

Images in  
Cardiovascular Medicine



# Herniation of Ventricles through Partial Pericardial Defect

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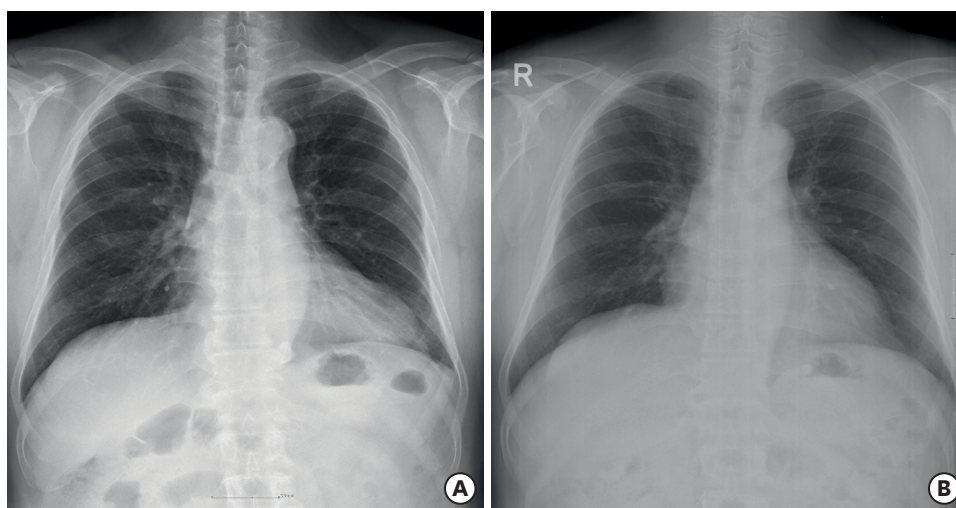
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**Conflict of Interest**

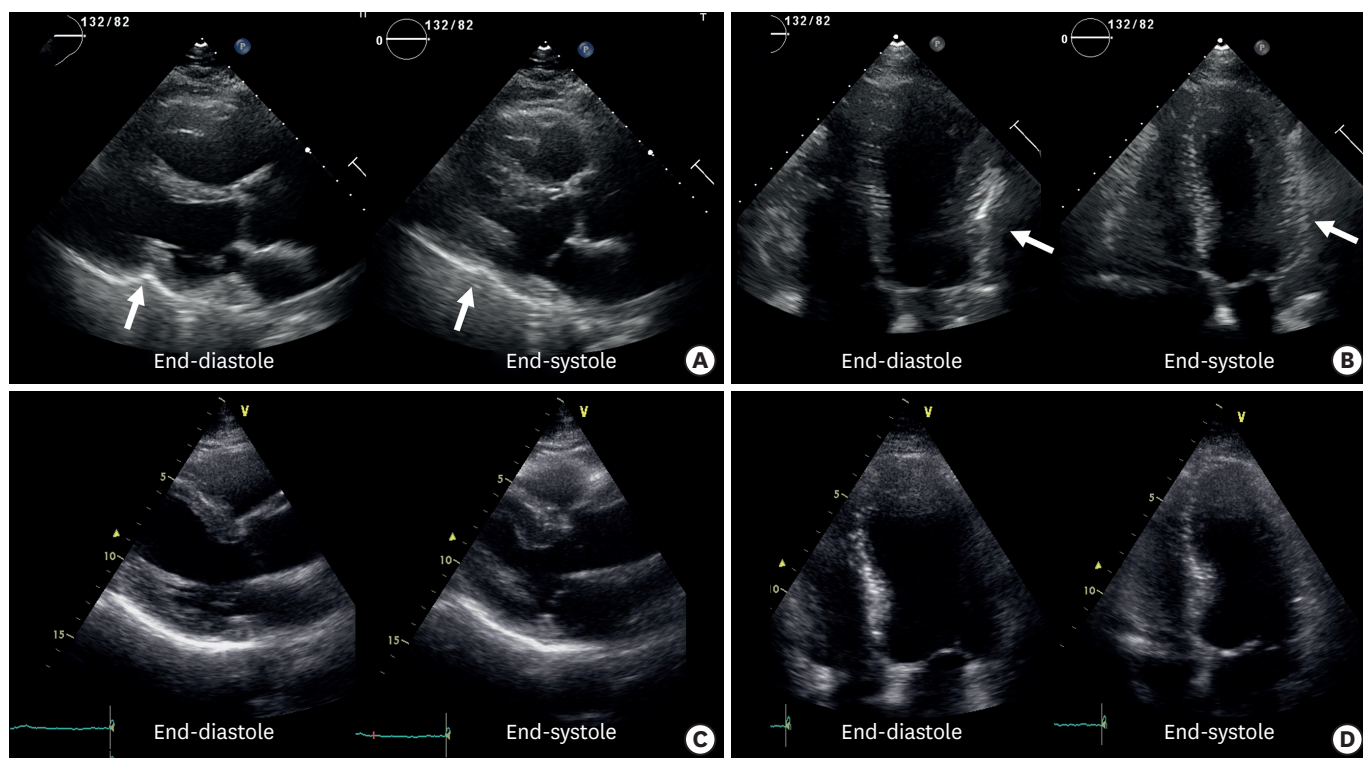
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A 62-year-old male was referred to our hospital for evaluation of chest discomfort. He had stent implantation 12 years ago for treating stable angina pectoris and treated multiple fractures from motor vehicle accident 8 years ago. His chest radiograph showed an increased heart size, suggesting aneurysmal dilatation of the left ventricle (LV, **Figure 1A**) compared with normal heart size taken 12 years ago (**Figure 1B**). Transthoracic echocardiography demonstrated indentation in the mid-portion of the LV and the apical portion of the right ventricle (RV, **Figure 2A and B**, arrow), which was not observed in the echocardiographic examination performed 12 years ago (**Figure 2C and D**, **Supplementary Video 1**). Contrast-enhanced computed tomography showed herniated apical portion of the RV and a mid-portion of the LV through the partial pericardial defect (**Figure 3A and B**) without other obstructive coronary lesions. Although the physician recommended him to have a corrective operation, the patient refused the procedure and has been closely monitored without additional medications.

