

Pericardial Effusion “Worm-Like Strands” on Transthoracic Echocardiogram

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Introduction

Fibrinous Pericardial Effusion is the accumulation of excess fluid in the pericardial fibroelastic sac. It can be a symptom of any pathological process that affects the pericardium from acute pericarditis to systemic disorders. This broad differential poses a diagnostic challenge in the setting of acute fluid accumulation.

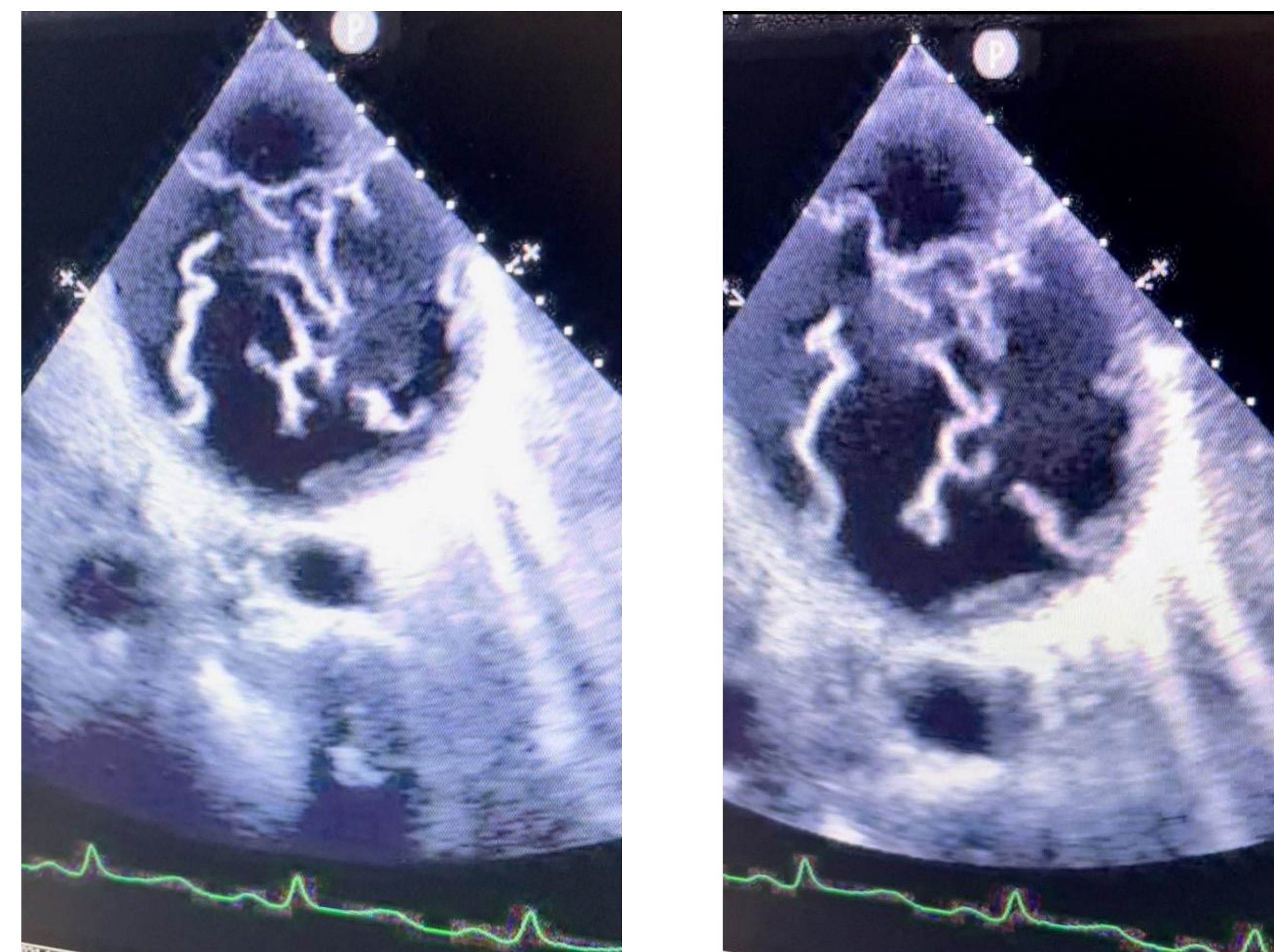
Case Presentation

A 50-year-old male with a past medical history of extensive intravenous drug use complicated by bacteremia and left ankle abscess formation presented to the Emergency Department complaining of mild-moderate chest pain for four days. Within the last month, he presented to the Emergency Department three times for similar symptoms; however, he eloped each time before receiving proper medical treatment.

Laboratory findings in the Emergency Department were notable for leukocytosis with a white blood cell count of 16.1 WBC/ml (normal, 4.5 to 11 WBC/mL), anemia with a hemoglobin level of 9.9 g/dL (normal, 13.5 to 17 g/dL), thrombocytosis with platelet count of 635,000 platelet/ μ l (normal, 150,000 – 450,000 platelet/ μ l), and hyponatremia with a sodium level of 121 mEq/L (normal, 135-145 mEq/L). Chest x-ray revealed bilateral ground glass opacities and an enlarged cardiac silhouette that was followed up by a chest CT demonstrating a large transudative pericardial effusion bilateral lower lobe consolidation, and retroperitoneal lymphadenopathy.



A 2-dimensional transthoracic echocardiogram was performed prior to undergoing a pericardiocentesis that confirmed the presence of a circumferential pericardial effusion. Images were significant for intrapericardial adhesions that had a larva-like appearance. These fibrin strands were both partially attached and floating between the visceral and parietal pericardium. During the pericardiocentesis, 420cc of straw-colored fluid was extracted, and no drain was left. The pericardiocentesis pathology report was remarkable for abundant neutrophils and lymphocytes with an absence of malignant cells. The culture was negative for microorganisms. Follow-up transthoracic echocardiogram revealed an ejection fraction of 55-60% with persistent circumferential effusion status post pericardiocentesis.



One week later the patient underwent a pericardial window procedure due to fluid reaccumulation in which 1600 mL of cloudy straw-colored fluid was removed from the left pleural space, but no fluid was extracted from the pericardial space. Pericardial Window culture results were negative for microorganisms. Subsequently, the cardiothoracic surgery team signed the patient off to the primary medical team for further medical management.

Discussion

Pericarditis is one of the most common disease manifestations of the pericardium worldwide. The lack of significant epidemiologic literature and research has made defining an accurate prevalence and incidence a challenge.

Pericardial effusion is the accumulation of excess fluid more than what is normally present in the pericardial fibroelastic sac. It can be a symptom of any pathological process that affects the pericardium ranging from acute pericarditis to a variety of systemic disorders. The pericardial sac is a closed system, and thus the rate of fluid accumulation is a significant factor in the condition's presentation; acute, subacute, or chronic. As the sac is more amenable to stretching during a slowly developing effusion compared to a rapid effusion as in cardiac tamponade.

Conclusions

This case illustrates that imaging results can create a disproportionately severe clinical picture. Additionally, even in the case of explained systemic disease, the idiopathic nature of this patient presentation complicates the post-pericardiocentesis management of this patient. The extent of intrapericardial adhesion density and clinically severe appearance is not indicative of a pericardial effusion's etiology. Transthoracic echocardiogram alone does not have a significant role in the formulation of a differential diagnosis for the treatment of fibrinous pericardial effusion.

