Cardiac Pseudoaneurysm: An Uncommon Emergency

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...ore, 63, presents to the hospital with acute coronary syndrome with non-ST-elevation myocardial infarction. His cardiac risk factors include:

- a history of hypertension,
- hyperlipidemia and
- a family history of coronary artery disease.

A left ventriculogram (Figure 1) and transesophageal echocardiogram (Figure 2) are taken.

For more on Salvatore, see page 24.

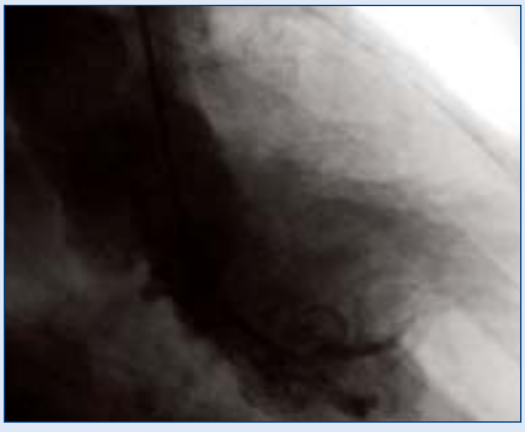

Figure 1. Salvatore's left ventriculogram.

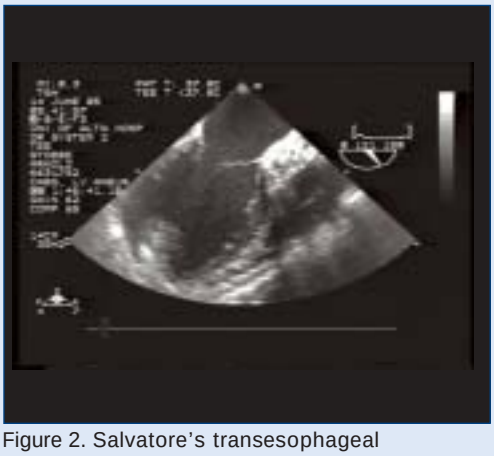

Figure 2. Salvatore's transesophageal echocardiogram.

What's your CardioCase diagnosis?

CardioCase discussion

What's wrong with Salvatore?

Cardiac pseudoaneurysm is a rupture of the myocardium contained by pericardial adhesions and/or by the epicardium. The wall of a pseudoaneurysm consists of thrombus and fibrous tissue and lacks the structural elements found in a normal cardiac wall, distinguishing it from a true aneurysm.

Acquired pseudoaneurysm of the left ventricle is a rare disorder that occurs after transmural myocardial infarction, cardiac surgery, chest trauma or endocarditis. Most pseudoaneurysms are detected incidentally, due to non-invasive tests.

Cardiac pseudoaneurysms are uncommon in clinical practice, hence knowledge of the clinical profile and natural history is limited. There are no published reports of any large clinical studies on these events.

Types and severity

Pseudoaneurysms can be acute or chronic. Acute pseudoaneurysm is a variant of myocardial rupture and is prone to fatal rupture, hence requiring urgent surgery. Chronic pseudoaneurysms can be symptomatic with heart failure or asymptomatic (and may be detected incidentally). The propensity of these aneurysms for rupture with a fatal outcome necessitates surgical repair, unless they are less than 3 cm in diameter and non-expanding (Figure 3).

Surgical management

The optimum choice of treatment is surgical repair. The repair of a pseudoaneurysm of the left ventricle, combined with appropriate myocardial revascularization, can be performed with acceptable mortality and good long-term results. The reported mortality for such operations is 7%; however, mortality can be as high as 23% to 28% in the acute phase of myocardial infarction and in redo operations. *PCard*

