

Wolf  
Parkinson  
White

General

- pre-excitation syndromes have an additional or accessory AV pathway. The term WPW syndrome is usually applied when tachyarrhythmia are present.

ECG

- during sinus rhythm, an atrial impulse will reach the ventricles via both the AV node and the accessory AV pathway (the latter conducts the atrial impulse to the ventricles before the AV node, resulting in ventricular pre-excitation & a short PR interval)  
- on reaching the ventricles, the pre-excitation impulse is not conducted via the specialised conduction system. Hence, early ventricular activation will be slow (resulting in delta wave & T wave abnormalities)  
- delta wave polarity in a 12-lead ECG may help localise the anatomical position of the accessory pathway

Clinical

- AV re-entrant tachycardia or AF can occur with WPW  
- during AVRT, the re-entry impulse usually travels down the AV node and back up the accessory pathway (delta waves are not present); occasionally, the re-entry impulse may pass in the opposite direction (down the accessory pathway & up the AV node), resulting in a wide QRS tachycardia (with delta waves)  
- the ECG of WPW with AF usually shows rapid, irregular QRS complexes with variable QRS width  
- ventricular response is very rapid leading to cardiogenic shock  
- may degenerate to VF

Treatment

- usually involves synchronised DC shock although antiarrhythmic drugs may be used when patients are haemodynamically stable & ventricular rate is not excessive  
- drugs that prolong the accessory pathway are useful (eg sotalol, amiodarone, flecainide & procainamide)  
- drugs that shorten the refractory period (eg digoxin) are contraindicated as they may accelerate ventricular rate  
- verapamil and lignocaine may increase ventricular rate during AF & are best avoided  
- beta adrenergic blockers have no effect on the refractory period of the accessory pathway  
- long-term management by radio-frequency ablation of the accessory pathway is effective in selected patients