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Case Report

Successful alcohol septal ablation in a pregnant patient with symptomatic hypertrophic obstructive cardiomyopathy



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ABSTRACT

Hypertrophic cardiomyopathy is a clinically heterogeneous disease with common findings of ventricular hypertrophy, left ventricular outflow tract (LVOT) obstruction, mitral regurgitation, and diastolic dysfunction. Sometimes, the condition can lead to catastrophic cardiac events. Pregnancy can pose a larger challenge, due to medication restrictions associated with pregnancy. We report a case of a 43-year-old pregnant woman presenting with symptomatic hypertrophic obstructive cardiomyopathy (HOCM). As her pregnancy progressed, her HOCM worsened both symptomatically and by objective echocardiographic data. These changes continued despite optimized medical therapy. After an in-depth discussion with both the patient and family, we proceeded with alcohol septal ablation, which was successful in both reducing her LVOT gradient and her symptoms. Her pregnancy was overall uneventful, and both she and her child are doing well more than 4 years from the date of the procedure.

<Learning objective: While medical therapy is the first-line approach to patients with hypertrophic cardiomyopathy (HCM), symptoms may still persist despite optimized medical therapy. If medical therapy fails in a pregnant patient with symptomatic HCM and a significant left ventricular outflow tract gradient, successful alcohol septal ablation can improve the gradient and relieve symptoms.>

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Introduction

Hypertrophic cardiomyopathy (HCM) is a clinically heterogeneous disease with common findings of ventricular hypertrophy, left ventricular outflow tract (LVOT) obstruction, mitral regurgitation, and diastolic dysfunction [1]. Sometimes, the condition can lead to catastrophic cardiac events. Pregnancy can pose a larger challenge, given medication restrictions associated with pregnancy.

Case report

A 43-year-old pregnant woman (G6, P4) with a history of HCM was referred to the cardiology department after a murmur was heard at her 12-week gestational appointment. Her 4 previous pregnancies were well tolerated, with only minimal dyspnea and uneventful vaginal deliveries. This pregnancy was her first in 6 years. Her examination revealed a grade III/VI

systolic ejection murmur that increased in intensity with Valsalva maneuvers. A transthoracic echocardiogram (TTE) revealed a resting LVOT obstruction with a peak gradient of 70 mmHg. TTE also was notable for a thick basal septum measuring 2 cm, systolic anterior motion of the mitral valve, and hyperdynamic left ventricular function (ejection fraction of 85%) (Fig. 1A,B). She had only minimal shortness of breath at that time. She was next seen at 25 weeks of gestation, and her symptoms had progressed considerably. She now was experiencing shortness of breath with minimal activity sometimes accompanied by episodes of lightheadedness despite being on a high-dose beta blocker (metoprolol XL 150 mg PO bid) with heart rate in the 60s. A repeat TTE at this time showed an increase in the LVOT obstruction gradient to 90 mmHg. The patient was therefore started on disopyramide with initial hospital observation. Unfortunately, the patient's heart failure symptoms persisted (New York Heart Association functional class III/IV), and disopyramide titration was limited due to a significantly prolonged QTc. Given this, and after a detailed discussion of the risks and benefits with the patient, we proceeded with alcohol septal ablation. The procedure was done with appropriate radiation shielding and a limited fluoroscopy time with only 563 mGy of radiation [2]. A total

