CASE REPORT

Giant Left Ventricular Pseudo-false Aneurysm Following Myocardial Infarction

We report a successful surgical case of giant left ventricular pseudo-false aneurysm in a 63-year-old man. The abnormality of the inferior wall of the left ventricle was discovered incidentally by abdominal ultrasonography for health examination at another hospital. Transthoracic echocardiography and left ventriculography revealed a giant false aneurysm (74x75x40 mm) in the inferior wall of the left ventricle with a large orifice (70x58 mm). Repair of the aneurysm was performed under arrested heart, closing the large orifice with a Hemashield patch. Postoperative pathological examination proved that the wall of the aneurysm had myocardial tissue. The microscopic results strongly suggested that this aneurysm was a pseudo-false aneurysm. (Jpn J Thorac Cardiovasc Surg 2005; 53: 120-123)

Key words: left ventricular pseudo-false aneurysm, myocardial infarction

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Case

A 63-year-old man had been followed up at another hospital owing to diabetes mellitus. An abnormality of the inferior wall of the left ventricle (LV) was discovered incidentally by abdominal ultrasonography for health examination. The patient was referred to our hospital for further examination. The patient had no symptoms except for substernal chest pain during a short period three weeks prior to admission. A chest roentgenogram showed mild cardiomegaly, and an electrocardiogram showed abnormal Q wave in leads II, III and aVF. Transthoracic echocardiography revealed a giant aneurysm (74x75x40 mm) in the inferior wall of the LV, with a large orifice (70x58 mm). The edge of the orifice was close to the annulus of the mitral valve with mild regurgitation. Thrombus was detected in the aneurysm (Fig. 1). The proximal portion of the right coronary artery was severely stenosed in coronary angiography, whereas there was no significant stenosis in the left coronary system. Left ventriculography revealed a giant aneurysm of the inferior wall of the LV, which expanded during systole and collapsed during diastole. The LV had a dumbbell appearance with relatively small orifice (Fig. 2). The diagnosis of LV false aneurysm was established. Surgical repair was planed urgently, because the aneurysm was very large and prone to rupture.

At the operation, cardiopulmonary bypass was instituted between the femoral artery and vein. Cannulation of the superior vena cava was carried out in addition because the bypass flow was inadequate. The aorta was
cross-clamped, and cold cardioplegia was established. A huge inferior aneurysm was found to be densely adherent to the diaphragm and posterolateral pericardium. The aneurysm, which was opened directly without dissecting it from the surrounding structures, contained a small amount of old thrombus and communicated with the left ventricular cavity through a large 70x50 mm orifice in the infero-basal wall of the LV (Fig. 3A). The edge of the orifice was densely fibrotic. The mitral valve annulus and subvalvular apparatuses including papillary muscles were intact. Because the large defect was located close to the basal part of the LV, the ventricular defect was closed with a woven Hemashield patch to avoid potential distortion of the heart structures or excessive traction on the edges of the defect (Fig. 3B). The dissected wall of the aneurysm was closed directly with a Teflon felt strip. The patient’s postoperative course was satisfactory. Postoperative transthoracic echocardiography revealed no distortion of the heart structure, with LV function improved (Fig. 4). The patient was discharged 21 days after operation. A microscopic section of the partially resected aneurysmal wall showed myocardial tissue mixed with infarct and scar (Fig. 5). Macroscopic and microscopic examination of the aneurysm suggested that this aneurysm most likely was pseudo-false aneurysm (Fig. 6).

Discussion

False aneurysm of the LV is a rare disorder that usually occurs after transmural myocardial infarction or after cardiac surgery. Generally speaking, LV false aneurysm is formed when cardiac rupture is contained by adherent pericardium or scar tissue, which contains no endocardium or myocardium, unlike a true LV aneurysm. However, Stewart et al. defined a pseudo-false aneurysm, which is formed when the hematoma caused by ventricular rupture does not dissect completely through to the epicardium but is contained within the area of the infarct and has elements of ventricular wall in its wall. Therefore, a dense fusion between the epicardium and pericardium is usually absent, as in this case, because the dissecting hematoma was contained by the ventricular wall itself.

LV pseudo-false aneurysm is extremely rare and sometimes perforates into the right ventricle. To the best of our knowledge, only a few reports have described pseudo-false aneurysm. The natural history of pseudo-false aneurysm is imperfectly known, and, further more,