Reappearance of the Left Ventricular Pressure Gradient in a Patient with Hypertrophic Obstructive Cardiomyopathy

Yusuke Ochiumi, Shuntaro Ikeda and Mareomi Hamada

Abstract

An 84-year-old woman diagnosed with hypertrophic obstructive cardiomyopathy (HOCM) was referred to our hospital due to chest pain associated with an increased level of troponin T. Following the administration of cibenzoline, the left ventricular outflow pressure gradient (LVPG) completely disappeared. Left ventricular pressure pullback tracing subsequently demonstrated the “reappearance” of the LVPG. Left ventriculography showed apical ballooning with excessive contractions at the base of the heart, and we therefore made a diagnosis of Takotsubo cardiomyopathy in a patient with HOCM. Hypercontractions of the base of the heart associated with Takotsubo cardiomyopathy may be responsible for the “reappearance” of LVPG in this case.

Key words: hypertrophic obstructive cardiomyopathy, Takotsubo cardiomyopathy

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Three years prior to admission, an 84-year-old woman was diagnosed with hypertrophic obstructive cardiomyopathy (HOCM) at our hospital. An electrocardiogram (ECG) showed negative T waves in the I, aVL and left lateral precordial leads (Figure A), and echocardiography demonstrated asymmetric septal hypertrophy associated with the left ventricular outflow pressure gradient (LVPG, 158 mmHg). Following the administration of cibenzoline, left ventricular pressure pullback tracing showed the complete disappearance of the LVPG (Figure B, C).

After discharge, the patient returned for a follow-up visit. At the time of hospitalization, the patient was referred to our hospital due to chest pain associated with an increased troponin T level. The chest pain appeared after psychological stress. ECG demonstrated broad negative T waves in the I, aVL, and V1-V6 leads (Figure D). Emergency coronary angiography was performed to ascertain the cause of the chest symptoms with the detection of electrocardiographic changes; no significant coronary stenosis was found. Left ventriculography showed apical ballooning with excessive contractions at the base of the heart (Figure E). Left ventricular pressure pullback tracing revealed the “reappearance” of the LVPG at 100 mmHg in the mid and basal portions of the left ventricle (Figure F). Ten days later, follow-up echocardiography showed normalization of the wall motion abnormality and an improvement in the LVPG. Based on these findings, we made a diagnosis of Takotsubo cardiomyopathy complicated by HOCM.

In addition to subaortic hypertrophy due to HOCM, hypercontractions of the base of the heart associated with Takotsubo cardiomyopathy may have been responsible for the reappearance of the LVPG in the current case. We previously reported that cibenzoline is effective for improving the intraventricular pressure gradient in patients with hypertrophic cardiomyopathy (1). However, in the present case, treatment with cibenzoline did not prevent the reappearance of LVPG in this patient with hypertrophic cardiomyopathy due to associated Takotsubo cardiomyopathy.

The authors state that they have no Conflict of Interest (COI).
Figure.  A, B and C, Electrocardiogram, left ventriculography and left ventricular pressure pull-back tracing performed on the previous admission. Following the administration of cibenzoline, the left ventricular outflow pressure gradient disappeared completely. D, E and F, Electrocardiogram, left ventriculography and left ventricular pressure pullback tracing performed on the current admission. Left ventriculography demonstrated apical ballooning with excessive contractions at the base of the heart. Left ventricular pressure pullback tracing demonstrated a left ventricular pressure gradient of 100 mmHg between the mid and basal portions of the left ventricle.

Reference


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