

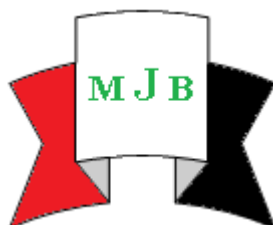
Atrial Fibrillation with a Rare Cause of Initiation. Case Report

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Case Report



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Abstract

Swallow syncope or arrhythmias caused by deglutition, although generally considered as a benign condition, but it becomes really significant if occurs at certain times like during driving, crossing roads or operating machinery. They are generally divided into bradyarrhythmias and tachyarrhythmias; bradyarrhythmia being more common but literature also describes very few case reports causing tachyarrhythmias during deglutition.

Atrial fibrillation is quite uncommon and has rarely been reported especially after drinking cold beverages. Here we are reporting a 44 years old gentleman who experienced palpitations and found to have atrial fibrillation after drinking ice cold juice. He had two documented episodes in three year period, each time converted spontaneously to sinus rhythm within 24 hours.

Key Words: Swallow, cold beverage, bradyarrhythmia, paroxysmal atrial fibrillation, tachyarrhythmia.

Introduction

Majority of the cases reported in the literature due to deglutition related arrhythmias are bradyarrhythmia with different types of atrioventricular block mostly caused by either ischemic heart disease or esophageal abnormality.[1] On the other hand, swallowing induced tachyarrhythmias are uncommon. Atrial tachycardia seems most common in comparison to other arrhythmias like atrial fibrillation.[2] The first case of swallowing induced tachyarrhythmias has been reported in 1926.[3]

Drinking of cold beverages itself is a rare cause of swallowing induced tachyarrhythmias. Only few cases with atrial fibrillation induced by cold

beverage have been reported by PT Wilmschurst et al in 1998.[4,5] Here we also report the rare case of 44 years old gentleman who is otherwise healthy but with presentation of self limiting atrial fibrillation induced by drinking cold beverage.

Case Report

A 44-year old healthy Omani gentleman with no prior history of chronic medical problem, presented to the Emergency Department at Sultan Qaboos University Hospital in Muscat, Sultanate of Oman with history of palpitations immediately after drinking ice chilled orange juice, and found to have atrial fibrillation (figure 1). There was no history of loss of consciousness, dizziness, chest pain or

shortness of breath. He denied any symptoms of heartburn, dysphagia, odynophagia, flu like symptoms or chest infection. His family history was negative for heart disease. There was no history of smoking or alcohol consumption. He had past history of admission with similar episode of palpitation after drinking ice chilled banana juice 3 years before the current presentation. At that time he was diagnosed to have atrial fibrillation, which converted spontaneously to sinus rhythm after 24 hours of admission. He was investigated and all his blood tests were within normal limit. He was discharged on beta blocker which was stopped after a few months. Since that, he remained symptoms free and deliberately avoided cold beverages until the recent episode.

On this presentation, he was again found to be in atrial fibrillation with ventricular rate of 82 beats/min and systemic blood pressure of 115/85

mmHg. Oxygen saturation was 100% on room air with normal respiratory rate. There was no evidence of heart failure. His cardiac, thyroid, abdomen and chest examinations were otherwise normal. He was managed initially with a therapeutic dose of low molecular weight heparin (enoxaparin) and a small dose of beta blocker with a plan to consider cardioversion in the morning after getting ECHO. All his blood tests came out to be normal including TFTs and troponin I.

His rhythm spontaneously converted to sinus rhythm within less than 24 hours of admission. His other investigations including Echo and Thallium Scan reported to be normal (Figures 3 and 4). Finally patient was discharged on aspirin and atenolol and appointment was given in Cardiology Outpatient Clinic to follow up. Exercise test done later during subsequent follow up and turned to be normal as well.

