

Syncope and Stroke-like Symptoms in a Young Male with Non-Bacterial Thrombotic Endocarditis

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Introduction

- Strokes are rare in young healthy adults.
- Non Bacterial Thrombotic Endocarditis (NBTE) is also rare.
- We present the case of a young athlete with a stroke secondary to an unexplained non-infectious mitral valve endocarditis.

Case Presentation

- 20 year-old African American man, college basketball player
- No known medical or surgical history
- **CC:** **Syncopal episode** lasting minutes preceded by dizziness
- Transient bilateral **vision loss** for 15-20 minutes
- **Multiple falls** at home due to transient loss of sensation in his legs 2 months ago
- **ROS: (+) light-headedness (-) fevers, night sweats, chest pain, palpitations, SOB**
- No significant family history; Non-smoker, no substance use
- **PE:** Generally unremarkable. No focal deficits.
- **Labs:** Normal CMP, CBC, coagulation panel

Case Management

- **EKG** [Fig 1] was negative for ischemia or arrhythmia.
- **Trans-esophageal echo** [Fig 2,3] showed a mobile mass on the mitral valve. EF was 66% with normal LV function.
- **Brain MRI** [Fig 4,5] showed multiple foci of restricted diffusion in bilateral cerebellar hemispheres and the left occipital lobe.
- Emergent debridement and **resection of a 0.75 cm mass** [Fig 6] from the anterior leaflet and repair of mitral valve with pericardial patch was performed.
- The mass was sent for **pathology evaluation** [Fig 7] and cultures. Infectious and rheumatologic work-up was negative.
- On a 3-month follow up transthoracic echo, a **new mass** was seen on the posterior leaflet of the mitral valve [Fig 8]. The mass resolved after 4 days of anticoagulation.
- He was discharged on indefinite anticoagulation. Extensive outpatient work-up is still inconclusive.
- Lupus, anti-phospholipid antibody syndrome, rheumatoid arthritis, malignancy and other pro-thrombotic conditions have been ruled out.

