

# The Importance of Tissue Diagnosis – A Case of Positron Emission Tomography-Positive Cardiac Mass Mimicking a Cardiac Malignancy

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## Background & Purpose

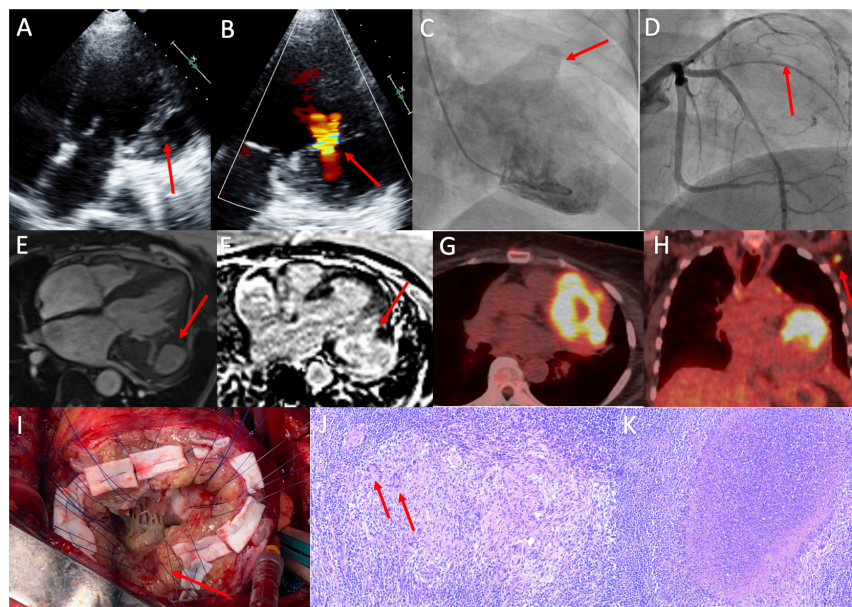
Non-oncological cardiovascular diseases can mimic a cardiac tumor. It is paramount to obtain a tissue diagnosis when evaluating a patient with a cardiac mass.

## Case Description

A 64-year-old woman with autoimmune cholangitis on chronic treatment with azathioprine presented with progressive dyspnea. Evaluation revealed an abnormal stress electrocardiogram and abnormal echocardiogram showing a left ventricular mass and a pseudoaneurysm (images A-B). She underwent a left heart catheterization, which showed insignificant coronary artery disease, but the left ventriculogram demonstrated an aneurysmal anterolateral wall and increased vascularity feeding it (images C-D). Cardiac magnetic resonance (CMR) imaging demonstrated again the pseudoaneurysm in the anterolateral wall as well as thickening of the basal anterior wall with gadolinium enhancement suggestive of a malignancy with differential diagnoses including sarcoma, mesothelioma, poorly differentiated tumors and primary cardiac lymphoma (images E-F). The positron emission tomography (PET) showed hypermetabolic activity of the anterior left ventricular wall and the pseudoaneurysm, along with an uptake in the left axillary lymph nodes (images G-H).

## Case Description (continue)

Meanwhile, she developed monomorphic ventricular tachycardia needing cardioversion and was started on amiodarone. Given concern of rupture, pseudoaneurysm repair was recommended along with endomyocardial biopsy for tissue diagnosis. Median sternotomy was pursued to allow visualization and mass resection. Intraoperatively, an infiltrative cardiac mass affecting the anterior left ventricular wall was visualized (image I) along with two pseudoaneurysms. Multiple frozen biopsies of the mass were obtained and were negative for malignancy. She then underwent left ventricular aneurysmectomy with patch repair.



**Figures:** A. Four chamber view of echocardiogram showing a pseudoaneurysm in the lateral wall. B. Doppler imaging of the pseudoaneurysm. C. Left ventriculogram showing the pseudoaneurysm. D. Increase vascularity of the anterolateral wall. E-F. CMR showing the pseudoaneurysm. G-H. PET scan showing uptake of the cardiac mass and lymph nodes (H). I. Intraoperative image of the aneurysm and the thickened walls. J. Pathology of the resected pseudoaneurysm showing a non-necrotizing granuloma with foreign body giant cells (arrows). K. Pathology of the pseudoaneurysm showing a necrotizing granuloma.

## Outcomes

The pathology of the resected pseudoaneurysms showed predominant necrotizing granulomatous inflammation and focal non-necrotizing granulomas with foreign body giant cells and fibrosis (images J-K). Immunostatin was negative for lymphoid neoplasm. The final diagnosis was granulomatous disease, most suggestive of sarcoidosis. The patient was referred to rheumatology and cardiac sarcoidosis clinic.

## Discussion

Granulomatous diseases such as cardiac sarcoidosis, an infiltrative cardiomyopathy, can mimic cardiac malignancy due to similar findings on CMR and PET scan.<sup>1,2</sup> Obtaining a tissue diagnosis is paramount for proper treatment.

## References

1. Hammen I, et al. Systemic sarcoidosis mimicking malignant metastatic disease. *Eur Clin Respir J.* 2015;2:26761.
2. Li Z, et al. Sarcoidosis misdiagnosed as malignant tumors: A case report. *World J Surg Oncol.* 2015;13.

## Disclosure

The presenting author, Carolyn Wu, and the lead author, Ana Barac, have no relevant disclosures.