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Case Report

The Importance of Echocardiography in the Diagnosis of Atrial Flutter -

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ABSTRACT

Atrial flutter is a cardiac arrhythmia characterized by atrial rates of 240-400 beats/min and some degree of Atrioventricular (AV) node conduction block. Any prolonged atrial arrhythmia can cause tachycardia-induced cardiomyopathy. Morbidity and mortality result from complications of rate like syncope, congestive heart failure and embolic events. So diagnosis of atrial flutter and then treatment is crucial. We represent a case of 63 old male patient presented with 3 months history of worsening dyspnea, orthopnea and peripheral edema. Electrocardiography (ECG) was done and was interpreted as sinus tachycardia with interventricular conduction delay. Echocardiography revealed the fluttering of inter atrial septum in subcostal view. Atrial flutter was confirmed by an ECG that was performed during carotid massage. And the patient received appropriate treatment. This case demonstrated how echocardiography is sometimes more helpful in the diagnosis of atrial flutter than ECG since by ECG alone sometimes atrial flutter can be missed.

Keywords: Atrial flutter; Diagnosis; Electrocardiography; Echocardiography

INTRODUCTION

Atrial flutter is a macroreentrant atrial tachycardia with constant P wave/flutter morphology with a rate usually >250 bpm [1]. Patients with recent-onset atrial flutter generally complain of palpitations, fatigue, light-headedness, chest pain, and/or dyspnea. In addition, exercise intolerance, worsening heart failure symptoms, and pulmonary complaints can also occur. Less commonly, hypotension, syncope, or embolic events can be the presenting symptoms [1].

ECG – This is an essential diagnostic modality for this condition. However vagal maneuvers, adenosine, exercise testing and holter monitor are helpful too. The transthoracic echocardiogram should be used to detect structural heart disease. Specifically, atrial sizes can be measured and valvular disease, ventricular function, and pericardial disease assessed. Right ventricular systolic pressures can also be measured and indicate the presence or absence of pulmonary HTN, which can be seen in pulmonary processes [1]. However, sometimes echocardiography plays a diagnostic role as in our case.

CASE PRESENTATION

63 year old man heavy smoker, not known previously to have heart disease presented to our medical center with 3 months history of worsening dyspnea, orthopnea and peripheral edema. Coronary angiography revealed widely patent coronary arteries. ECG was interpreted as normal sinus tachycardia at a heart rate of 110BPM with interventricular conductional delay (Figure 1). Echocardiography showed a moderately impaired LV systolic function with no major valvular abnormalities. However M mode examination showed fluttering of the interatrial septum (Figure 2) highly in favor of atrial flutter which was confirmed by an ECG performed during carotid massage (Figure 3). So patient was given anticoagulation, rate

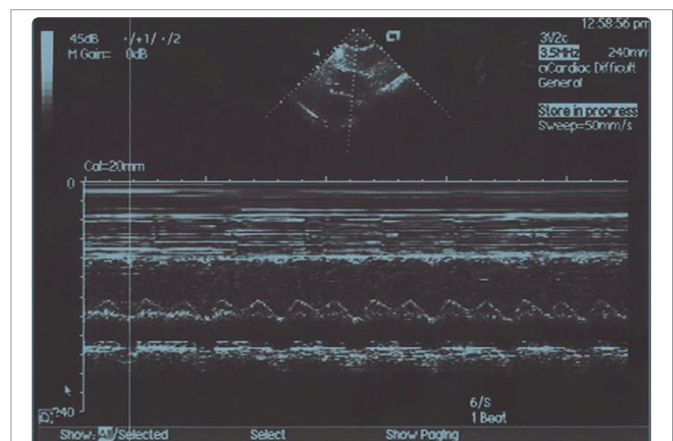


Figure 2: M-mode showed fluttering of the interatrial septum during echocardiography.

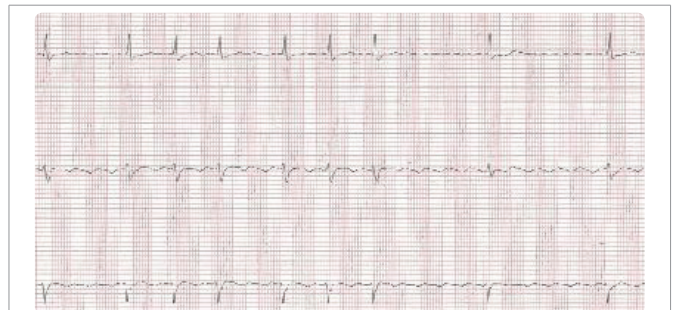


Figure 3: Electrocardiogram was recorded during carotid massage showed atrial flutter. Leads I, II and III.

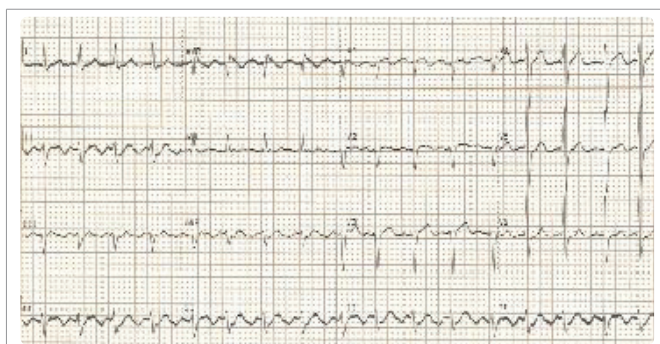


Figure 1: Electrocardiogram upon presentation was interpreted as sinus tachycardia at a heart rate of 110 BPM with interventricular conductional delay.

control and treatment of heart failure for a total of 3 weeks and then cardioversion was applied with restoration of sinus rhythm. This case demonstrated how echocardiography could sometimes give more obvious clues to the presence of atrial flutter than ECG.

DISCUSSION

Even though atrial flutter is diagnosed by ECG [2], sometimes it can be missed. In typical flutter, ECG shows continuous and regular atrial activation with a sawtooth pattern, most obvious in leads II, III, and aVF [3]. Saw-tooth-shaped deflections of the interatrial septum were seen by M mode examination of the interatrial septum in the subcostal view which gave us a hint that our patient could have atrial flutter. Carotid massage was done while ECG was recorded and confirms the diagnosis of atrial flutter since it slows the ventricular rate (increases grade of AV block) and make flutter



waves more evident. So echocardiography is capable of diagnosing supraventricular arrhythmias from interatrial septum [4].

CONCLUSION

This case demonstrated how echocardiography could sometimes give more obvious clues to the presence of atrial flutter than ECG.

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