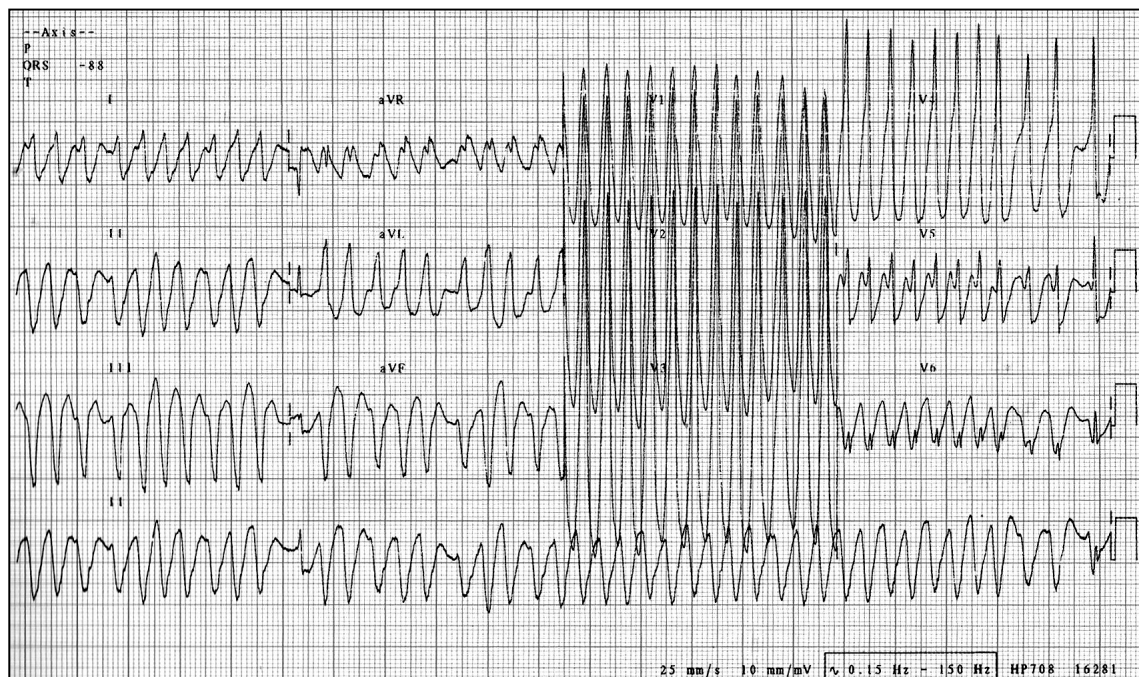


Sustained tachycardia with wide QRS

Courtesy from Prof. Antonio Américo Friedmann.
Electrocardiology Service of University of Faculty of
São Paulo.



Opinions from colleagues

Greetings to everyone,

In a first evaluation I have the strong suspicion of: WPW, probably type A + atrial fibrillation with mid to high ventricular response (between 280 and 300) + broad QRS by CRBBB. Maybe digoxin (that increases

conduction velocity by the anomalous pathway) was administered mistakenly to the patient a few hours before taking this ECG?
Sincerely,

Dr. Ricardo Pizarro.

PRE-EXCITED ATRIAL FIBRILLATION (WPW).

Best regards,

Oscar Pellizzon

Greetings to everyone!!!

Two years ago I took a very similar tracing, and the diagnosis was cardiac arrhythmia by atrial fibrillation with WPW syndrome. HR was controlled and after ablation of the accessory pathway, sinus rhythm was recovered. He presented episodes of sinus tachycardia, but without signs of pre-excitation, although subsequently he had episodes of cardiac arrhythmia by paroxysmal atrial fibrillation. I hope I'm not wrong.

Best regards,

Dr. O. Londono
Unitat Coronària
Hospital de Barcelona

Greetings to the forum,

My opinion is:

Sustained tachycardia with broad complexes secondary to:
Atrial fibrillation in Wolff-Parkinson-White syndrome, since the RR interval is irregular and the QRS broad and with aberrant morphology, average heart rate of 300 approx. The RR interval at certain moments reaches 200 ms, indicating the risk of formation of ventricular arrhythmias and the constant risk of sudden cardiac death, as well as the apparent presence of delta wave in some of the QRS complexes.

