

# Atrial Functional Mitral Valve Regurgitation Secondary to Apical Hypertrophic Cardiomyopathy with Left Ventricular Apical Aneurysm

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## Abstract

A 78-year-old woman underwent surgical intervention for severe atrial functional mitral regurgitation and left ventricular apical aneurysm secondary to apical hypertrophic cardiomyopathy. Apical hypertrophic cardiomyopathy can cause atrial fibrillation and atrial functional mitral regurgitation. Left ventricular apical aneurysms can cause fatal arrhythmias, which may require surgical intervention.

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## Key clinical message

Apical hypertrophic cardiomyopathy (ApHCM) with left ventricular apical aneurysm has a high risk of thrombosis and fatal arrhythmia. In addition, ApHCM can cause atrial functional mitral regurgitation, both of which may require surgical intervention.

## Key words

Apical hypertrophic cardiomyopathy, left ventricular apical aneurysm, atrial functional mitral regurgitation

## Abstract

A 78-year-old woman underwent surgical intervention for severe atrial functional mitral regurgitation and left ventricular apical aneurysm secondary to apical hypertrophic cardiomyopathy. Apical hypertrophic cardiomyopathy can cause atrial fibrillation and atrial functional mitral regurgitation, and left ventricular apical aneurysm can cause fatal arrhythmias, which may require surgical intervention.

## CASE

A 78-year-old woman with histories of apical hypertrophic cardiomyopathy (ApHCM), chronic atrial fibrillation (AF), and cerebral infarction were referred to our hospital for chronic heart failure. The transthoracic echocardiography revealed severely dilated right and left atrium and severe mitral valve regurgitation (MR) with preserved ejection fraction (Fig1). The transthoracic echocardiography and left ventriculography showed the left ventricular apical hypertrophy with a left ventricular apical aneurysm (LVAA) (Fig.2, Fig3). The patient was diagnosed as severe atrial functional MR. She underwent mitral valve replacement, left appendage resection, and LVAA resection (Fig.4). Histopathological examination of the LVAA revealed the thick fibrosis and stretched myocardial cells (Fig.5A, 5B).

LVAA forms in 10%-30% of cases of ApHCM due to increased left ventricular apical pressure [1]. Since LVAA can cause thrombosis, fatal arrhythmias, and heart failure, ApHCM with LAVV has a higher mortality rate, requiring pharmacologic or surgical treatment for its complications [2]. ApHCM is also known to cause AF due to left ventricular diastolic dysfunction. We experienced a rare case of atrial functional severe MR due to AF secondary to ApHCM and LVAA. Although it was unclear whether the LVAA was symptomatic, it was appropriate to perform simultaneous LVAA resection to prevent LVAA related complications.

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## **CONFLICT OF INTEREST**

The authors have no pertinent conflicts of interest to report for this manuscript

## **ETHICS STATEMENT**

None

## **WRITTEN CONSENT FROM THE PATIENT**

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

## **DETAILED AUTHOR'S CONTRIBUTION**

HN, MO, HW: cared for the patient. HN: got the patient consent form and prepared the clinical picture and computed tomography imaging data, and wrote the report. MO and HW: read and approved the final version of the report.

## **DATA AVAILABILITY STATEMENT**

None

## **References**

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