

Amiodarone Induced Variety of ECG Changes - A Beginners ECG Delight

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Abstract

We present here the case of a middle aged male with baseline bifascicular block, who continued on more than the prescribed doses of amiodarone and presented with ECG changes which are described in association with amiodarone toxicity. The interesting part is the marked prolongation of QT and PR interval and 2:1 AV block as well as wenckebach on the initial ECG which largely normalized over 72 hour on stopping the drug.

Case Report

A 40 year non-diabetic, non-hypertensive male; diagnosed case of Dilated Cardiomyopathy was on Tab Amiodarone for one episode of documented ventricular tachycardia. He had RBBB with LAHB on baseline ECG with normal PR interval and normal QT. The patient was unwilling for any device on financial grounds and continued on medical therapy. Amiodarone was prescribed in maintenance dose of 200 mg OD, but somehow he continued to take it in doses of 200 mg thrice daily. The patient presented back after 2 months with generalized weakness. Pulse rate at presentation was 40 bpm and the ECG done showed bifascicular block with 2:1 AV Block and intermittent Wenckebach phenomenon involving 3 cycles (Figure 1). QT interval and PR interval were markedly prolonged being 540 ms and 440 ms respectively. The patient was kept under observation and amiodarone stopped. Three days later, the ECG was much improved with sinus rhythm, PR interval of 240 ms and QT interval of 510 ms (Figure 2).

Discussion

There are numerous toxins and drugs that can cause, in overdose, electrocardiogram (ECG) changes, the diagnosis of abnormal ECGs encountered in a specific toxicity can challenge experienced physicians [1,2]. Amiodarone is one of the more commonly prescribed drugs in a cardiac setup³. It is categorized as a class III antiarrhythmic agent [3], and prolongs phase 3 of the cardiac action potential. Amiodarone also shows beta blocker-like and potassium channel blocker-like actions on the SA and AV nodes, and slows intra-cardiac conduction of the cardiac action potential, via sodium-channel effects.

It has numerous cardiac and extracardiac side-effects. Common ECG abnormalities with Amiodarone include Sinus Bradycardia, QT prolongation [4] and First degree AV Block. Further toxicity leads to type 1 and 2 second degree AV Block and complete heart block (in less than 2% of patients). Other uncommon side effects include Torsades de Pointes [5] and asystole.