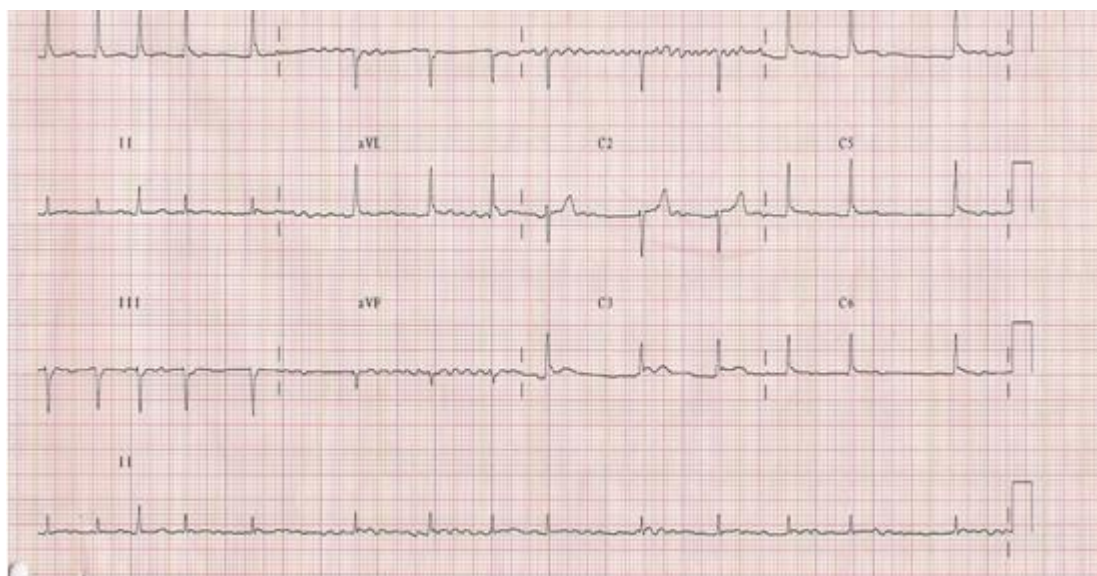


Figure 1 First ECG with atrial fibrillation

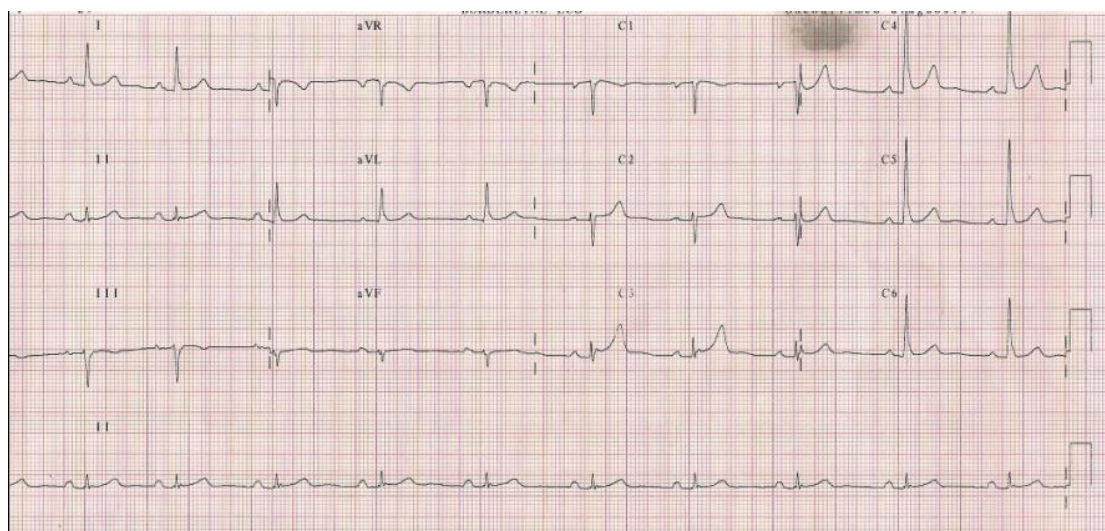


Figure 2 ECG which shows normal sinus rhythm

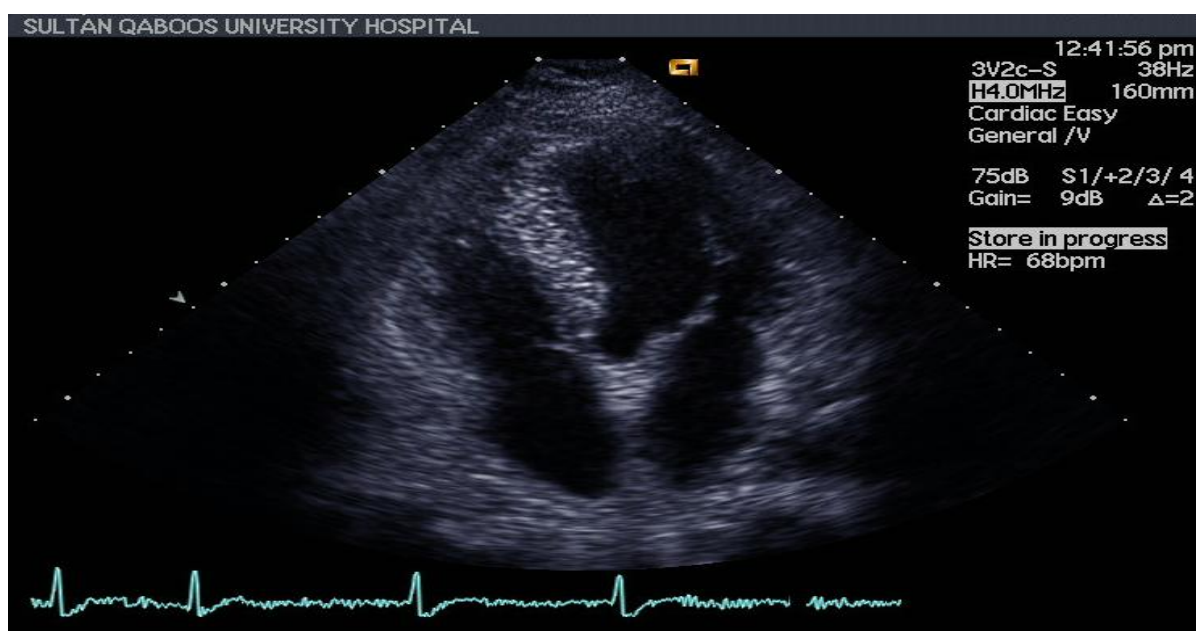


Figure 3 Normal echocardiography

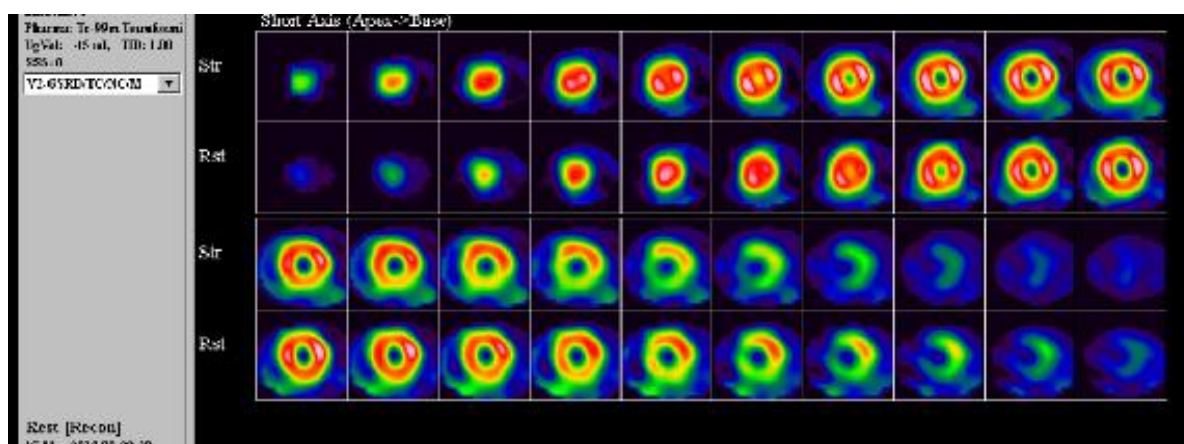


Figure 4 Part of normal cardiac thallium scan

Discussion

Swallowing induced arrhythmias is a well known entity, although bradyarrhythmias including atrioventricular block, [1,2] sinus bradycardia and ventricular asystole[3] are more common, swallowing-induced tachyarrhythmias have also been documented such as atrial fibrillation.[4] These tachyarrhythmias can be induced by dry or wet swallowing.[5,6] An analysis of the published literature revealed that it affects, most commonly males, with no apparent heart disease.[2] Among many arrhythmias it is found that most common type is supraventricular tachycardia (87.5%). Only 17.5% of tachyarrhythmia are paroxysmal atrial fibrillation.[2]

The mechanism by which swallowing induces tachyarrhythmias is still unclear. One theory hypothesizes mechanical stimulation of the left atrium by the distended esophagus, as was experimentally demonstrated by Cohen and colleagues.[7] Another mechanism postulated for this tachycardia, is through vasovagal reflex which occurs because of sudden rise of pressure in esophagus, vagus nerve stimulates and discharges to the atrial myocardium, that results in atrial ectopic activity, causes atrial fibrillation.[8]

The vasovagal reflex between the heart and the esophagus is also thought to be associated with deglutition syncope, signal from the mechanoreceptors in the esophagus is sent to the cardioinhibitory center in the medulla; the medulla then delivers the signal to the sino-atrial or atrioventricular (AV) nodes via the vagus nerve again, and the result is a variety of arrhythmias.[9] There are number of triggers that can induce such arrhythmias like painful stimuli, hot and cold foodstuffs and oesophageal acid installation.[5]

