LEFT ATRIAL MYXOMA PRESENTING AS FEVER AND ACUTE PULMONARY EDEMA

Chao-Hsun Chuang, Shun-Ching Chien

Abstract

Myxoma is the most common primary cardiac tumor. The clinical manifestations vary with its anatomical location. Fever is known as one of the constitutional symptoms of myxoma but is often clinically neglected. Herein, we report a 63-year-old male who presented to the emergency department with fever and dyspnea. The preliminary diagnosis was pneumonia. Echocardiography identified a left atrial myxoma. Simple echocardiographic examinations should be performed when cardiogenic etiologies are suspected, even in the setting of the emergency department.

Key Words: echocardiography, fever, myxoma, pulmonary edema

Introduction

Cardiac tumors are relatively rare. About 75% of primary cardiac tumors are benign, and 75% of these are atrial myxomas.1 Fever is known as one of the constitutional symptoms of myxoma. In a previous case series, it was reported that 34% of patients with myxoma present with constitutional symptoms.2 While the classically described signs and symptoms of left atrial myxoma are noteworthy, the vast majority of patients present with symptomatology that is less specific.3 The clinical importance of fever in patients with myxoma may also be neglected when an infectious process is favored.

Fever is also a common complaint in the emergency department. Possible etiologies of fever include infectious disease, inflammatory processes, adverse reaction to medication, and malignancy. For patients with fever, shortness of breath, cough, and pulmonary consolidation, it would be straightforward to attribute the cause to an infectious process. Herein, we report on a patient who presented to the emergency department with fever and dyspnea. The preliminary diagnosis was pneumonia and antibiotics were administered. Echocardiographic examination revealed an atrial myxoma, which might have been the predisposing factor for the entire disease course. In such cases, early echocardiographic examination can exclude structural causes and prevent delayed diagnosis.

Case report

A 63-year-old male with underlying hypertension presented to a hospital elsewhere with a 2-day history of spiking fever (with maximum body temperature up to 40°C), shortness of breath, and productive cough. His blood pressure was stable without tachycardia or tachypnea. Physical examination revealed right lower lobe crackles. Cardiac auscultation showed a grade 2/6 holosystolic murmur over the apex, suggestive of mitral regurgitation. Chest

Correspondence: Dr. Shun-Ching Chien
Kaohsiung Medical University Chung-Ho Memorial Hospital; 100, Tzyou 1st Road, Kaohsiung 807, Taiwan (R.O.C.)
Tel: 886-975356520; E-mail: 890076@mail.kmuh.org.tw
radiograph revealed a right lower lobe air space lesion (Figure 1). The preliminary diagnosis was pneumonia. The patient was admitted and treated with antibiotics. Respiratory distress was noted after 2 days of treatment. The patient complained of dyspnea, and SpO₂ was around 94% under bag-valve mask ventilation with oxygen 6L/min. His vital signs were: BT: 38.5°C, HR: 110bpm, RR: 20cpm, BP: 110/76mmHg. Physical examination revealed diffuse crackles over bilateral lung fields, although they were more prominent over the right lower lung. A grade 3/6 systolic murmur was noted over the apex. Serial follow-up chest radiography revealed bilateral air space lesions, suggestive of acute pulmonary edema and acute respiratory distress syndrome (Figure 2). Echocardiographic examination showed a mass over the left atrium indicative of myxoma. The patient was transferred to our hospital for surgical intervention.

At our emergency department, the patient presented with fever (40.1°C) and dyspnea with productive cough. Other associated signs and symptoms included dyspnea on exertion, orthopnea, and a 3-day history of nausea. The sputum was whitish without purulent content. He denied chest pain, abdominal pain, diarrhea, dysuria, or other discomfort. Chest auscultation disclosed crackles over both basal lung fields and a grade 3/6 holosystolic murmur over the apex. No abdominal discomfort or skin lesions were noted on physical examination. The 12-lead EKG showed sinus tachycardia with left bundle branch block (Figure 3). Chest radiograph revealed bilateral pulmonary congestion, although it was more severe in the right lower lung (Figure 4). Laboratory tests performed at our emergency department revealed leukocytosis with left shift (WBC: 12400/mcL, band form: 12%), and elevated cardiac enzymes (CPK: 249IU/L, CK-MB: 2.5ng/mL, Tn-I: 1.22ng/mL). Echocardiographic examination revealed a 10–15cm³ mass over the left atrium originating from the interatrial septum, as well as severe mitral regurgitation (Figure 5). Left atrial myxoma was diagnosed and the patient underwent emergency resection of the tumor and interatrial septum with patch repair. The patient was discharged 13 days after surgery. Pathologic examination of the resected tumor confirmed the diagnosis of myxoma.
The differential diagnoses in patients who present with fever and acute pulmonary edema should include acute respiratory distress syndrome as well as other less common post-infectious etiologies such as myocarditis, infective endocarditis, and sepsis with acute respiratory failure. Based on our findings, myxoma should also be suspected.

The clinical presentation of myocarditis is highly variable and is related to the location of the involved myocardium and severity. Signs and symptoms of myocarditis include heart failure, chest pain, arrhythmia, and sudden cardiac death. Myocarditis can mimic myocardial ischemia or infarction both clinically and on the electrocardiogram, particularly in younger patients. In patients with myocarditis complicated with congestive heart failure, echocardiography typically reveals globally impaired systolic function.
depressed cardiac systolic function combined with markedly elevated cardiac enzymes.