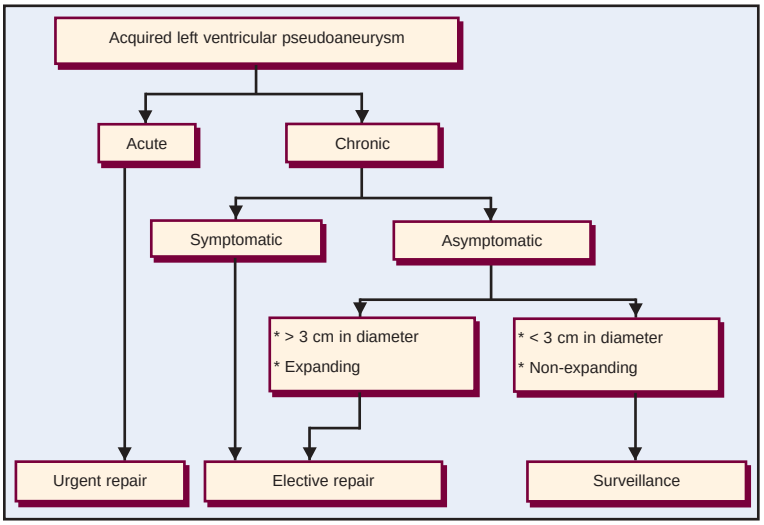

Figure 3. Management of acquired pseudoaneurysm of the left ventricle.

More about Salvatore

Salvatore's coronary angiogram (Figure 1) demonstrated severe triple vessel disease with a left ventricular inferolateral wall aneurysm and an ejection fraction of 45%. His transthoracic echocardiogram (Figure 2) demonstrated a left ventricular pseudoaneurysm and mild mitral valvular regurgitation.

In view of the pseudoaneurysm and coronary artery disease, he was referred for surgery.

See page 26 for Salvatore's followup.

About the authors...

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Salvatore's Followup

A coronary artery bypass grafting, using a left internal mammary artery to the left anterior descending artery and saphenous vein grafts to the diagonal artery and posterior descending artery, was performed. The obtuse marginal branch of the circumflex artery was in the territory of the pseudoaneurysm.

The pseudoaneurysm was located over the inferolateral part of the left ventricle and measured 4 cm by 4 cm in dimension. An endoventricular circular patch plasty was performed using a combined bovine pericardial and Dacron sandwich patch (Figure 4).

Salvatore's surgery was uneventful. He had an excellent recovery and was discharged on the ninth post-operative day. He will remain on anticoagulation medication to prevent any clot formation at the site of repair and will require a follow-up echocardiogram.

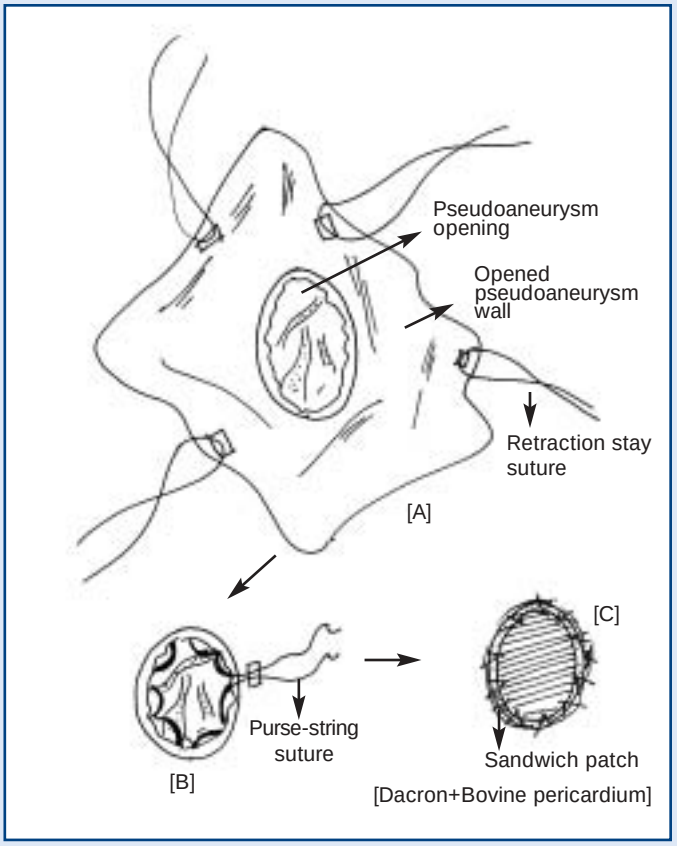

Figure 4. A, B and C show endoventricular circular patch plasty repair.

Resources
1. Pretre R, Link A, Jenni R, et al: Surgical treatment of acquired left ventricular pseudoaneurysm. Ann Thorac Surg 2000; 70(2):553-7.
2. Yeo TC, Malouf JF, Oh JK, et al: Clinical profile and outcome in 52 patients with cardiac pseudoaneurysm. Ann Intern Med 1998; 128(4):299-305.