



A Case Report of Pruritus as the Initial Symptom of Cardiac Thrombus Secondary to Atrial Fibrillation

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Abstract

Introduction: This case report describes a 73-year-old Middle Eastern woman with a history of hypertension who developed generalized pruritus without visible skin lesions. During the evaluation, abnormal liver enzyme levels were identified, and further workup revealed atrial fibrillation and multiple atrial masses. These masses extended into the left ventricle and the left ventricular outflow tract during diastole. This case highlights the importance of considering cardiovascular causes in patients with nonspecific symptoms, particularly those involving the skin.

Case Presentation: A 73-year-old Middle Eastern woman presented with generalized pruritus without visible skin lesions. During the diagnostic workup, abnormal liver enzyme levels were detected. Further evaluation revealed atrial fibrillation and four atrial masses that extended into the left ventricle and left ventricular outflow tract during diastole.

Conclusions: This case highlights the importance of considering atrial fibrillation and heart failure as potential diagnoses in patients who present with pruritus and abnormal liver test results, particularly those with risk factors such as hypertension.

Keywords: Cardiac Thrombus, Medically Unexplained Symptoms, Nonspecific Symptoms, Pruritus, Case Report

1. Introduction

Atrial fibrillation (AF) is a common arrhythmia with an increasing prevalence among adults (1). Individuals with cardiovascular or respiratory diseases who develop new-onset AF have a higher likelihood of hospitalization and mortality (2). In addition, AF is associated with an increased risk of thromboembolic events, such as stroke (3). AF is also associated with pulmonary hypertension (4).

Pulmonary hypertension can cause right-sided heart failure. Restricted blood flow from peripheral organs to the heart is characteristic of right-sided heart failure, leading to congestion that may affect other organs, such as the liver and gallbladder. In this case report, we

describe atrial masses in a patient who was admitted with pruritus. We also discuss the implications of this finding and consider appropriate management strategies.

2. Case Presentation

A 73-year-old woman from the Middle East presented with mild generalized pruritus without associated cutaneous lesions. The symptoms did not improve or worsen with daily activities such as showering or exposure to sunlight. Over the previous 2 months, the patient had noticed weight loss and difficulty swallowing solid foods. She reported no constitutional symptoms, such as fever, night sweats, jaundice, or

changes in urine or stool color. She had right upper quadrant (RUQ) abdominal pain and dyspnea.

On physical examination, the patient's vital signs were within normal limits. No cutaneous lesions, splenomegaly, signs of hepatic disease, or jaundice were observed. Her medical history included hypertension, chronic kidney disease, and peptic ulcer disease. Her family history was unremarkable, and no other family members had pruritus. The patient had no history of smoking, alcohol consumption, or substance abuse.

Diagnostic evaluation included urinalysis, complete blood count, liver function tests, serum creatinine and urea measurements, alkaline phosphatase (AlkP), alanine aminotransferase (ALT), and gamma-glutamyl transferase (GGT). The patient had elevated serum urea, creatinine, ALT, AlkP, and GGT levels and a reduced hematocrit (Table 1). All other blood test results were within the normal range. All urinalysis findings were within the normal range except for proteinuria.

Table 1. Results of Blood Tests Before Hospitalization of the Patient

Test	Results (Reference)
Urea	54 mg/dL (17 - 43)
Creatinine	1.42 mg/dL (0.6 - 1.3 in females)
ALT	45 IU/L (up to 31 in females)
Alkaline phosphatase (AlkP)	447 IU/L (64 - 360)
Gamma-glutamyl transferase (GGT)	288 U/L (up to 32 in females)
WBC	7.7 mil/cumm (4 - 10)
RBC	3.9 mil/cumm (3.7 - 5.2 in females)
Hemoglobin	11.7 g/dL (11.5 - 15 in females)
Hematocrit	34% (35 - 47 in females)

Although elevated blood urea and creatinine levels were considered possible causes of pruritus, the presence of RUQ pain, elevated ALT, and high creatinine levels prompted comprehensive abdominopelvic sonography. Sludge and stones were found in the gallbladder. Because of dysphagia and weight loss, the physician recommended upper endoscopy. Given the increased vulnerability of older patients to complications during certain medical procedures, the physician requested a cardiology evaluation before endoscopy.

The cardiologist performed echocardiography and electrocardiography (ECG). The ECG showed AF rhythm (Figure 1). Atrial fibrillation was also detected during echocardiography. The estimated ejection fraction was 45%. During diastole, 3 large echogenic atrial masses measuring 36 × 25 mm were observed protruding into the left ventricle and left ventricular outflow tract (Video 1). Additional findings included severe right ventricular enlargement, moderate right ventricular

systolic dysfunction, mild mitral regurgitation (MR), and mild-to-moderate mitral annular calcification. Abnormal septal motion was also detected. The tricuspid valve leaflets were thickened and retracted, and severe tricuspid regurgitation (TRVC = 13 mm) was observed. The systolic pulmonary artery pressure (SPAP) was 47 mm Hg.

