

Atrial Fibrillation Masquerading as Wolff-Parkinson-White Syndrome

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ABSTRACT

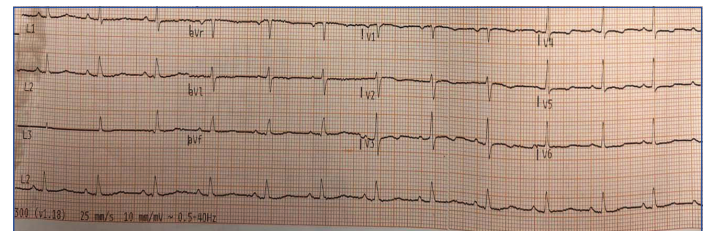
Atrial Fibrillation (AF) can complicate Wolff-Parkinson-White (WPW) syndrome. The characteristic feature of AF associated with pre-excitation is the irregular Wide Complex Tachycardia (WCT) with varying morphology of QRS complexes, with a rate more than 200 beats per minute. Delta waves may be obscured when atria discharge at a rate of more than 300 bpm. This case describes rare ECG features of AF that may resemble AF with pre-excitation. Organised atrial activity may masquerade as short PR interval and delta patterns. QRS morphology does not change in AF.

Keywords: Atrial activity, Cardiovascular system, Hypertension, Pre-excitation, Sinus rhythm

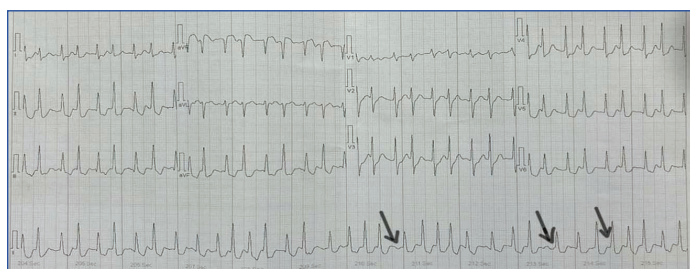
A 56-year-old female presented to the Emergency Department with chief complaints of palpitations for one day. She was hypertensive and was on irregular treatment since 15 years. On examination, her pulse rate was 180 beats/min, irregularly irregular with an apex pulse deficit of 32/min. Blood pressure was 188/70 mmHg in the right arm supine position. Jugular venous pressure was normal.

Cardiovascular system examination revealed variable intensity of first heart sound. There were no murmurs. A 2D Echocardiography was done which was normal. Electrocardiogram (ECG) showed atrial fibrillation and slurring of upstroke of QRS complex (delta wave pattern) with heart rate of approximately 180 beats/min. Though the QRS complex was narrow, still a paraseptal location of accessory tract could not be ruled out [Table/Fig-1]. Possibility of Wolff-Parkinson-White (WPW) syndrome was entertained and intravenous amiodarone was started at a dose of 300 mg bolus followed by 0.5 mg/kg/hour infusion and tablet amlodepin 10 mg was given orally. After 6 hours of amiodarone infusion the seemingly delta wave disappeared but still Atrial Fibrillation (AF) persisted indicating the possibility of successful blockage of accessory pathway [Table/Fig-2]. Her blood pressure at this time

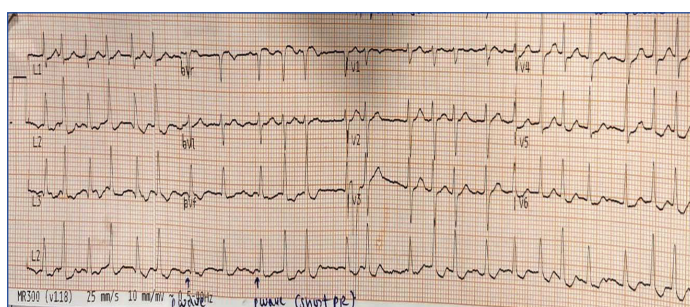
was 168/82 mmHg. Once it was confirmed that the accessory pathway was blocked, 5 mg intravenous metoprolol was given and intravenous amiodarone infusion was continued. After that the ECG showed sinus rhythm, indicating successful pharmacologic cardioversion [Table/Fig-3].



[Table/Fig-3]: Electrocardiogram showing sinus rhythm, indicating successful pharmacologic cardioversion.



[Table/Fig-1]: Electrocardiogram showed atrial fibrillation and slurring of upstroke of QRS complex (delta wave pattern).



[Table/Fig-2]: Electrocardiogram after 6 hours of amiodarone infusion the seemingly delta wave disappeared but still AF persisted indicating the possibility of successful blockage of accessory pathway.

The point to note was to look for an existence of pre-excitation. But the intermittent, occasional P waves are actually organised atrial activity. Secondly, if AF is associated with pre-excitation then once in a while there should be changes in QRS morphology, but in this case the morphology remained constant through out. An electrophysiologic study confirmed absence of accessory pathway. Thus, the final interpretation was AF secondary to hypertension.

Wolff-Parkinson-White syndrome is a condition in which impulses generated from the sinoatrial node bypass the atrioventricular node and activate the ventricular myocardium via an accessory pathway known as bundle of Kent. Atrial fibrillation is estimated to occur in 0.1-0.3% of patients having WPW syndrome [1]. The clinical presentation of such cases are tachycardia-induced palpitations and sometimes presyncope or syncope when the ventricular rate is too high to sustain cerebral perfusion. Atrial fibrillation is a rare arrhythmia in WPW syndrome. The characteristic distinguishing electrocardiographic features of atrial fibrillation associated with WPW syndrome are irregularly irregular QRS, a very rapid ventricular response, and presence of a delta wave; that makes the QRS complex bizarre and wide due to pre-excitation [2]. Rarely a paraseptal location of the abnormal conducting pathway may not show wide QRS also may have varied delta wave morphology [2-5]. In this scenario, the narrow QRS morphology predictably ruled out WPW irrespective of the slurring of the QRS complex [6].

To conclude, sometimes rarely atrial fibrillation on ECG may show slurring of QRS morphology mimicking a delta pattern, but classical changes may not be associated. Though electrophysiologic study

confirms the presence or absence of accessory pathway, subtle ECG clues may help to conclude or rule out WPW with atrial fibrillation, if noted carefully.

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