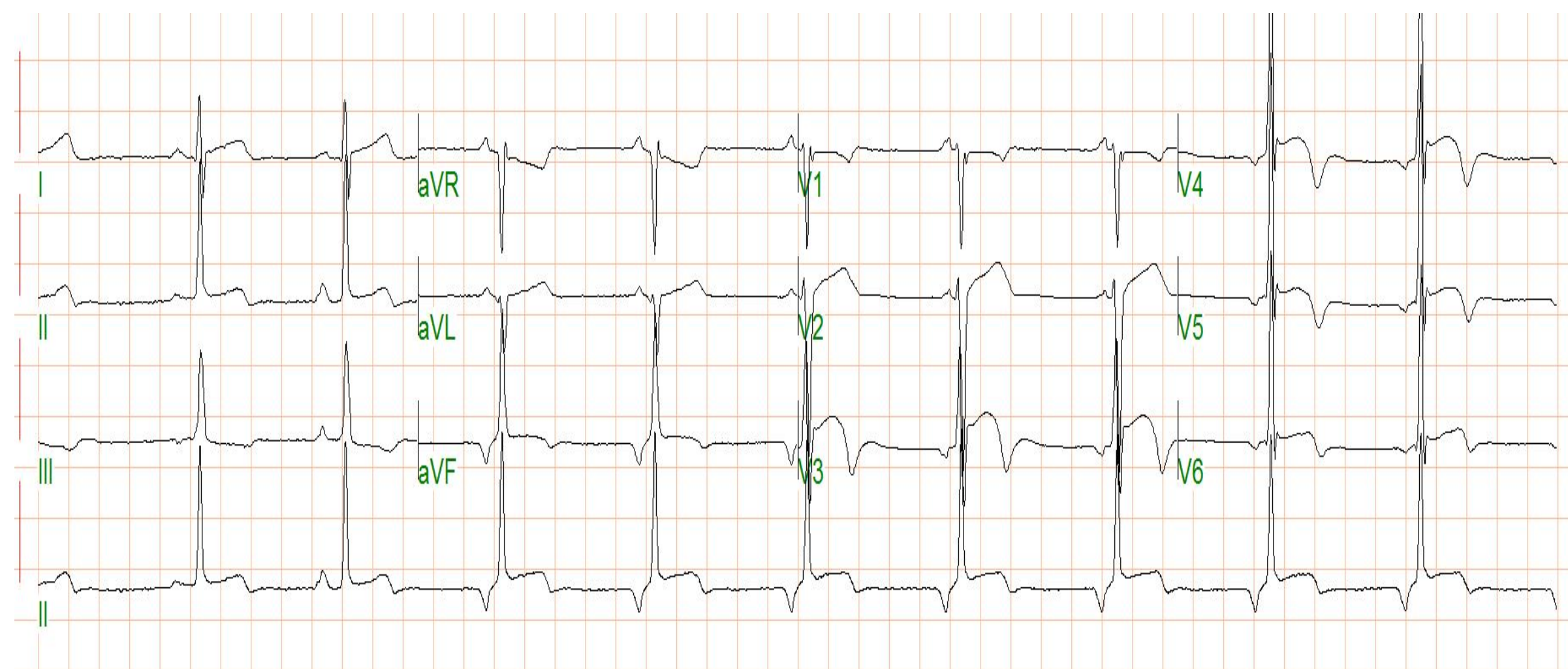


Figure 1. EKG: ectopic atrial rhythm and T-wave changes in precordial leads

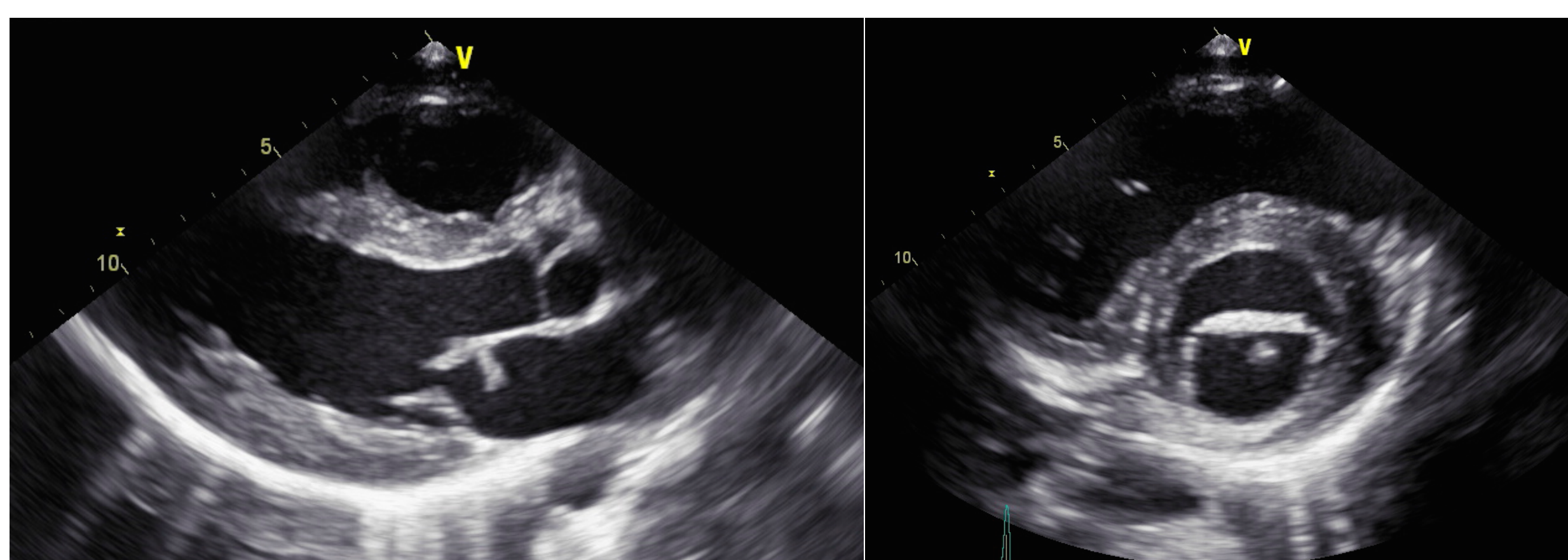


Figure 2,3. Transthoracic echocardiogram: 1.2 cm mobile structure on the anterior leaflet of the mitral valve