In brief:

1. Presence of delta wave
2. Irregular RR interval
3. Broad QRS
4. High ventricular rate

Which indicate = AF in WPW

Dr. Antonio Campuzano UMQ

THE WOLFF-PARKINSON-WHITE SYNDROME AND ATRIAL FIBRILLATION AND AV CONDUCTION VIA AN ACCESSORY PATHWAY IN ANTIDROMIC ATRIOVENTRICULAR RE-ENTRANT TACHYCARDIA

The majority of patients with preexcitation syndromes remain asymptomatic throughout their lives. When symptoms do occur they are usually secondary to tachyarrhythmias. The importance of recognizing this syndrome is that these patients may be at risk to develop a variety of supraventricular tachyarrhythmias which cause disabling symptoms and, in the extreme, sudden cardiac death. The tachyarrhythmias encountered in the WPW patient include paroxysmal supraventricular tachycardia (both the narrow QRS and wide QRS complex varieties), atrial fibrillation (AF), atrial flutter, and ventricular fibrillation¹.

Electrocardiographic features

- 1) Heart Rate: Faster than 180 beat/min. The short refractory period (RP) of the accessory pathway (AP) can lead to rapid atrioventricular conduction. If the AP is short, the HR can exceed 300 beats/min. Most APs exhibit non-decremental conduction properties, and conduct faster than normal AV conduction tissue. When AF is conducted to the ventricles via an AP, the resultant ventricular rate may be extremely rapid, placing the patient at risk of developing ventricular fibrillation (VF) and cardiac arrest.
- 2) QRS complex: Broad or wide QRS pattern (≥ 120 ms). It looks like a VT. The conduction occurs in the opposite direction resulting in antidromic atrioventricular re-entrant tachycardia AVRT (Antidromic Circus Movement Tachycardia Antidromic accessory pathway reciprocating tachycardia). The ventricular activation is initiated outside the normal conduction system. Eventually is observed normal and fusion beats. In AF with multiple accessory pathways is observed a polymorphous broad QRS tachycardia, irregular fast rhythm, fusion beats.
- 3) Rhythm: Irregular because of rapid stimulation from the

fibrillating atria, concealed conduction into the accessory pathway and, perhaps,

The following factors determine ventricular rate during AF:

- 1) Refractory period duration of the accessory pathway in the anterograde direction.
- 2) Refractory period of the AV node;
- 3) Refractory period of the ventricle;
- 4) Concealed anterograde and retrograde penetration into the accessory pathway and AV node;
- 5) Sympathetic stimulation shortens the refractory period of the accessory pathway and accelerates the rate.

Treatment

- 1) Obtain a 12-lead ECG during the tachycardia and one during sinus rhythm immediately following conversion. The last one ECG frequently show us: (1) a PR interval < 120ms (2) with a slurring of the initial segment of the QRS complex, known as a delta wave, (3) a QRS complex widening with a total duration greater than 120ms, and (4) secondary repolarization changes reflected in ST segment-T wave changes that are generally directed opposite (discordant) to the major delta wave and QRS complex changes or memory ST segment depression.
- 2) Administered procainamide 10mg/kg body weight over 5 minutes. FIF procainamida does not slow the rhythm and block the accessory pathway. **CALCIUM CHANNEL BLOCKERS AND DIGITALIS ARE ABSOLUTELY CONTRAINDICATED!!!!!!]**
- 3) Adenosine is increasingly used for this purpose since it is highly efficacious and has an extremely short half-life. Adenosine, is adminstred in incremental bolus doses up to 0.25 mg/kg, Adenosine is also very useful in the diagnosis of broad QRS complex tachycardia, and in unmasking latent pre-excitation during sinus rhythm². The data show that adenosine has a useful role in the diagnosis and treatment of regular broad complex tachycardia³.
- 4) Intravenous bolus of 300 mg amiodarone administered within 30 minutes and continued with 900 mg/24 hours⁴.
- 5) Cardioversion is the first-line emergency treatment for sever circulatory impairment. electrical Direct Current Cardioversion or countershock(DCC) could lead to transient iatrogenic VF. . The deaths described as a complications of DCC were mainly due to the proarrhythmia and less common to the progression of the pathologic process. The embolic, arrhythmic and anesthetic complications of DCC can be prevented if the known recommendations of performing the

DCC are followed⁵.

6) Definitive measurement: radiofrequency catheter ablation. Pathways in particular locations such as the septal region remain challenging.

References

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- 3) Griffith MJ, Linker NJ, Ward DE, Camm AJ. Adenosine in the diagnosis of broad complex tachycardia. *Lancet.* 1988;1:672-675.
- 4) Manurung D, Yamin M. Wolf-parkinson-white Syndrome Presented with Broad QRS Complex Tachycardia. *Acta Med Indones.* 2007; 39:33-35.
- 5) Adlam D, Azeem T. electrical DC cardioversion lead to transient iatrogenic ventricular fibrillation. *Postgrad Med J.* 2003; 79: 297-299.

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