

## Left Ventricular Pseudo-Aneurysm in a Patient with Undocumented MI and No Past Cardiac Surgery

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**Aims/Objectives:** To educate the international internal medicine and cardiology physicians about an extremely rare cardiac pathology: Pseudo-Aneurysm's in patients without any previous cardiac surgery and/or previous MI.

### Introduction

A left ventricular pseudo-aneurysm is a myocardial rupture in which the pericardium prevents blood from exiting the left ventricle defect and thus preserving cardiac function. This pseudo-aneurysm formation most often occurs secondary to myocardial infarction but has become increasingly more prevalent in patients undergoing traditional valve replacement, due to the invasive nature of cardiac surgery. The overall prevalence of pseudo-aneurysm has decreased with the increase in early PCI and thrombolytic use in acute myocardial infarction, leading to decreased myocardial damage.

### Case Description

Patient is an 82-year-old African American female from Jamaica with past medical history only significant for hypertension, rheumatoid arthritis, colon cancer status post-surgery, chemotherapy and radiation 7 years ago with no current evidence of disease, now presenting with shortness of breath x 2-3 days. Patient states that over the previous two to three days she has been having progressively worsening of dyspnea of exertion. She is now unable to walk across the room without feeling short of breath. She denies dyspnea at rest, orthopnea, PND, lower extremity edema, syncope, pre-syncope, palpitations, chest pain now or in the past, fevers, chills, nausea, vomiting, diarrhea, cough or wheezing. Review of systems was negative except for a frontal headache she gets daily that is relieved by NSAID's.

**Initial Vitals:** BP 232/89, HR 89, RR20, temp 97.6, O2 sat 99% on room air

**Physical Exam:** General: well-nourished elderly appearing female, non-septic looking Cardiac: S1S2 2/6 Systolic Ejection Murmur best heard at left upper sterna border, No S3 or S4, No Edema, No JVD, no hepatojugular reflex. Respiratory: Clear bilaterally, no wheezes, rales or rhonchi. Eyes: No jaundice, no pallor. Nose: normal, no drainage. Skin: normal. Abdomen: soft, non-tender, positive bowel sounds, Fecal Occult Blood test was negative. Peripheral Extremities: no clubbing, no cyanosis, no edema. Neuro: CN 2-12 grossly in -tacked, no sensory or motor deficits, unable to perform full gait exam due to Shortness of Breath.

**EKG:** ST depressions in v2, v3, v4, v 5 and v6, with normal sinus rhythm.

**Initial Labs:** Troponin: 0.004, BNP: 123, Hemoglobin 11.2, Hematocrit 32.5, Electrolytes/Mg/Po4 within normal limits except for BUN: 26 and Cr:1.2

**CXR:** Cardiomegally

**Hospital course:** In the emergency department patient was given 1-inch nitro paste, labetalol 20mg Iv and lasix 40mg Iv, which subsequently lowered the BP to 170/90. Patient was admitted to tele placed on aspirin, Statin, Beta Blocker and Ace Inhibitor with response

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in blood pressure to 140/90. ACS was ruled out with serial troponins. D-dimer initially ordered to rule out PE was found to be elevated. CTA was negative for Pulmonary Embolism but an incidental finding of pseudo-aneurysm of the left ventricle was found prompting echocardiography for confirmation. Echocardiography confirmed the left ventricular pseudo-aneurysm with normal wall motion. Patient was subsequently transferred to a nearby hospital which was more equipped to handle the left heart catheterization and cardio-thoracic surgical evaluation. Coronary Angiography determined patient had mild non-obstructive coronary artery disease with normal ejection fraction. Ultimately The patient underwent successful cardiac surgery for repair of the pseudo-aneurysm.

It was theorized that the patients symptom of dyspnea on exertion was due to a decreased cardiac output when the heart was being stressed, but due to the serious nature of the disease process, this patient was taken to cardiac cath and surgery before being able to properly stress the heart to confirm our suspicion.

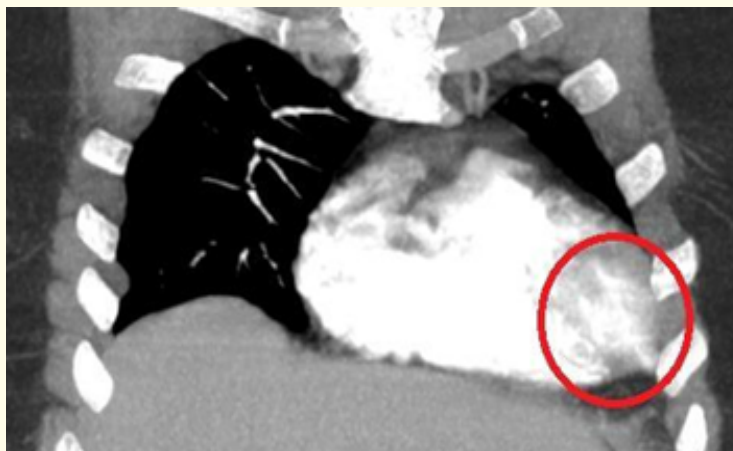
As shown to the left: 2D Echocardiography results show a small pseudoaneurysm, approximately 5 mm in greatest diameter, present at the apex. Mild diastolic dysfunction is present (impaired relaxation pattern). LVEF is 65%.

### Discussion

As earlier and earlier intervention for myocardial infarction and increasing use of TAVR procedures, pseudo-aneurysms are becoming an increasingly rare phenomenon. Normally pseudo-aneurysms are seen in the setting of ischemia with transmural infarction and myocardial rupture, however in this case the wall motion in the area of this pseudo-aneurysm is normal with a normal ejection fraction and no signs of old or acute ischemia or infarction by EKG/cardiac enzymes. It is important to remember that pseudo-aneurysms can happen for a multitude of reasons 1. Previous MI/Ischemia (55%), 2. Previous Cardiac surgery with scar tissue formation (33%), 3. Trauma (7%), 4. unknown cause (5%). Pseudo-aneurysms have varying presentations and when finally discovered need to be dealt with surgically because they carry a 30-45% risk of rupture and up to a 50% mortality rate. After an extensive literature search, there was no information obtained on the possible etiologies for the unknown causes of ventricular pseudo-aneurysm. Could this have been a congenital defect the patient has lived with her entire life and now was accidentally found? Or could this have been micro-vascular defects associated with the patient's rheumatoid arthritis?

### Disclosures

No Disclosures or Conflicts of Interest.





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