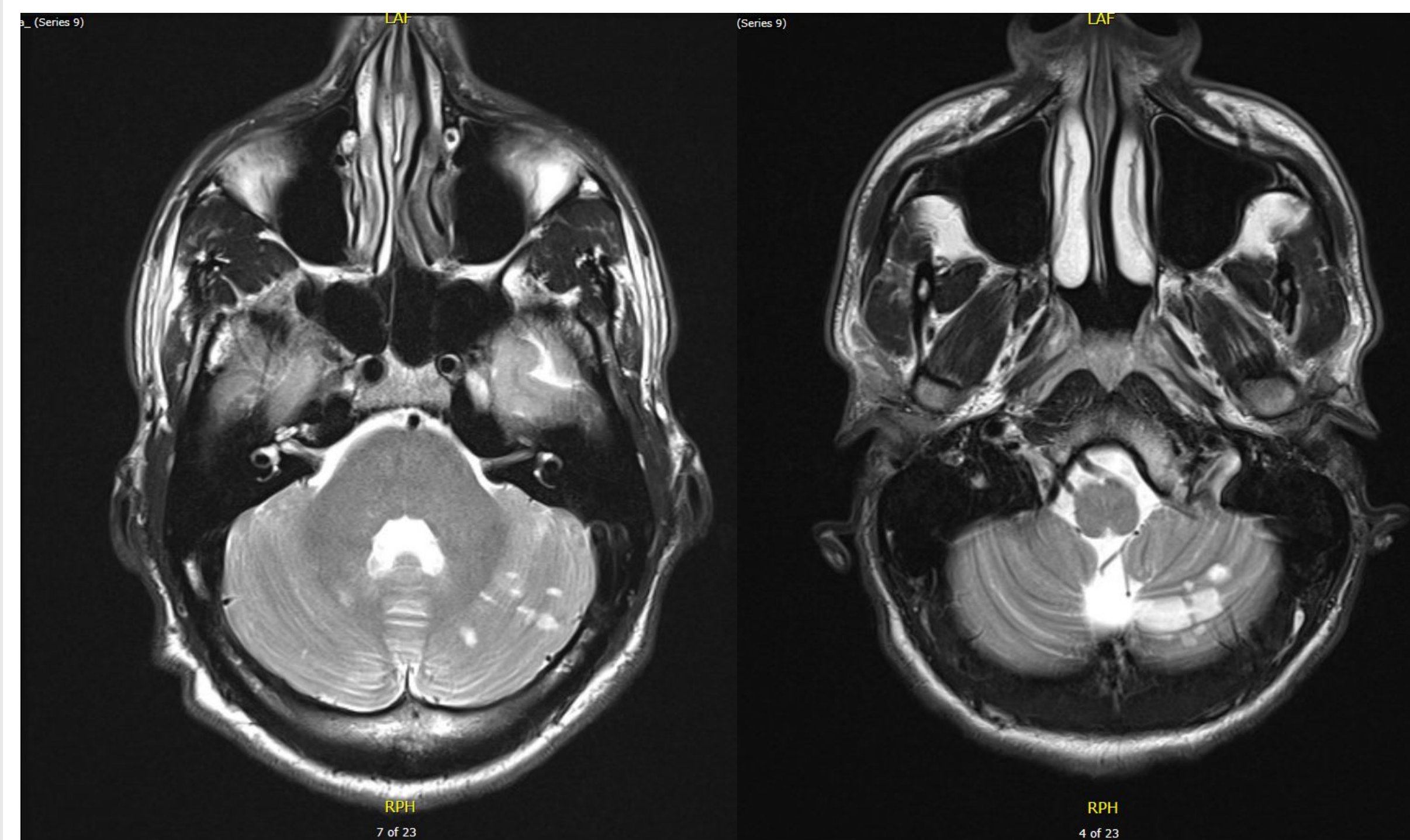


Figure 4,5. MRI Brain: Multiple punctate foci of restricted diffusion (acute ischemic strokes) in the cerebellar hemispheres and the left occipital lobe