After the masses and AF rhythm were detected on echocardiography, coronary angiography was promptly performed to rule out potential vascular disease. Coronary angiography showed no abnormalities in the coronary arteries. Therefore, the cardiologist recommended consultation with a cardiac surgeon. The cardiac surgeon advised surgical intervention to remove the masses and perform valvoplasty. During surgery, 4 masses were discovered, although echocardiography had shown 3 masses. After surgery, the masses were sent to a pathologist for further examination (Video 2) (Figure 2). The pathologist reported fibrin material admixed with leukocytes and clot formation with ingrowing vascular channels (Figure 3), suggesting a thrombus.

The patient was transferred to the intensive care unit after cardiac surgery. Regrettably, she did not survive in the intensive care unit because of right-sided heart failure and hepatic failure.

3. Discussion

We present a case report of a patient whose chief complaint on admission was generalized pruritus. She also had RUQ abdominal pain and difficulty swallowing solid foods, and her condition warranted upper endoscopy. A cardiologist evaluated her cardiovascular risk before the endoscopic procedure. ECG showed an AF rhythm. Echocardiography also showed an AF rhythm and large atrial masses protruding into the left ventricle, with dilation of the right atrium and ventricle. Thus, generalized pruritus appeared to be the presenting symptom of heart failure complicated by an AF rhythm and multiple thrombotic masses.

Before cardiac surgery, the physician considered two possible differential diagnoses. Carcinoid masses were suspected because of the size of the masses and their possible association with dysphagia to solids. Many cardiac tumors result from the spread of primary tumors from other parts of the body, including the gastrointestinal tract (5). However, the pathologist confirmed thrombus and ruled out cancer in the cardiac masses. Therefore, heart failure and an AF rhythm were the most likely causes of these masses.

Hypertension is a significant risk factor for an AF rhythm and heart failure (6). Heart failure can cause

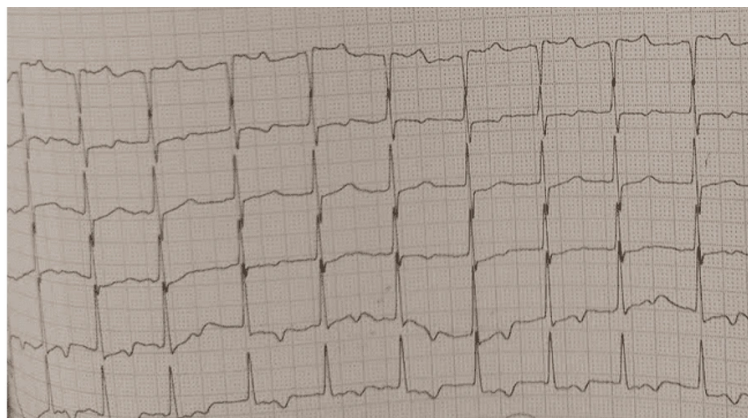


Figure 1. ECG without P waves because of atrial fibrillation (AF).

