

## A Case of Secondary Myocardial Lymphoma Presenting with Ventricular Tachycardia

Malignant lymphoma can involve the cardiac cavity or myocardium as a mass. Clinical symptoms of its cardiac involvement are usually absent or nonspecific, making the diagnosis of the cardiac involvement very difficult before death. We experienced a patient with secondary myocardial non-Hodgkin's lymphoma presenting with sustained ventricular tachycardia (VT) as a primary clinical problem. A 39-yr-old woman visited our hospital because of dyspnea and palpitation for 7 days. Physical examination revealed rapid heart beat with variable intensity of the first heart sound and soft mass in the lower abdomen. VT with a cycle length of 480 msec was recorded in resting 12-lead electrocardiogram. Two well-circumscribed hypo-echogenic round masses were demonstrated in the interventricular septum and left ventricular posterior wall. Cytological examination of aspirated pericardial fluid and percutaneous needle biopsy of the abdominal mass revealed a diffuse large cell type non-Hodgkin's lymphoma. Myocardial masses and ventricular tachycardia resolved with chemotherapy using cyclophosphamide, adriamycin, vincristine and prednisone regimen. To our best knowledge, the same case as ours has not been reported previously.

Key Words : Lymphoma, Malignant; Tachycardia, Ventricular

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### INTRODUCTION

Secondary cardiac involvement of malignant lymphoma is not uncommon, observed in up to 25% of autopsy cases (1). However, it is frequently undetected before death.

We hereby report a patient who has secondary myocardial non-Hodgkin's lymphoma presenting with ventricular tachycardia as a primary clinical problem.

### CASE REPORT

A 39-yr-old woman visited our hospital because of dyspnea and palpitation for 7 days. On admission, blood pressure was 110/70 mmHg, pulse rate 120 beats/min, respiration rate 20/min, and body temperature 36.4°C. Physical examination revealed jugular venous engorgement at 9 cm H<sub>2</sub>O, rapid heart beat with variable intensity of the first heart sound, and adult fist-sized soft mass in the lower abdomen.

Resting 12-lead electrocardiogram (ECG) demonstrated a wide QRS complex tachycardia of left bundle branch block (LBBB) and left superior axis morphology with a cycle length of 480 msec (Fig. 1). Atypical LBBB pattern of the QRS complex, q wave in the left chest leads (V4-6) during the tachycardia, and normalization of the QRS complex after conver-