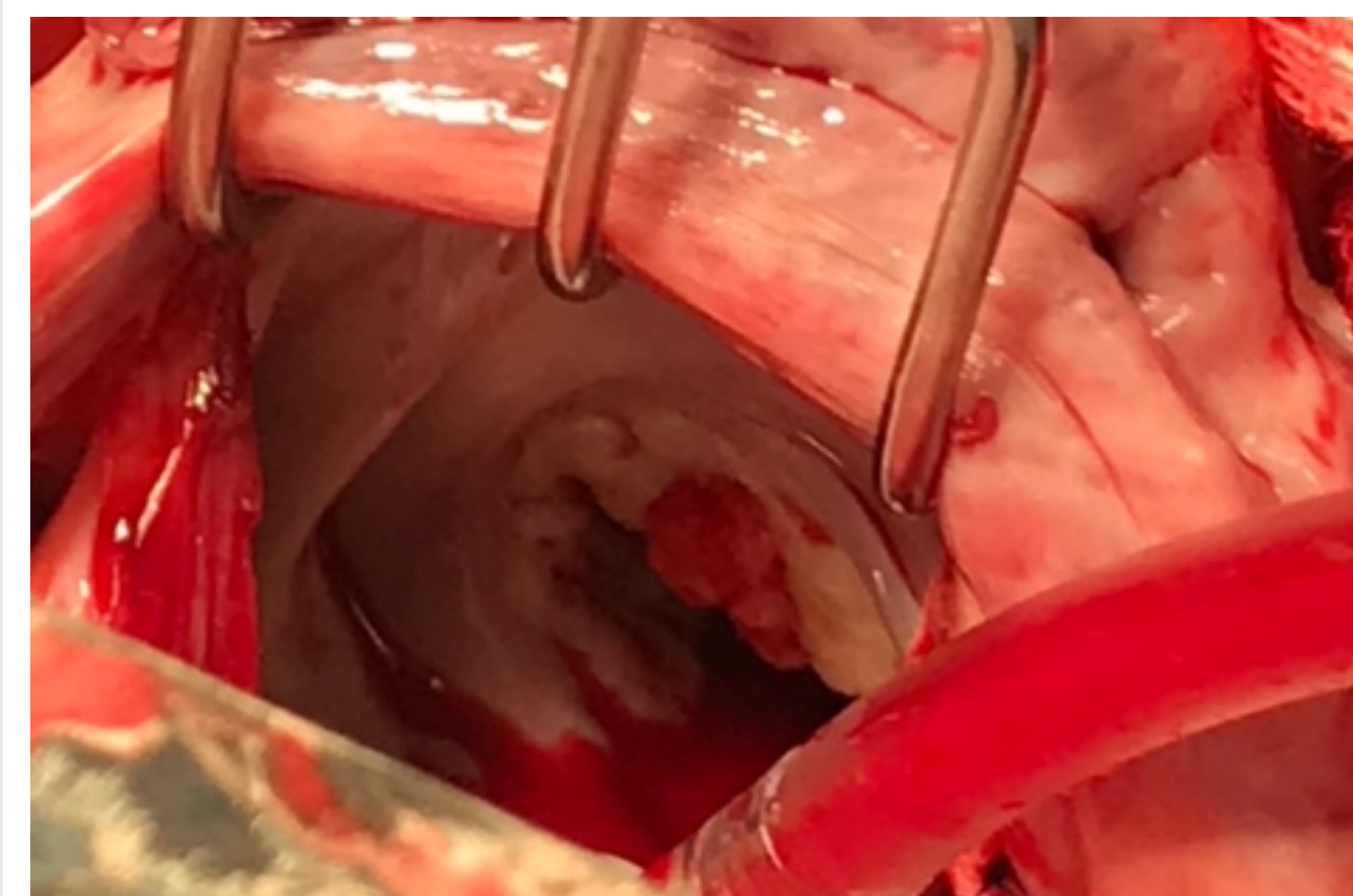


Figure 6. Emergent debridement: intra-operative photo of mitral valve mass prior to excision