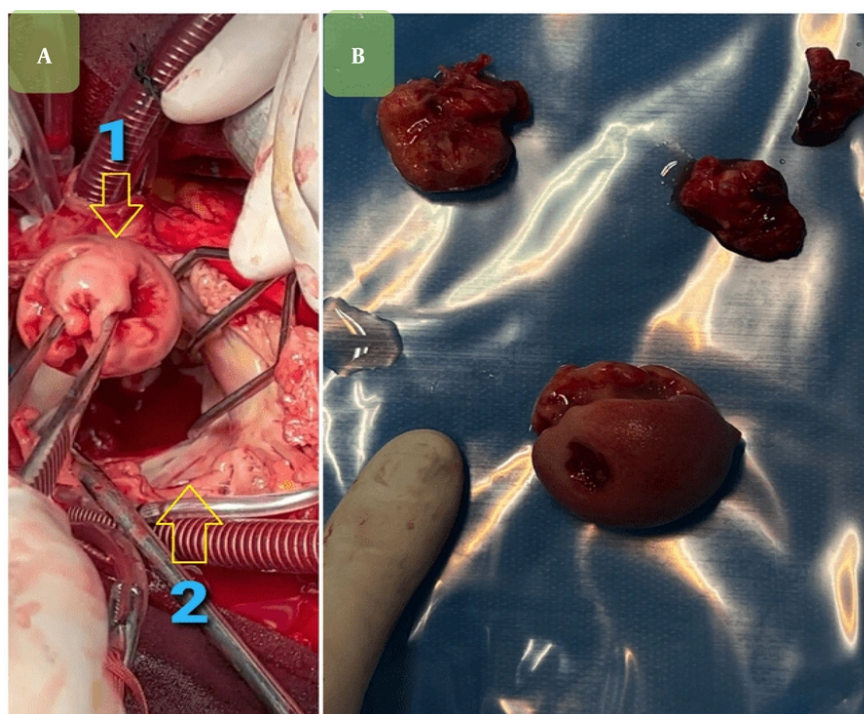


Figure 2. This figure shows atrial masses. A, this part of the figure shows the largest atrial mass (1) and atrium (2); B, atrial masses after surgery.

pruritus (7). One plausible explanation in this case is that hypertension contributed to AF. Atrial fibrillation then led to the formation of 4 thrombotic masses because of blood stasis in the left atrium. However,

chronic left-heart abnormalities related to the patient's long-standing hypertension and AF were the primary drivers of pulmonary hypertension, rather than the masses themselves. Pulmonary hypertension can cause

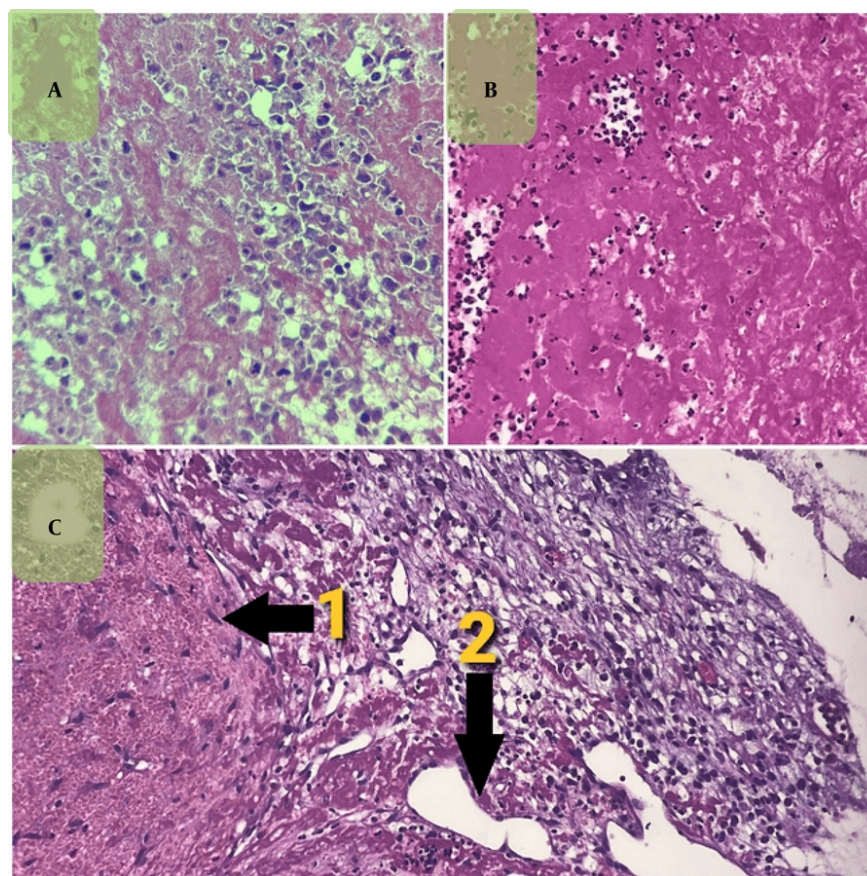


Figure 3. A, histopathological morphology of the clot showing fibrin material admixed with some leukocytes, hematoxylin and eosin staining, high-power field (400×). B, histopathological morphology of the clot showing fibrin material admixed with some leukocytes, hematoxylin and eosin staining, low-power field (100×). C, Histopathology of organizing thrombi with ingrowing proliferating vascular channels, hematoxylin and eosin staining, low-power field (100×). The first arrow (1) shows the organizing thrombi, and the second arrow (2) shows the vascular channel.

right-sided heart failure. Heart failure affected the liver and gallbladder, leading to generalized pruritus. Notably, heart failure can also cause pruritus independently of gallbladder involvement.

Pruritus, a common symptom in patients with heart failure, should be addressed (7). Moreover, AF is associated with MR and mitral annular calcification, as observed in our patient (8). However, no research is currently available regarding the frequency of heart failure among individuals with pruritus. This case serves as a reminder to consider the cardiovascular system when evaluating pruritus, particularly when it is accompanied by hepatobiliary signs and symptoms.

