Cardiac Involvement of Diffuse Large B-Cell Lymphoma Presenting as Various Arrythmias

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Abstract

Symptomatic cardiac involvement of malignant lymphoma is rare. Silent invasion of malignant lymphoma makes it difficult to diagnose it in the early phase of clinical course. We describe a case with cardiac involvement of diffuse large B-cell lymphoma presenting various types of arrythmias that were not diagnosed until autopsy.

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Short title: Diffuse Large B-Cell Lymphoma and Arrhythmia

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Abstract

Symptomatic cardiac involvement of malignant lymphoma is rare. Silent invasion of malignant lymphoma makes it difficult to diagnose it in the early phase of clinical course. We describe a case with cardiac involvement of diffuse large B-cell lymphoma presenting various types of arrythmias that were not diagnosed until autopsy.

CASE Images

An 84-year-old male with an unknown fever and vomiting presented to our institution. His electrocardiogram demonstrated sinus pauses up to 10 seconds. We thought the sinus arrest was caused by hyperkalemia (potassium of 6.9 mEq/L) followed by worsening renal function (blood urea nitrogen 84.6 mg/dL and creatinine 4.77 mg/dL). We immediately placed a temporary pacemaker and performed continuous hemodiafiltration, however, regardless of multidisciplinary treatment, he died on the thirty-eighth day of admission. His autopsy revealed cardiac involvement of diffuse large B-cell lymphoma (DLBCL). The diffuse infiltrated large lymphoid cells were observed to have right atrial dominance (Figure A). In this clinical course, the electrocardiogram demonstrated atrial tachycardia with 3:1 conduction and atrial fibrillation (Figure B). Both tachycardias were followed by sinus arrest. The patient presented with various types of arrhythmias such as sick sinus syndrome, atrial tachycardia, and atrial fibrillation. Theoretically, the infiltrated DLBCL invaded the sinus node and right atrium, then induced these various arrhythmias in this case. Alternatively, cardiac involvement of malignant lymphoma is usually non-symptomatic[1]. It is important not to dismiss a rare symptomatic case of cardiac involvement of malignant lymphoma since there were various types of arrhythmias that might have been treated with chemotherapy[2].

AUTHOR CONTRIBUTIONS

TI and HM contributed to treat the patient and drafted the manuscript, YI, TH and NM contributed to diagnose and treat the patient, and AH and YH critically reviewed the literature and involved in writing. All authors approved the final manuscript.

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None

CONFLICT OF INTEREST

None declared.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

CONSENT

Written informed consent was obtained from the patient to publish this report in accordance with the journal's patient consent policy.

Figure legend

A-a) The widespread malignant tumor appeared as a light-yellow color. A-b, c) Histology showing that the malignant tumor cells had invaded a large amount of the right atrium (hematoxylin-eosin stain, magnification x40, x100).

B-a) Atrial tachycardia with 3:1 conduction. B-b) Atrial fibrillation.

REFERENCES

1. W.C. Roberts, D.L. Glancy, V.T. Devita. Heart in malignant lymphoma (Hodgkin's disease, lymphosarcoma, reticulum cell sarcoma and mycosis fungoides). Am. J. Cardiol. 1968;22:85–107. 2. M. Haq, A. Patel, M. Guglin. Cardiac lymphoma: Sinus pauses disappear after chemotherapy. Ann. Hematol. 2014;93:891–892.