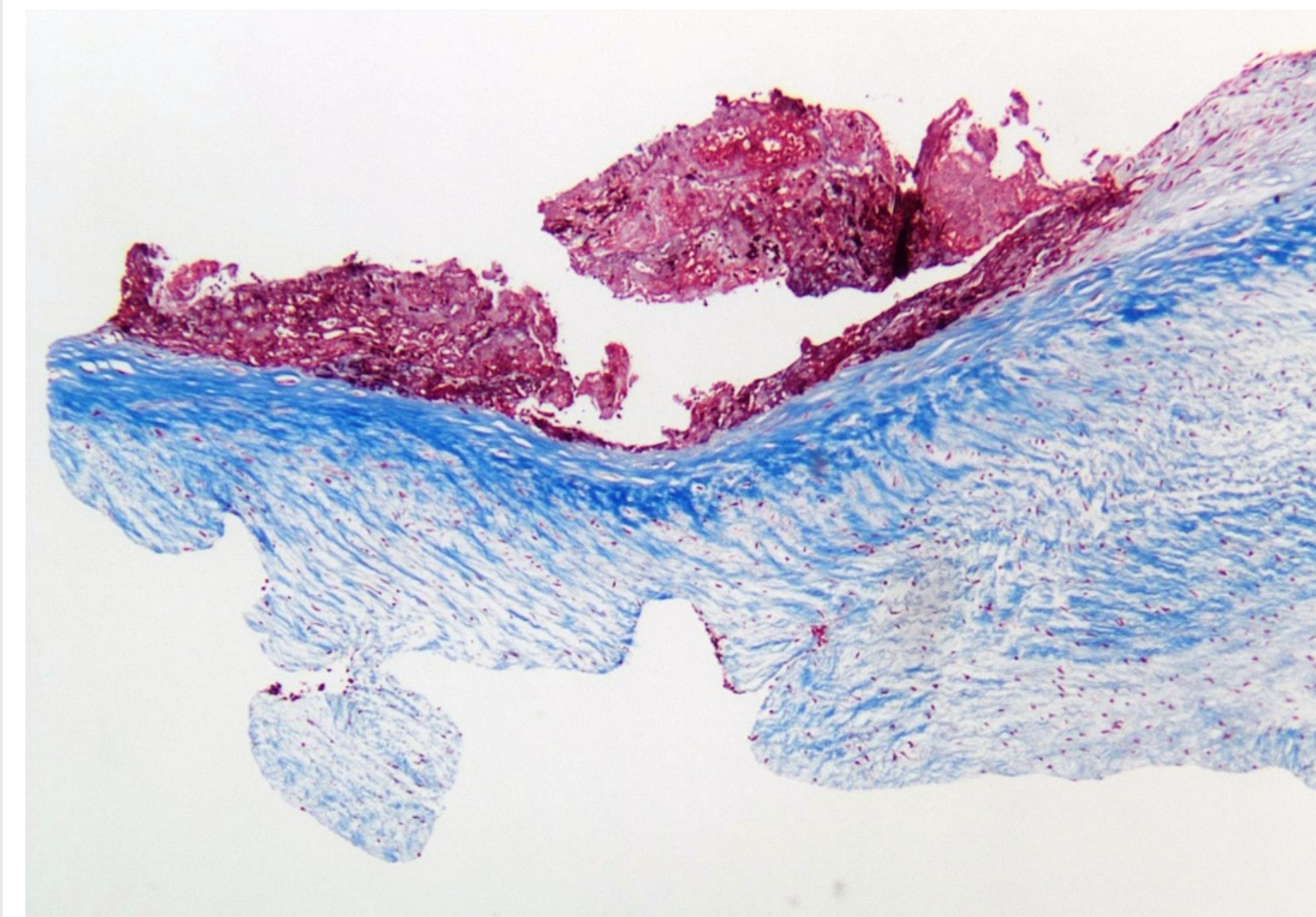


Figure 7. Organizing fibrinous vegetation (staining red) with minimal inflammation and background fibrous tissue (staining blue)