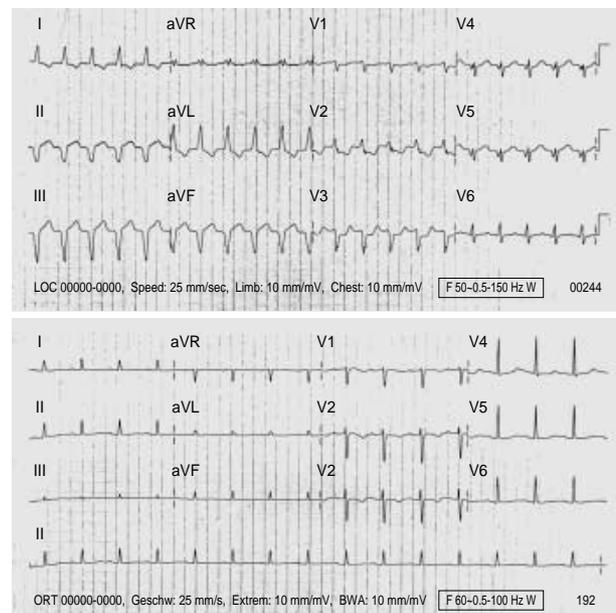
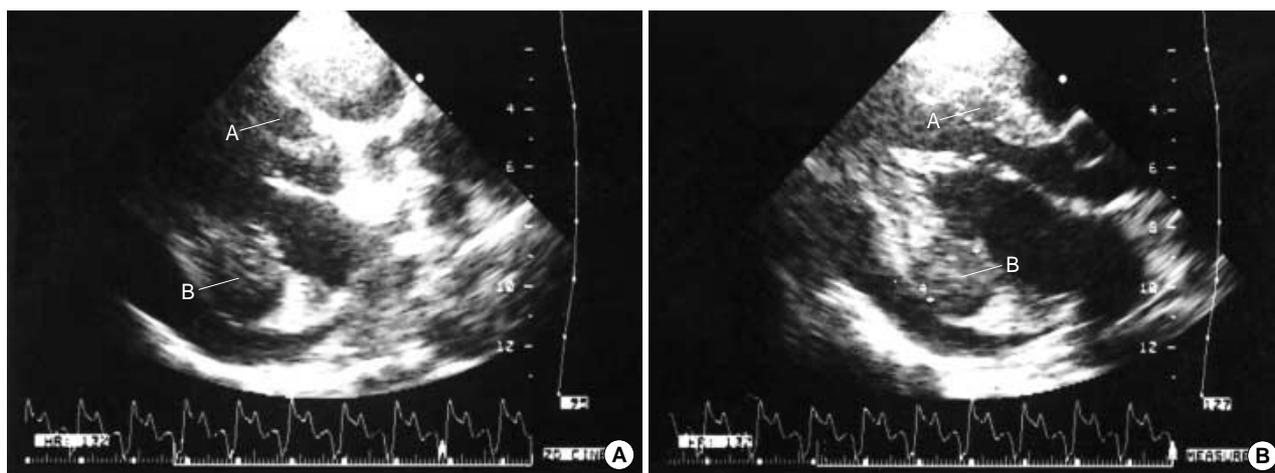
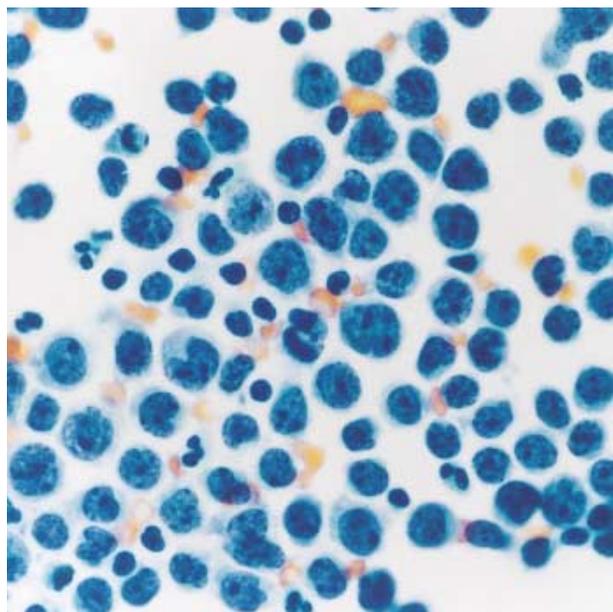


Fig. 1. A wide QRS complex tachycardia of left bundle branch block (LBBB) and left superior axis morphology. Atypical LBBB pattern of the QRS complex and q wave in the left chest leads (V4-6) during the tachycardia (upper panel) with normalization of the QRS complex after conversion to sinus rhythm (lower panel) indicate ventricular tachycardia.

