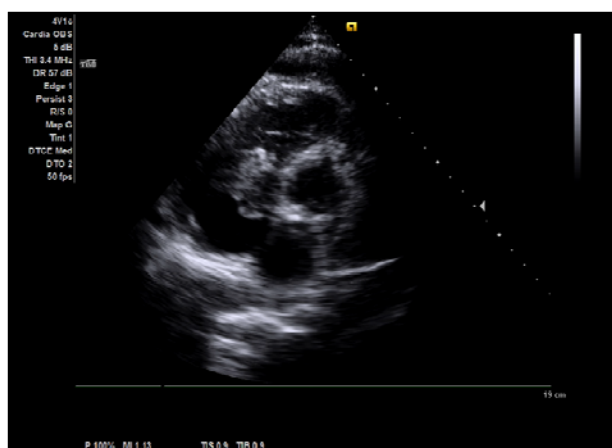
²Nephrology, BIRDEM, Dhaka, Bangladesh

³Cardiology, SSMC, Dhaka, Bangladesh

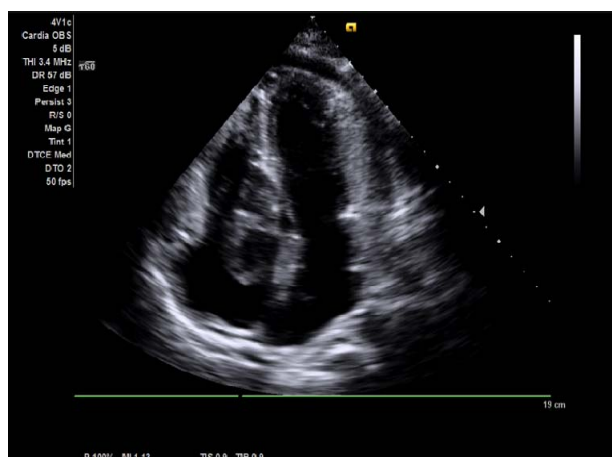
*Corresponding Author E-mail: muradrahim23@gmail.com



Figure 2: Chest x-ray posterior-anterior view showing enlarged cardiac shadow with left lower lobe consolidation, Bangladesh, 2020.



3a



3b

Figure 3a, 3b: Transthoracic echocardiography showing fixed non-homogenous intra-cardiac mass occupying the right atrium adherent to inter-atrial and inter-ventricular septum encroaching the tricuspid valve, Bangladesh, 2020.

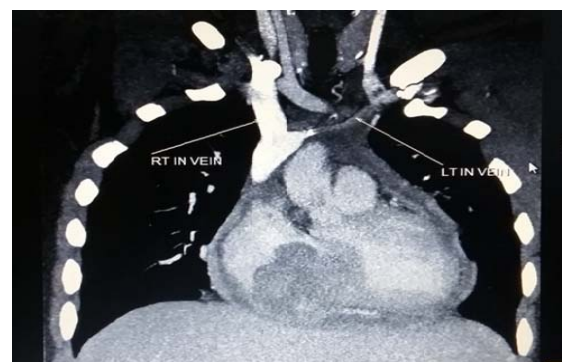
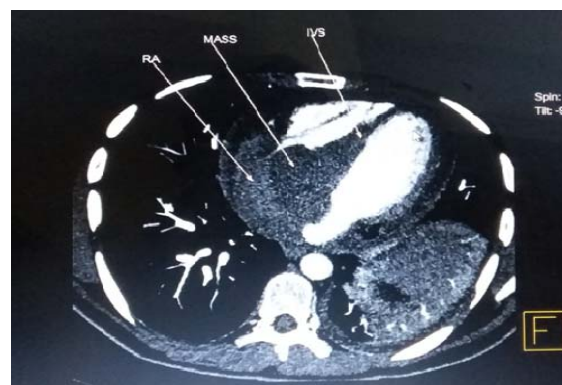
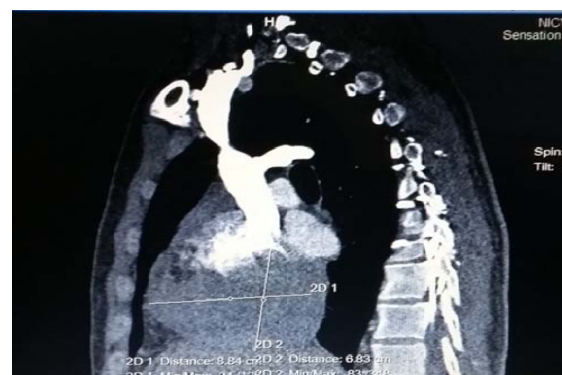
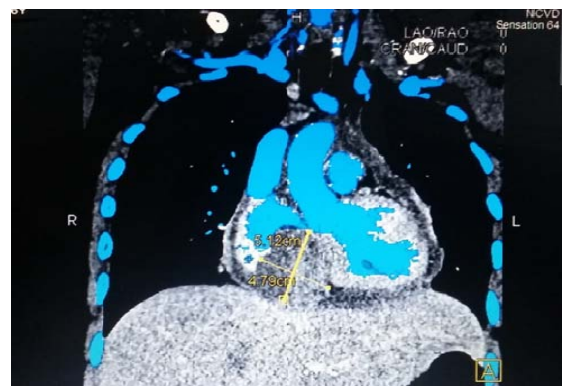