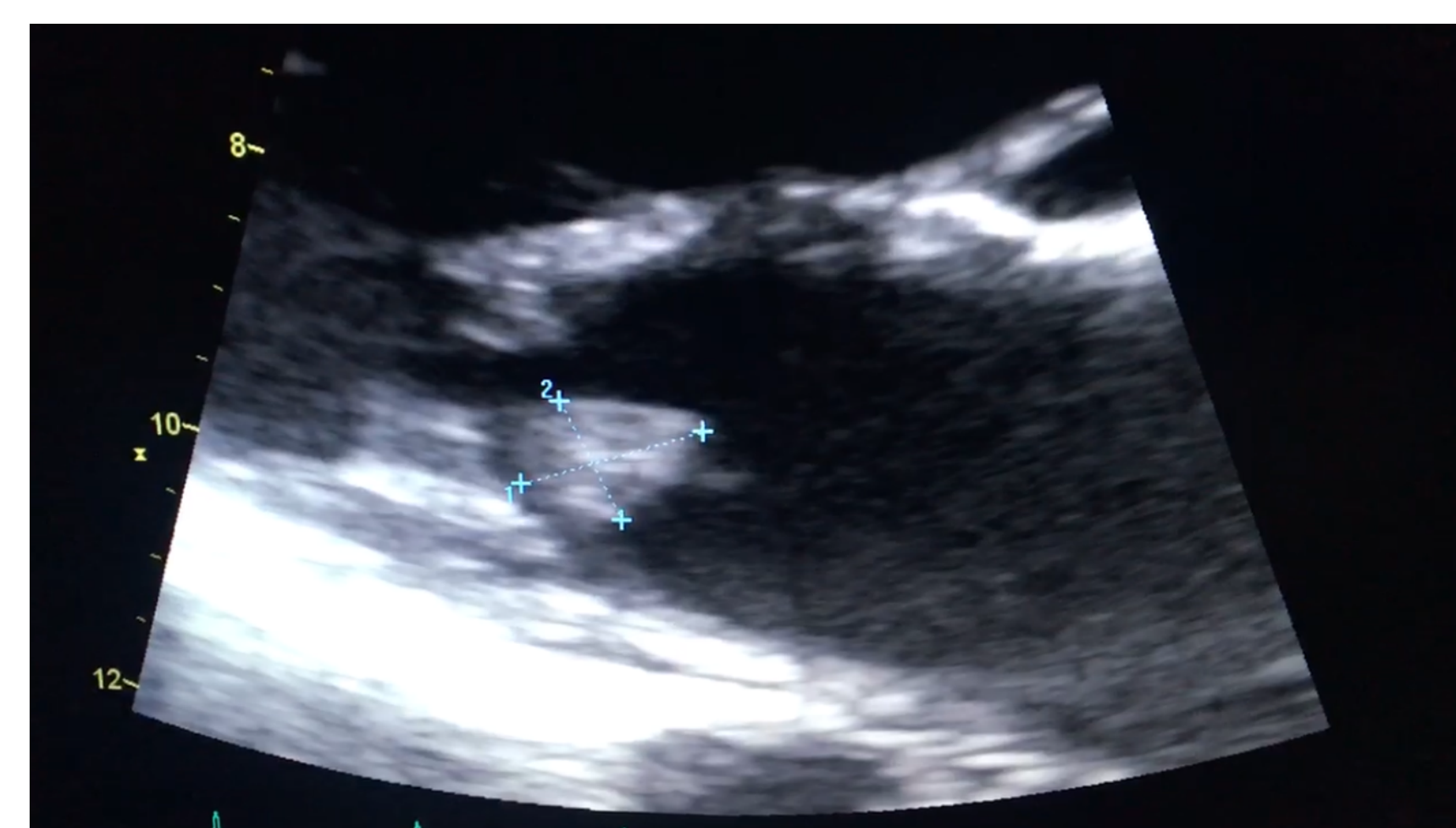


Figure 8. Recurrence of a mass on the posterior leaflet

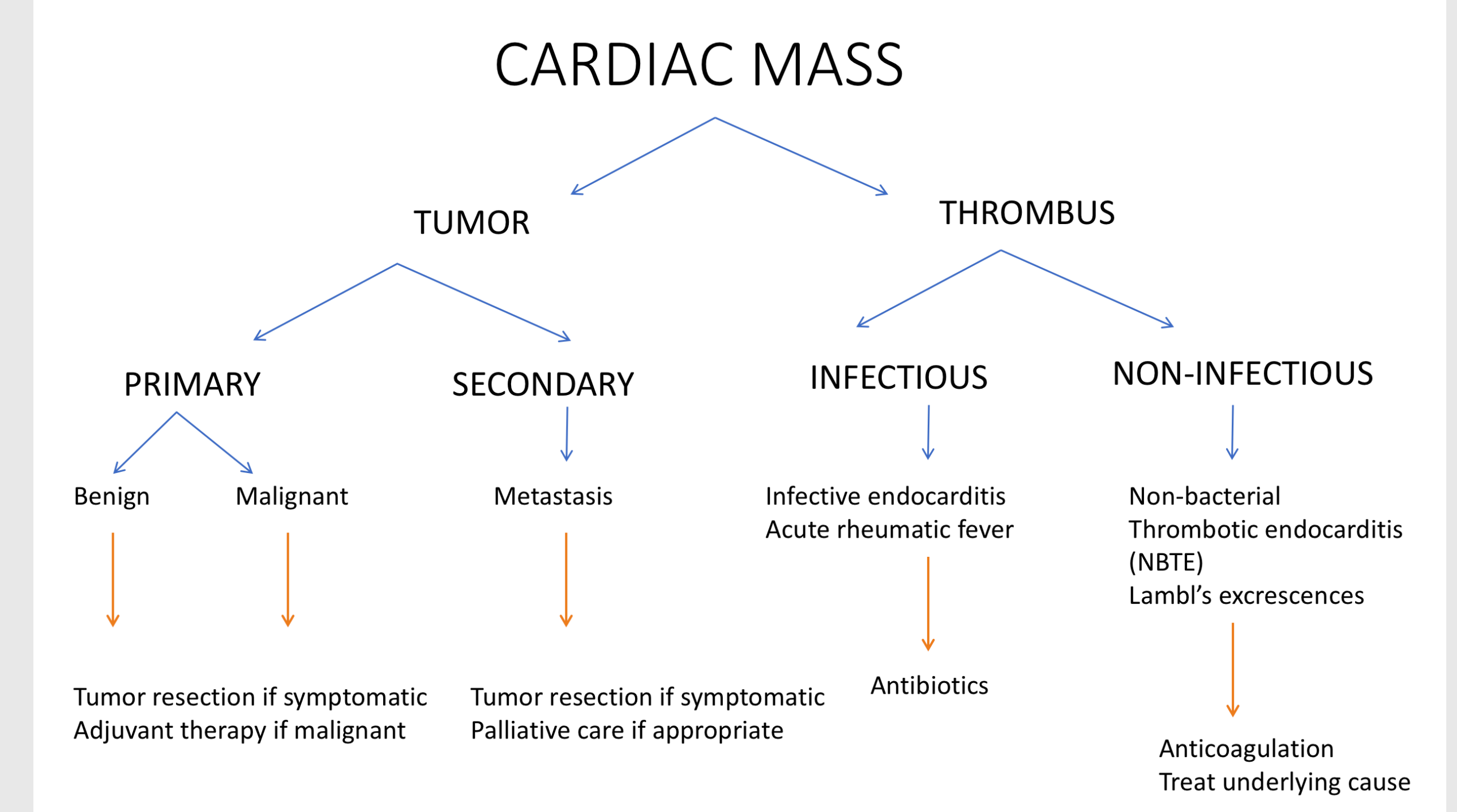


Figure 9. Differential diagnoses for a cardiac mass and management

Discussion

- A cardiac mass must be identified as a tumor or a thrombus for proper management as outlined above [Fig 9].
- Initial evaluation: echocardiography +/- cardiac CT or MRI
- Goal: confirm presence, location, nature of mass
- Tumor was the initial impression of the mass in this case.
- Pathology findings, recurrence and subsequent resolution with anticoagulation proved that this was a thrombus.

TUMOR

- Myxomas, papillary fibroelastomas and lipomas are the most common benign primary tumors. Secondary tumors are mostly metastatic and rare.
- Symptomatology depend more on the tumor's location in the heart than on its histopathology.
- Treatment: Regardless of pathology, surgery is recommended if patients are symptomatic (i.e. had embolic events or tumor-related complications).

THROMBUS

- Culture-negative infectious endocarditis must be ruled out with special stains, PCR, other techniques.
