**Case Reports**

**Ventricular Pseudo-aneurysm with Coronary Ectasias**

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**Abstract**

A 51 years male presented with acute left ventricular failure and was diagnosed to have pseudo-aneurysm of left ventricle, coronary artery disease with diffuse ectasia of coronary arteries.

**Introduction**

A pseudoaneurysm of the left ventricle is a myocardial rupture contained by pericardium and thrombus with no remnants of myocardial tissue. It is called pseudo as its wall does not contain any myocardial element. It is a rare complication of myocardial infarction, but has also been reported after chest trauma, cardiac surgery and endocarditis.

**Case History**

A 51-year-old man presented at our institution with history of dyspnea (New York Heart Association functional class III), which had been insidious in onset and slowly progressive over a period of 2 months. He had history of acute onset chest pain 3 month back which was managed in local hospital. He is smoker non diabetic hypertensive. His lipid profile was within normal limits.

The physical examination revealed a regular pulse rate of 110 beats/min, a blood pressure of 110/70 mmHg, and an elevated jugular venous pulse with prominent v waves and a steep y descent. A precordial examination showed an apical impulse in the left 6th intercostal space. A grade 2/3 parasternal lift and a palpable pulmonary component of the 2nd heart sound were present. He had a grade 3/6 pan systolic murmur in the tricuspid valve area that increased on inspiration. Liver was enlarged 5 cm below the costal margin. The patient had normal vesicular breath sounds with basal rales.

Electrocardiography showed sinus rhythm, a QS pattern in leads v1-v6, II III avf. Cardiac enzymes were normal. Chest radiographs in the poster anterior and lateral views showed cardiomegaly with a cardiothoracic ratio of 0.8, bulging of the left border of the heart suggesting LV aneurysm, and pulmonary venous congestion.

Echocardiography showed LV dysfunction with an ejection fraction of 0.40, and akinesia of the septum, mid apical anterior wall. There was a large LV pseudoaneurysm measuring 7.4 × 4.8 cm with clot and spontaneous echo contrast in left ventricle apex, communicating through a narrow neck of 3 mm in diameter.

Color-flow Doppler echocardiography showed turbulence across the neck of the aneurysm [Figs. 1, 2, 4]. The Doppler tracing showed systolic flow into the pseudo aneurysm and diastolic flow away from the aneurysm into the LV cavity. The patient had moderate tricuspid regurgitation (grade 3/4); the pulmonary artery pressure level, as determined from the tricuspid regurgitation, was 52 mmHg. Coronary angiography showed ectatic coronary arteries and mid LAD 99% block with TIMI- I flow [Fig. 3, 6]. Left ventricular angiography showed akinetic dilated apex and a large LV pseudoaneurysm originating from the apical wall of the left ventricle [Fig. 5].

Patient was referred to cardiovascular surgery department.

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where urgent surgery was advised. There patient refused for operation and left against medical advice with the risk of sudden death explained.

**Discussion**

Left ventricular pseudoaneurysm is a rare and extremely fatal complication of acute myocardial infarction. It is defined as a rupture of the myocardium contained by pericardium and thrombus. Its wall is composed of only hematoma and pericardium with no myocardial element which differentiates it from true aneurysm, whose wall contains myocardial element. Left ventricular pseudoaneurysms are most commonly caused by myocardial infarction secondary to atherosclerotic coronary artery disease. However, occurrences after trauma, infective endocarditis, inflammation, and cardiac surgery have been reported.

Differentiation between LV pseudoaneurysms and true aneurysms can be challenging. One way of assessing this on echocardiography is by comparing the diameter of the orifice/neck of the aneurysm with its maximum diameter. In an echocardiographic series, it was found that the ratio of the maximum diameter of the orifice to the maximum internal diameter of the cavity was between 0.25 and 0.50 for pseudoaneurysms while the range for true aneurysms was between 0.90 and 1.0. The presence of turbulent flow by pulsed
Doppler at the neck of a cavity or within the cavity itself also suggests presence of a pseudo aneurysm. Colour Doppler can also be useful in distinguishing between pseudoaneurysm and other abnormalities such as pericardial effusion. There is increasing evidence that MRI is very useful for differentiating between true and pseudo aneurysms. It allows visualization of the entire heart and is able to clearly distinguish between structures such as pericardium, myocardium thrombus and epicardial fat. Pseudo aneurysms have a higher risk of rupture and thus, a surgical approach to management is often undertaken. This risk is estimated to be between 30 and 45%, based on older studies most investigators recommend surgery as the treatment of choice in suitable patients with LV pseudoaneurysms as the risk of fatal rupture is felt to outweigh the risk of surgery. Patients with LV pseudoaneurysms usually present with congestive heart failure, arrhythmias, and embolism.

Coronary aneurysms are defined as a localized dilatation that exceeds 1.5 times the diameter of the adjacent segment of artery. Aneurysms can be saccular (transverse larger than the longitudinal axis) or fusiform (longitudinal at least twice the transverse axis). These should be distinguished from coronary artery ectasia in which there is diffuse dilatation involving greater than 50% of the coronary artery.

References