Case Report

Delayed left ventricular pseudo-aneurysm after post-infarction repair of ventricular septal defect

Yun-Seok Song, Sang-Hoon Seol, Seung-Hwan Kim, Dong-Kie Kim, Ki-Hun Kim, Doo-II Kim, Hee-Jae Jun

Abstract

Left ventricular pseudo-aneurysm is a rare complication that usually occurs after myocardial infarction or cardiac surgery. Sometimes it is related to cardiac rupture. We report on surgical management for a left ventricular pseudo-aneurysm that developed four years after surgery for ventricular septal defect in a patient with acute myocardial infarction.

Keywords: pseudo-aneurysm, ventricular septal defect, myocardial infarction

Division of Cardiology, Inje University College of Medicine, Haeundae Paik Hospital, Busan, Korea
Yun-Seok Song, MD
Sang-Hoon Seol, MD, shseol@paik.ac.kr
Seung-Hwan Kim, MD
Dong-Kie Kim, MD
Ki-Hun Kim, MD
Doo-II Kim, MD

Division of Thoracic Surgery, Inje University College of Medicine, Haeundae Paik Hospital, Busan, Korea
Hee-Jae Jun, MD

Submitted 20/12/17, accepted 1/10/18
Cardiovasc J Afr 2018; 29: online publication www.cvja.co.za
DOI: 10.5830/CVJA-2018-049

Left ventricular (LV) pseudo-aneurysm or false aneurysm is a free-wall rupture contained by pericardial adhesion or the epicardial wall. Although the most common cause is myocardial infarction (MI), it can occur after heart surgery, trauma or infection.1,2 We report on a case of a 77-year-old woman with LV pseudo-aneurysm after post-infarction repair of a ventricular septal defect (VSD).

Case report

A 77-year-old woman with a history of post-infarction repair of VSD was noted on regular check-up echocardiography to have an extra-cardiac mass. She had no symptoms. Four years earlier, she had presented with acute anterior wall MI with VSD and underwent successful patch closure.

The electrocardiogram revealed sinus bradycardia with marked T-wave inversion. A chest X-ray showed cardiomegaly. Echocardiography revealed thinning of the wall of the

Fig. 1. Transthoracic echocardiography in the apical two-chamber view reveals a large extra-cardiac echo-free space adjacent to the LV apex (A), with colour Doppler image between the two (B). LV, left ventricle.
interventricular septum from the mid left ventricle to the apex, with an approximately 1.2-cm-sized free-wall defect at the LV apex, and shunt flow to the aneurysmal sac on colour Doppler (Fig. 1). Contrast echocardiography demonstrated the left ventricle with the contrast microbubble flowing into the aneurysmal area (Fig. 2).

Coronary artery computerised tomography (CT) showed a huge LV pseudo-aneurysm of 7.5-cm maximum transverse diameter (Fig. 3). Coronary angiography of the left ventricle also identified LV apex rupture with a false aneurysm (Fig. 4).

The patient underwent successful surgery with patch closure using Dacron and bovine pericardium. The operative finding showed an approximately 1-cm-sized defect at the LV apex with a pseudo-aneurysm, which may have occurred due to dehiscence of the previous surgical approach site (Fig. 5).

The patient was discharged without any complications. She remained asymptomatic after six months of follow up.

Discussion

LV pseudo-aneurysm is the result of myocardial rupture

![Fig. 2. Echocardiography with contrast microbubble demonstrates the left ventricle communicating with the pseudo-aneurysm through a small defect. LV, left ventricle.](image)

![Fig. 3. Coronary computerised tomography shows the left ventricular pseudo-aneurysm with a broad base and narrow orifice (A), and patch dehiscence (arrow) in three-dimensional reconstruction (B). LV, left ventricle.](image)

![Fig. 4. Left ventriculography with contrast agent shows the left ventricle connecting to the false aneurysm via a narrow neck. LV, left ventricle.](image)
There are no guidelines for the management of pseudoaneurysm due to its rarity. However, early diagnosis and prompt surgical repair is the treatment of choice because of a high risk of spontaneous rupture, leading to a poor prognosis.

The pseudo-aneurysm in this case was identified four years after post-infarction VSD patch closure. The patient was asymptomatic and it was detected incidentally through regular follow-up echocardiography. The delayed pseudo-aneurysm may have occurred due to dehiscence of the patch in the friable myocardium, leading to mechanical rupture of the repaired pericardium.

**Conclusion**

Because of the rarity of the condition, there are no long-term data on delayed complications after post-infarction VSD closure. However, from this case, we highlight the importance of long-term follow up using multiple imaging modalities.

**References**