- Non-bacterial thrombotic endocarditis (NBTE, aka marantic, Libman-Sacks, or verrucous endocarditis) is mostly seen in the aortic or mitral valve. It is most commonly associated with advanced malignancy and systemic lupus erythematosus.
- Treatment: anticoagulation to prevent further embolization and addressing the underlying cause.

Conclusion

- This case of NBTE illustrates that this rare entity can occur in the absence of predisposing factors such as rheumatologic disease or pro-thrombotic states.
- Though rare, idiopathic cardiac thrombi must be considered in the differential diagnoses of stroke in a young healthy adult.

References

1. Gowda RM, Khan IA, Nair CK, et al. Cardiac papillary fibroelastoma: a comprehensive analysis of 725 cases. *Am Heart J* 2003; 146:404.
2. Sun JP, Asher CR, Yang XS, et al. Clinical and echocardiographic characteristics of papillary fibroelastomas: a retrospective and prospective study in 162 patients. *Circulation* 2001; 103:2687.
3. Rabinstein AA, Giovanelli C, Romano JG, et al. Surgical treatment of nonbacterial thrombotic endocarditis presenting with stroke. *J Neurol* 2005; 252:352.
4. Roldan CA, Sibbitt WL Jr, Qualls CR, et al. Libman-Sacks endocarditis and embolic cerebrovascular disease. *JACC Cardiovasc Imaging* 2013; 6:973.

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