Infectious endocarditis typically occurs in patients who are intravenous drug abusers, those with congenital structural heart disease, or in patients with poor dental hygiene. Blood culture usually yields typical pathogens such as streptococcus, staphylococcus, and members of the HACEK group. Bacteremia is common. Echocardiography may revealed valve vegetation and, if acute pulmonary edema is present, valve destruction or obstruction is usually anticipated. Other immunological and vascular phenomenon may also be recognized in patients with infectious endocarditis.

Acute respiratory distress syndrome is characterized by acute onset and rapid progression of hypoxic respiratory failure with bilateral pulmonary infiltrates and reserved cardiac function. Acute respiratory distress syndrome is a diagnosis of exclusion and should only be made after other causes of respiratory distress, hypoxemia, and bilateral pulmonary infiltrates are omitted. Non-cardiogenic pulmonary edema is one of the clinical features. On echocardiography, the cardiac function is reserved and there should be no specific structural abnormality.

Although being the most common primary cardiac neoplasm, the clinical manifestations of myxoma are very unspecific. The cardiovascular manifestations depend upon the anatomic location of the tumor, which mostly occurs in the left atrium. Possible findings include dyspnea, orthopnea, paroxysmal nocturnal dyspnea, pulmonary edema, cough, hemoptysis, peripheral edema, fever, weight loss, fatigue, and symptoms mimicking ischemic stroke. Symptoms of mitral valve obstruction (67%) and systemic embolization (29%) have also been reported. Cardiovascular and respiratory symptoms may be worse in certain body positions due to motion of the tumor within the atrium.

Fever is one of the constitutional symptoms of myxoma. Previous studies have suggested
that autoimmune-like constitutional symptoms and fever are related to enhanced serum cytokine activity in patients with myxoma. In patients with constitutional symptoms, increased mRNA levels of interleukin-6 have been found in cultured myxoma cells. Although fever is frequently described as one of the manifestations, myxoma is easily overlooked when rapid diagnosis must be made, such as in the setting of the emergency department. This may be attributed to the unspecific associated symptoms. In a case series conducted in France, the authors reported that 34% of patients with myxoma presented with constitutional symptoms including fever, weight loss, or symptoms resembling connective tissue disease. In a case series from Thailand, 11% of patients with myxoma presented with fever. Nonspecific constitutional symptoms are reported in 10% to 45% of patients. The relatively low incidence of fever in patients with myxoma makes it more difficult for emergency physicians to reach a diagnosis. Other underlying diseases or comorbidities typically associated with fever may also mislead physicians. If not identified and properly treated, myxoma can lead to complications or even death.

The initial symptoms in our patient were productive cough and fever. Chest radiograph revealed consolidation over the right lower lung field and laboratory tests showed leukocytosis, signs characteristic of pneumonia. However, the symptoms did not improve after initial antibiotic treatment. The patient’s fever subsided after tumor resection and cardiac enzyme levels were not noticeably elevated, making the diagnosis of myocarditis or pericarditis less likely. Infective endocarditis was also not favored since there was no vascular or immunological phenomenon noted and bacteremia was not present. Depressed cardiac function and the evident mass revealed by echocardiography excluded the diagnosis of acute respiratory distress syndrome. Myxoma may have been an accidental finding in this case and pneumonia could have been the main cause of fever. However, based on previous studies, fever may also be a manifestation of myxoma. Therefore, signs and symptoms in this patient can be thoroughly explained by myxoma.

Ultrasoundography is a non-invasive, readily available diagnostic tool in many emergency departments. Echocardiographic examination, which is ideal for detecting structural and dynamic heart lesions, is not routinely performed in all emergency departments. If it had been applied earlier in our patient, the diagnosis of myxoma would have been made in advance, thereby facilitating treatment. Simple echocardiographic examinations should be performed when cardiogenic etiologies are suspected, even in the setting of the emergency department.

References

個案報告：以發燒與急性肺水腫表現的左心房黏液瘤

莊朝勛，簡順卿

摘要

黏液瘤是最常見的原發性心臟腫瘤。其臨床表徵隨腫瘤所在位置而有不同表現。儘管發燒是其著名的全身症狀之一，在臨床上卻往往被忽略。在此，我們提供一個病例。這位 63 歲男性，當時主訴發燒與喘，至急診就醫。這個案最初被診斷為肺炎並進行治療。爾後因臨床症狀惡化，進一步檢查發現有左心房黏液瘤，而推測引起這次不適的主要病因。心臟超音波在某些急診室為常備的儀器。如果及早檢查，可通時的協助疾病診斷進而加速治療。當懷疑可能為心因性病灶引起的臨床病徵，即使是在急診室，依然可考慮安排簡單的心臟超音波檢查以確認診斷。

關鍵詞：心臟超音波，發燒，黏液瘤，肺水腫

通訊作者：簡順卿醫師
807 高雄市三民區自由一路 100 號，高雄醫學大學附設中和紀念醫院
電話：0975356520，E-mail：890076@mail.kmuh.org.tw