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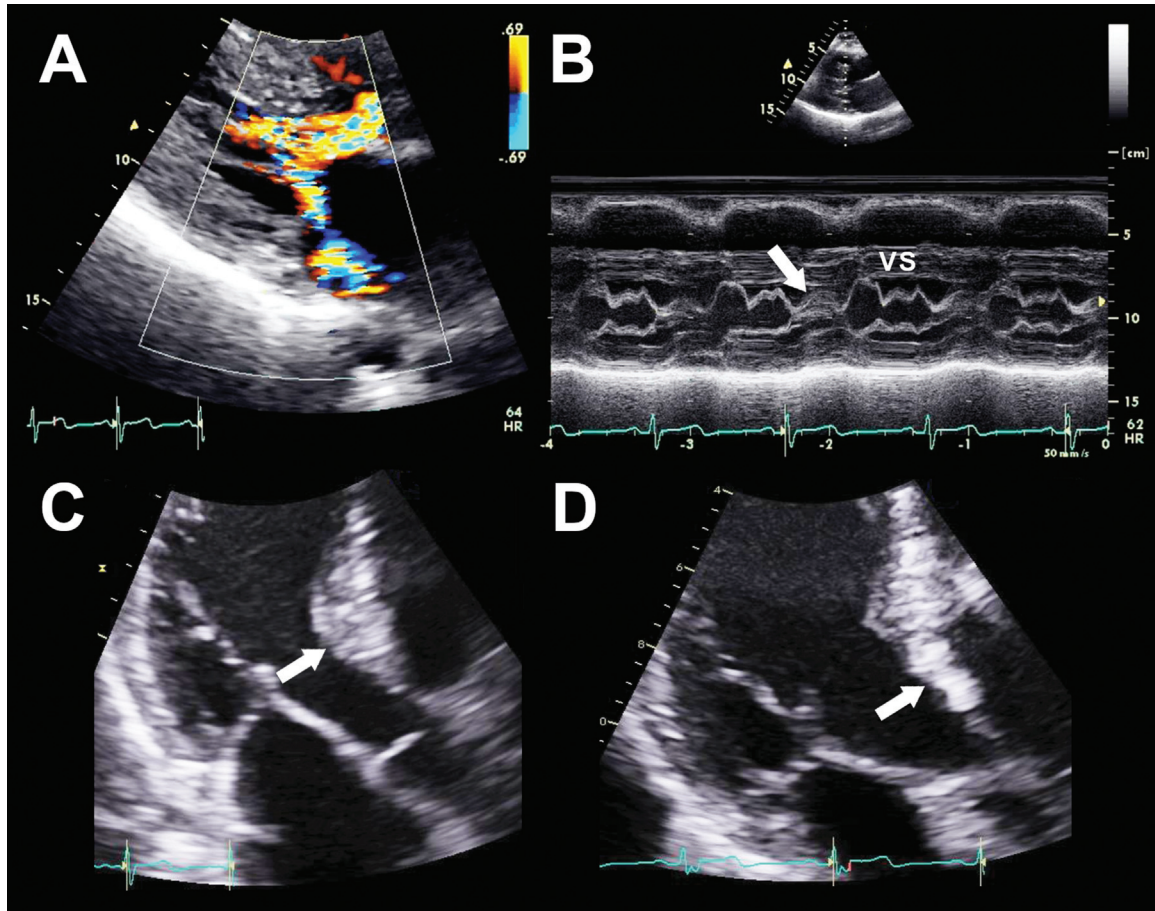


Fig. 1. (A) Systolic anterior motion with posteriorly directed mitral regurgitation, thickened left ventricular septum, and turbulent left ventricular outflow tract outflow. (B) M mode shows systolic anterior motion of the mitral valve (arrow) and a thickened septum. Echocardiography shows a thickened septum (arrow, 2 cm) before alcohol septal ablation (C). On follow-up, echocardiography demonstrates a reduction of septal thickness to 1 cm at the site of alcohol septal ablation (D, arrow); tissue characteristics are echodense, indicating fibrosis. VS, ventricular septum.

of 3 cc of alcohol was used (2 cc in the larger septal perforator and 1 cc in the smaller septal perforator). The slightly greater amount of alcohol was deemed necessary because of the size of the larger septal perforator [3]. The procedure was successful without acute complication (Fig. 2). After the procedure, the patient did have high-degree atrioventricular block and,

subsequently, complete heart block (CHB). She had significant runs of symptomatic nonsustained ventricular tachycardia (NSVT). Permanent pacemaker placement was recommended because of the CHB, and, given her additional symptomatic NSVT, the patient received an implantable cardiac defibrillator prior to discharge. For the implantation, the operator again paid

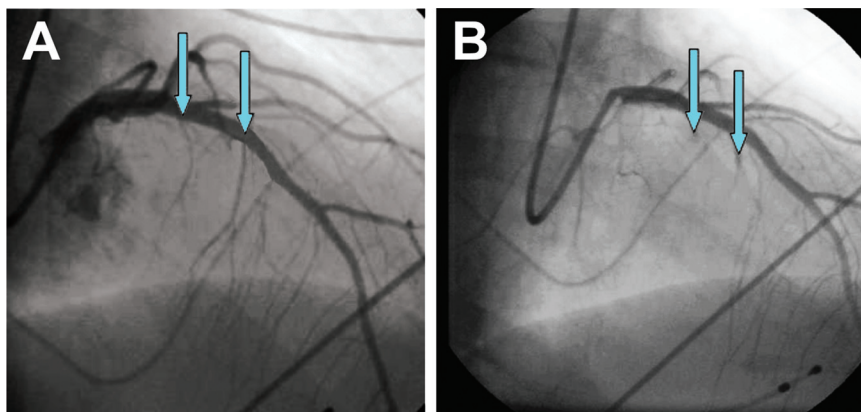


Fig. 2. Angiogram showing septal perforators (arrows) before (A) and after (B) ablation.

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