It has been postulated that the initiating event is a neural reflex resulting from autonomic stimulation. In some patients, increase in vagal tone can paradoxically cause tachycardias.[10] It has been shown that in some patients the parasympathetic nervous system is involved, whereas in others, activation of the sympathetic nervous system is a cause.[11] Sympathetic effects are common in middle-aged and elderly patients with underlying heart disease. However, in young people; with healthy hearts, vagal reflex is more likely a cause. Recognition of such mechanisms is an important step in the diagnosis and the management.[9]

Various approaches have been used with different level of response. One strategy is to avoid the trigger like avoiding ice cold beverages or coffee.[3] Some cases even show spontaneous recovery without any treatment. Many drugs have been used either alone or in combination for suppression of swallowing-induced tachyarrhythmias. Treatment should be individualized according to the response. Those most commonly used therapies administered include beta blockers, verapamil, amiodarone and quinidine. [10,12] Ablation therapy has also been used successfully in medication-resistant tachycardia that probably had an ectopic focus.[12]

Conclusion

Swallowing induced tachyarrhythmia is not very uncommon condition but its trigger after taking cold beverages seems rare, number of mechanism have been proposed to describe it. Some cases may resolve spontaneously but avoiding known triggers may also prevent the attacks, several options are available according to the response of the patient including invasive and non invasive ones. In certain cases where noninvasive

therapy fails, radiofrequency catheter ablation of an ectopic focus may offer

an attractive and possibly permanent solution.

induced multifocal atrial tachycardia originating from right pulmonary veins. *J Electrocardiol* 2011; 44(3): 395.e1-5.

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