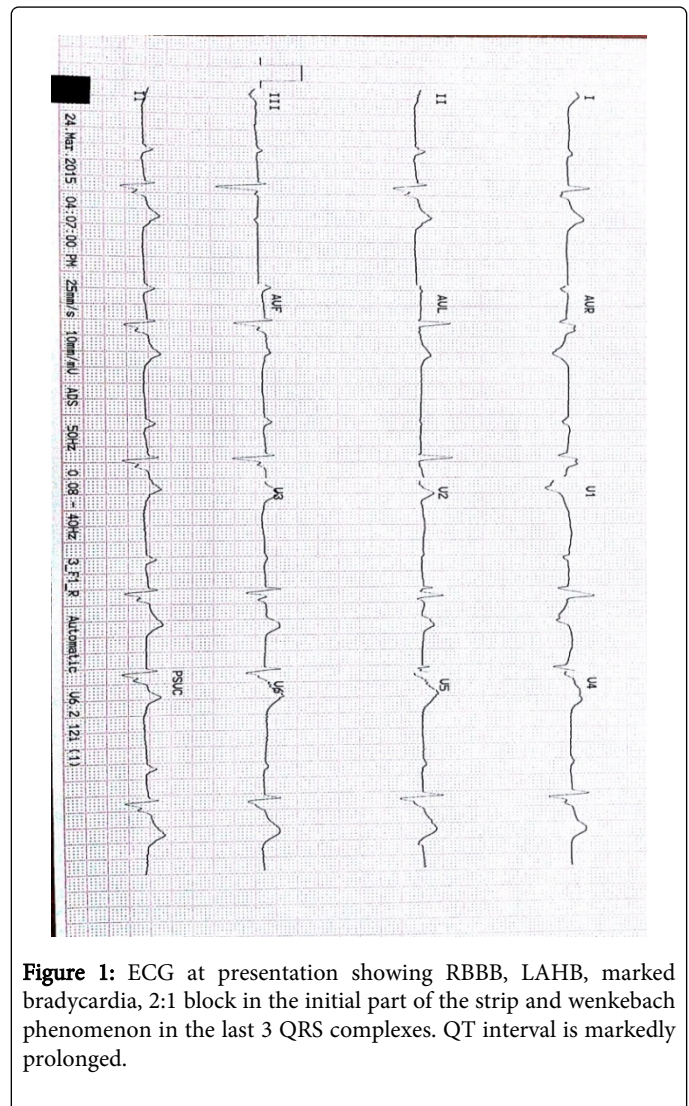


Figure 1: ECG at presentation showing RBBB, LAHB, marked bradycardia, 2:1 block in the initial part of the strip and wenckebach phenomenon in the last 3 QRS complexes. QT interval is markedly prolonged.

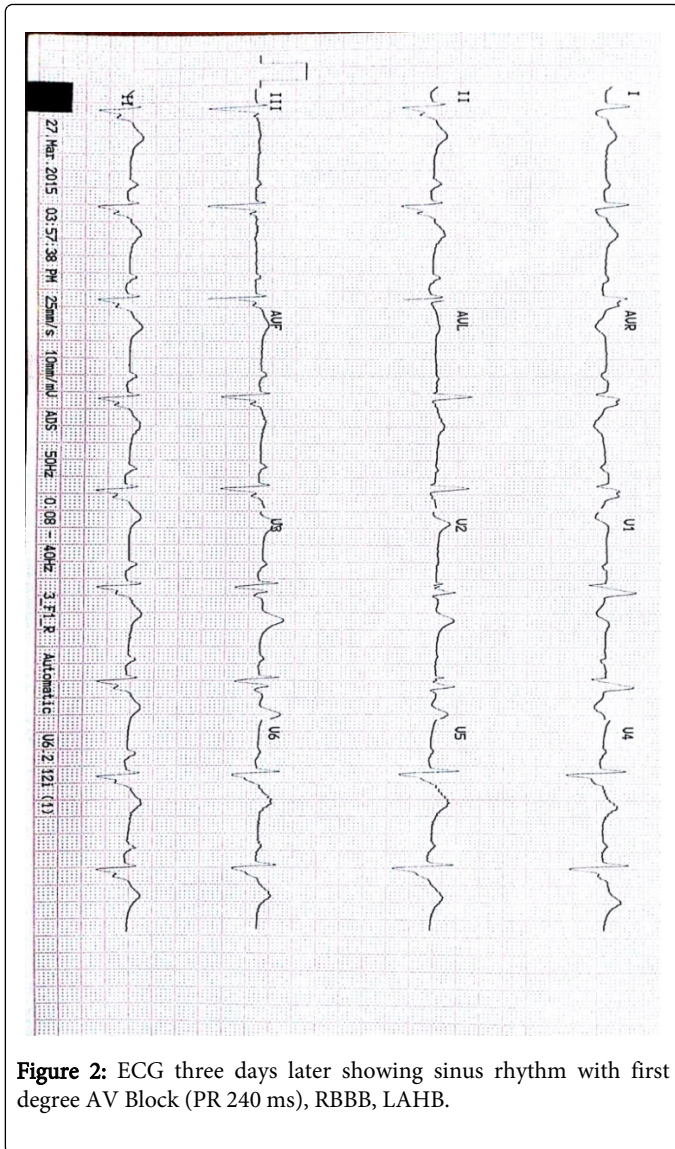


Figure 2: ECG three days later showing sinus rhythm with first degree AV Block (PR 240 ms), RBBB, LAHB.

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