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Infection in the Fast Lane A Case of Mural Endocarditis

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Abstract Form

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Abstract

Introduction: Although the nonspecific presentation of infective endocarditis (IE) makes it a particularly challenging diagnosis, a high clinical index of suspicion is essential for early detection and prompt intervention. We present a case of right ventricular (RV) mural endocarditis in the setting of Tricuspid Valve (TV) and Mitral Valve (MV) IE, highlighting the complexity of management addressed by an early intradisciplinary approach.

Case Presentation: A 58-year-old male presents after several days of fever with associated dyspnea. Upon presentation, the patient was noted to be febrile, hypertensive and in atrial fibrillation with a rapid ventricular response (RVR), heart rate of 240 beats per minute. Initial laboratory investigations were significant for leukocytosis. Chest X-ray demonstrated bilateral infiltrates. Patient admitted to the Intensive Care Unit (ICU) for septic shock requiring vasopressors. Infectious disease consulted and the patient was started on broad spectrum antibiotics. Pulmonary computed tomography (CT) angiography significant for right lower lobe nonobstructive pulmonary embolism (Figure 2c). Given persistent atrial fibrillation with RVR (Figure 2a), patient started on esmolol infusion per cardiology. Transthoracic echocardiogram (TTE) notable for a mass within the RV, suggestive of thrombus vs. vegetation. Transesophageal echocardiogram (TEE) demonstrated a 1.2 x 2.1 x 1.8 cm mobile mass within the RV near the TV (Figure 1b). Cardiothoracic surgery consulted, and the patient underwent resection of the RV vegetation, MV and TV replacement as well as partial maze. Postoperative course was complicated by persistent bradycardia and complete heart block requiring dual chamber pacemaker placement, patient was discharged with intravenous antibiotics and anticoagulation.

Discussion: Mural endocarditis is an exceedingly rare subset of intracardiac infections with potentially life-threatening complications. This case of bacterial mural endocarditis in the setting of bi-valvular involvement highlights the importance of prompt diagnosis and interdisciplinary management in curtailing life threatening complications (i.e., septic pulmonary embolization, as seen in this patient). While TTE is the primary imaging modality for the detection of IE, the sensitivity of TTE may be limited by anatomical factors leading to suboptimal views. In comparison, TEE (higher sensitivity) can be utilized when greater definition of anatomy is required. Yet, distinguishing mural endocarditis from other mimicking masses (i.e., thrombus or cardiac tumors) poses a particular challenge. This emphasizes how further noninvasive characterization would be helpful in differentiating a vegetation from other cardiac masses, and the need for further research to explore the role of Cardiac CT (CCT) and positron emission tomography (PET) in its differentiation.

Conclusion: Despite continued advancement in medical and surgical therapy, IE remains a complex disease with a continuously evolving knowledge base. Recent studies have explored the potential superiority of novel diagnostic modalities, including CCT and PET, in the evaluation and characterization of endocarditis. Utilization of these diagnostic modalities may facilitate prompt diagnosis and subsequent intervention, essential in mitigating the high mortality associated with mural endocarditis.

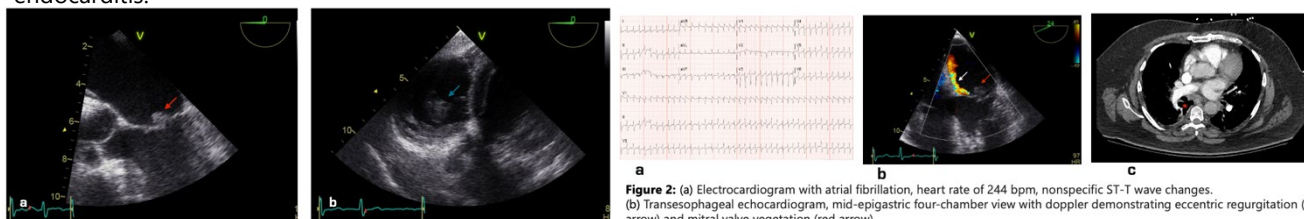


Figure 1: (a) Transesophageal echocardiogram, zoomed mid-epigastric four-chamber view with mitral valve vegetation (red arrow). (b) Transesophageal echocardiogram, trans-gastric apical view of the right ventricle and tricuspid valve with vegetation mimicking a pedunculated thrombus attached to the ventricular wall (blue arrow).

Figure 2: (a) Electrocardiogram with atrial fibrillation, heart rate of 244 bpm, nonspecific ST-T wave changes.

(b) Transesophageal echocardiogram, mid-epigastric four-chamber view with doppler demonstrating eccentric regurgitation (white arrow) and mitral valve vegetation (red arrow).

(c) Pulmonary computed tomographic angiography with nonobstructive right posterior embolism (red asterisk).

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