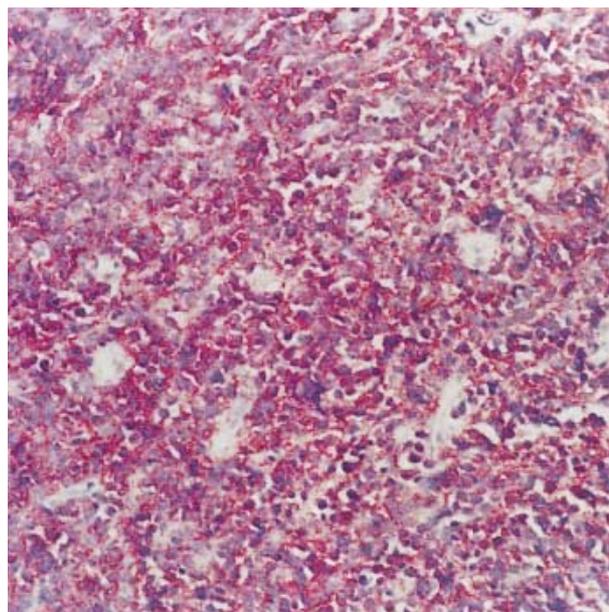


**Fig. 2.** Two myocardial masses in the left ventricle. Two-dimensional echocardiography (A: parasternal long-axis view in late diastole; B: parasternal long-axis view in mid-diastole) shows two well circumscribed hypo-echogenic round masses in the interventricular septum (A:  $1.0 \times 1.7$  cm) and left ventricular posterior wall near the mitral valve annulus (B:  $2.3 \times 3.1$  cm) and moderate amount of pericardial effusion.



**Fig. 3.** Papanicolaou staining ( $\times 400$ ) of aspirated pericardial fluid. The highly cellular smear is characterized by malignant lymphocytes with nuclei larger than histiocytes. The cells show a considerable variation in size and shape. The nuclear membranes are smooth (non-cleaved). Coarse chromatin pattern, abnormal nucleoli, and mitoses are frequently seen. The cytoplasm ranges from sparse to abundant and focal plasmacytoid lymphocytes are seen.

sion to sinus rhythm indicated ventricular tachycardia. Two-dimensional echocardiography revealed two well circumscribed hypo-echogenic round masses in the interventricular septum ( $1.0 \times 1.7$  cm) and left ventricular posterior wall near the mitral valve annulus ( $2.3 \times 3.1$  cm), and moderate amount of pericardial effusion (Fig. 2).



**Fig. 4.** Immunohistochemical staining ( $\times 200$ ) of the biopsy specimen taken from an abdominal mass for L26 and CD21 demonstrates a strong positive reaction in the tumor cells, confirming non-Hodgkin's lymphoma of the B cell origin.

Cytological examination of aspirated pericardial fluid demonstrated malignant lymphocytes of varying size with nuclei larger than histiocytes suggesting diffuse large cell type non-Hodgkin's lymphoma (Fig. 3). This was confirmed by subsequent pathologic examination of the percutaneous needle biopsy specimen taken from the abdominal mass (Fig. 4).

The patient tolerated the ventricular tachycardia very well, requiring no specific antiarrhythmic therapy. The two myocardial masses and wide QRS complex tachycardia disappeared

without antiarrhythmic drug therapy 3 days after initiation of cyclophosphamide, adriamycin, vincristine, and prednisone (CHOP) chemotherapy. She received six cycles of CHOP chemotherapy and attained a complete remission.

## DISCUSSION

Secondary cardiac involvement of malignant lymphoma is relatively common and was found in up to 25% of autopsy cases (1). However, clinical signs and symptoms of cardiac involvement are nonspecific and the cardiac involvement is frequently undetected before death (1, 2). In the present patient, ventricular tachycardia was the sole manifestation of the cardiac involvement.

Echocardiography has been shown to be valuable in the diagnosis of cardiac lymphoma (3-5). A characteristic echocardiographic feature of myocardial lymphoma is that the center of the echogenic mass appears relatively echo-free. The myocardial masses in the present patient were hypoechogenic in echocardiography. Computed tomography, magnetic resonance imaging (MRI), gallium-67 scintigraphy, and cardiac catheterization can provide additional information for the diagnosis of myocardial lymphoma.

Pericardial involvement of lymphoma can cause pericardial effusion. The cytological analysis of pericardial fluid demonstrated malignant lymphocytes in our case.

Engle et al. (6) reported recurrent ventricular tachycardia due to resectable cardiac tumor such as rhabdomyofibroma and fibromyoma. Association of VT with malignant lymphoma was previously reported in 3 cases with primary cardiac lymphoma involving the myocardium and a case with secondary cardiac lymphoma involving the right ventricular cavity (7-10). However, to our best knowledge, this is the first report of secondary myocardial lymphoma presenting with ventricular tachycardia in the English literature.

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