Cholecystalgia is an unusual manifestation of heart failure (9). To our knowledge, this report highlights a unique case in which pruritus presented as a symptom

of right-sided heart failure and AF with thrombotic masses. A similar case involved a 67-year-old woman with a previous diagnosis of pulmonary hypertension who was admitted with cholecystitis. In that patient, cholecystitis masked underlying right-sided heart failure (10).

4. Conclusions

Pruritus is a common cutaneous symptom that may be associated with serious underlying conditions. It is a known but often overlooked symptom in patients with heart failure and may be related to hepatic congestion. However, heart failure is frequently overlooked in patients who present with pruritus but have no prior history of heart failure. The potential association between pruritus and heart failure should be

considered, particularly in patients with risk factors such as hypertension. Heart failure may also present with hepatobiliary manifestations. Furthermore, pruritus accompanied by hepatobiliary symptoms may indicate right-sided heart failure. When a patient presents with pruritus as the primary symptom, a thorough medical history and physical examination can help determine whether heart failure should be considered.

Footnotes

AI Use Disclosure: The authors declare that no generative AI tools were used in the creation of this article.

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References

1. Schnabel RB, Yin X, Gona P, Larson MG, Beiser AS, McManus DD, et al. 50 year trends in atrial fibrillation prevalence, incidence, risk factors, and mortality in the Framingham Heart Study: a cohort study. *The Lancet*. 2015;**386**(9989):154-162. [PubMed ID: 25960110]. [PubMed Central ID: PMC4553037]. [https://doi.org/10.1016/S0140-6736\(14\)61774-8](https://doi.org/10.1016/S0140-6736(14)61774-8).
2. Chung SC, Sofat R, Acosta-Mena D, Taylor JA, Lambiase PD, Casas JP, et al. Atrial fibrillation epidemiology, disparity and healthcare contacts: a population-wide study of 5.6 million individuals. *The Lancet Regional Health-Europe*. 2021;**7**: 100157. [PubMed ID: 34405204]. [PubMed Central ID: PMC8351189]. <https://doi.org/10.1016/j.lanepe.2021.100157>.
3. Kotalczyk A, Mazurek M, Kalarus Z, Potpara TS, Lip GYH. Stroke prevention strategies in high-risk patients with atrial fibrillation. *Nature Reviews Cardiology*. 2021;**18**(4):276-290. [PubMed ID: 33110242]. <https://doi.org/10.1038/s41569-020-00459-3>.
4. Rottlaender D, Motloch LJ, Schmidt D, Reda S, Larbig R, Wolny M, et al. Clinical impact of atrial fibrillation in patients with pulmonary hypertension. *PloS one*. 2012;**7**(3). e33902. [PubMed ID: 22439013]. [PubMed Central ID: PMC3306317]. <https://doi.org/10.1371/journal.pone.0033902>.
5. Bussani R, Castrichini M, Restivo L, Fabris E, Porcari A, Ferro F, et al. Cardiac tumors: diagnosis, prognosis, and treatment. *Current Cardiology Reports*. 2020;**22**(12). 169. [PubMed ID: 33040219]. [PubMed Central ID: PMC7547967]. <https://doi.org/10.1007/s11886-020-01420-z>.
6. Dzeshka MS, Shantsila A, Shantsila E, Lip GYH. Atrial fibrillation and hypertension. *Hypertension*. 2017;**70**(5):854-861. [PubMed ID: 28893897]. <https://doi.org/10.1161/HYPERTENSIONAHA.117.08934>.
7. Niklasson O, Boman K, Stenberg B. The prevalence and characteristics of pruritus in patients with heart failure. *British Journal of Dermatology*. 2015;**172**(6):1541-1546. [PubMed ID: 25630690]. <https://doi.org/10.1111/bjd.13682>.
8. Massera D, Kizer JR, Dweck MR. Mechanisms of mitral annular calcification. *Trends in Cardiovascular Medicine*. 2020;**30**(5):289-295. [PubMed ID: 31402089]. <https://doi.org/10.1016/j.tcm.2019.07.011>.
9. Gilbert B, Harter S, Saunders E. Cholecystalgia: an Atypical Presenting Symptom of Congestive Heart Failure. *Circulation: Cardiovascular Quality and Outcomes*. 2020;**13**(Suppl_1):A329-A329. https://doi.org/10.1161/hcq.13.suppl_1.329.
10. Furtney J, Blotner M, Parker A. Acute Cholecystitis Masking Right-Sided Heart Failure: A Near-Miss Event. *The Journal of Heart and Lung Transplantation*. 2022;**41**(4):S346. <https://doi.org/10.1016/j.healun.2022.01.1424>.