The cause of increased cardiac size was due to herniation of ventricles through the partial pericardial defect. Congenital pericardial defect is a rare disease, and the reported incidence is about 1 in 10,000.<sup>1-3</sup>) Partial pericardial defect with foramen-type can be associated



**Figure 1.** Chest radiograph shows increased heart size suggesting an aneurysmal dilatation of the left ventricle (A), which was not seen in the chest radiograph taken 12 years ago (B).



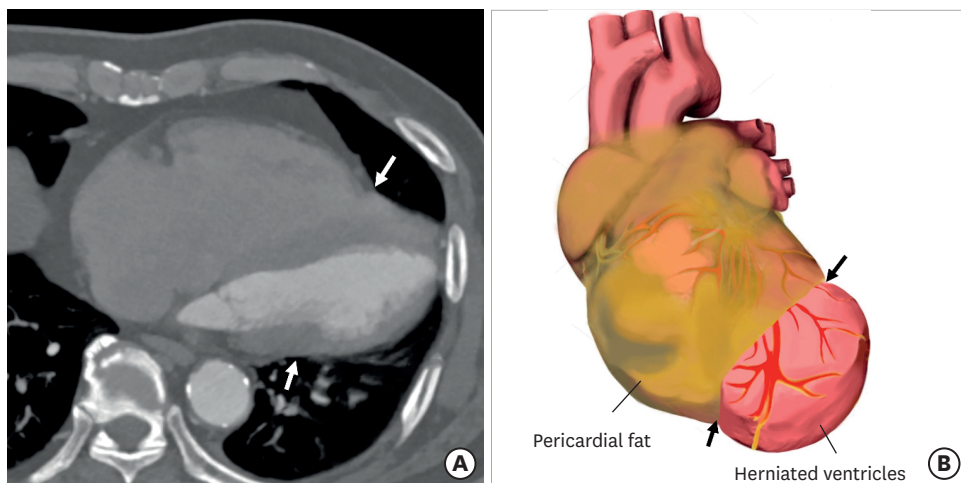
**Figure 2.** Transthoracic echocardiogram demonstrates indentation (arrow) of mid-portion of the left ventricle (A: parasternal long axis view and B: apical 4 chamber view), which was not noted on the previous echocardiogram performed 12 years ago (C and D).

**Data Sharing Statement**

The data generated in this study is available from the corresponding authors upon reasonable request.

**Author Contributions**

Conceptualization: Park JH; Data curation: Choi SW, Park YS, Kim SS, Park JH; Investigation: Choi SW; Writing - original draft: Park JH; Writing - review & editing: Choi SW, Park JH.



**Figure 3.** Contrast-enhanced computed tomography reveals herniated mid-portion of the left ventricle and apical portion of the right ventricle through the partial pericardial defect (A, arrows) with schematic illustration (B).

with symptoms including atypical chest pain and higher risk for complications including herniation of the left atrial appendage, the left atrium, or both ventricles with compression of coronary vessels.<sup>4)</sup> This patient might have asymptomatic pericardial defect, and the herniation through it was probably related to the previous trauma.

Written informed consent was obtained from the patient.

## ACKNOWLEDGMENTS

We would like to give special thanks to Sung-Won Park for her drawing a wonderful illustration.

## SUPPLEMENTARY MATERIAL

### Supplementary Video 1

Transthoracic echocardiogram demonstrates indentation of mid-portion of the left ventricle (A: parasternal long axis view and B: apical 4 chamber view), which was not noted on the previous echocardiogram performed 12 years ago (C and D).

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