Figure 4: Computed tomography scan showing diffuse intra-cardiac mass involving the right atrium, inter-atrial septum, inter-ventricular septum, superior vena cava and left innominate vein and thrombus in the left sub-clavian vein, Bangladesh, 2020.

Considering the background diagnosis, the intracardiac mass was suspected as being cardiac involvement by the aforementioned non-Hodgkin lymphoma. Patient received treatment for cardiac failure along with anti-coagulation and consultation from surgical team was sought, but unfortunately, the patient succumbed to death while awaiting an endo-myocardial biopsy and subsequent cycle of chemotherapy.

DISCUSSION

Cardiac involvement in lymphoma is not uncommon; 18% of patients with non-Hodgkin lymphoma had autopsy evidence of cardiac involvement.(2,4) Improved imaging techniques including echocardiography, cardiac CT and magnetic resonance imaging (MRI) have increased the diagnosis in life.(1,2) Majority of these cases are part of a disseminated disease; primary cardiac lymphoma is rather rare, constitutes ~1% of primary cardiac tumours and is defined by the absence of extra-cardiac lesions.(1,5)

Clinical presentation of cardiac lymphoma depends up on the location and extent of cardiac involvement.² Patients may present with heart failure, features of outflow obstruction, pericardial effusion, myocardial infarction and arrhythmia.(1,2,5) Patients may have history of treated lymphoma or may have concurrent nodal and extra-nodal features.(1,2,4) Non-specific systemic features like fever and weight loss are common.(1,2)

Chest imaging may reveal cardiomegaly, features of heart failure, pericardio-pleural effusions and mediastinal lymphadenopathy.(1,2,6) Electrocardiography may show arrhythmia (1,2,6) and conduction abnormality as was seen in the present case. Conduction defects may result from malignant infiltration in to the conductive tissues (2) or adverse chemotherapeutic effects.

Echocardiography including trans-oesophageal echocardiography may identify pericardial effusion, intracardiac lesion and extent.(1,2) Cardiac CT scan and MRI can delineate the nature and extent of lesion. (1,2,6) Positron emission topography (PET) scan can identify apparently unidentified lesions elsewhere. (1,6)

However, tissue diagnosis remains the gold standard for establishing the diagnosis and includes endomyocardial biopsy, analysis of pericardial fluid and lymph node biopsy.(1,2,5,6) Immuno-phenotyping further refines the diagnosis.(5,6)

Patients with non-Hodgkin lymphoma merit evaluation for human immunodeficiency virus (HIV) status, staging CT and bone marrow study.(2,5,6)

There is no definite treatment protocol for cardiac lymphoma and chemotherapy remains the mainstay of treatment.(5) R-CHOP (rituximab plus cyclophosphamide, doxorubicin, vincristine and prednisolone) had resulted in remission in published case reports.(1) Arrhythmias may warrant temporary pacing and cardiac obstructive lesion may require surgery.(1,5)

Prognosis is variable, depends up on stage of disease, presence of arrhythmia and quality of care.(1,2) Overall survival is in term of months.(5) Death may occur from life-threatening arrhythmia, cardiac rupture and myocardial infarction.(3) The exact cause of death in our patient could not be evaluated as autopsy was not done.

In conclusion, a high index of suspicion for cardiac lymphoma is needed in appropriate clinical context, as early diagnosis and appropriate treatment may result in favourable outcome.

Consent: Informed consent was taken from father of the patient regarding publication of this case and accompanying images.

Competing interest: Nothing to declare.

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