

## Asymptomatic Wolf-Parkinson-White Syndrome Presenting With Atrial Fibrillation/Flutter And Life Threatening Arrhythmia Or Cardiac Arrest In Fetuses And Young Children

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### Introduction

Wolf-Parkinson-White syndrome (WPW) is a common cause of re-entry arrhythmia in children. The estimated incidence is 1-3:1000. There is a well-known risk of rapid conduction of atrial fibrillation through the accessory pathway resulting in ventricular fibrillation and sudden cardiac death. Such arrhythmia combination is said to be uncommon in asymptomatic and young children. Our case serious however showed that atrial fibrillation resulting in rapid ventricular conduction and sudden cardiac collapse can occur in asymptomatic young children with WPW syndrome.

### Method

Retrospective review of cases presenting with WPW syndrome and pre excited atrial fibrillation leading to hemodynamic compromise and aborted cardiac arrest.

### Results

150 patients were diagnosed with WPW syndrome between 1990 and 2015 at the University Hospital of Wales. Eight patients presented with life threatening arrhythmia as the first event without any prior documented event; two had aborted sudden cardiac death and all eight required urgent DC cardioversion. One of the children, who had aborted sudden cardiac death at age 5.5 years, was known to have asymptomatic preexcitation previously. In all, four had atrial fibrillation with rapid ventricular conduction, and four had fetal and neonatal atrial flutter and rapid ventricular conduction. Four patients had successful ablation of their accessory pathways and were discharged from follow up. Three of the four patients with fetal atrial flutter developed AVRT immediately after DC cardioversion of flutter and all exhibited preexcitation on their ECG.

Patient	Sex	Age at presentation	Presentation	Location of AP	First presentation	Shortest pre-excited RR in AFib/AP-ERP (msecs)	Prior treatment	EP success	Outcome
Case 1	Male	15 year	AFib/VF, preexcitation	Right anterolateral	Yes	160/300	None	Success	Alive
Case 2	Male	5.5 year	AFib/VF/Aborted sudden cardiac death, preexcitation	Left coronary sinus	Yes	180/250	None	Success	Alive
Case 3	Female	15 year	AFib/VF, preexcitation	Left mid-septal	Yes	260/260	None	Success	Alive
Case 4	Male	15 year	AFib/VF/Aborted sudden cardiac death, preexcitation	Left coronary sinus diverticulum	Yes	180/240	None	Success	Alive
Case 5	Male	Fetal and 1 day of age	Fetal atrial flutter hydrops, postnatal atrial flutter and AVRT, preexcitation	NA	Yes	200/NA	Flecainide and digoxin in fetal life and postnatally	N/A	Alive
Case 6	Male	Fetal and 1 day of age	Fetal atrial flutter hydrops, postnatal atrial flutter and AVRT, preexcitation	NA	Yes	200/NA	Flecainide and digoxin in fetal life and postnatally	N/A	Alive
Case 7	Male	Fetal and 1 day of age	Fetal atrial flutter hydrops, postnatal atrial flutter and AVRT, preexcitation	NA	Yes	180/NA	Flecainide and digoxin in fetal life and postnatally	N/A	Alive
Case 8	Male	Fetal and 1 day of age	Fetal atrial flutter hydrops, postnatal atrial flutter and asymptomatic preexcitation	NA	Yes	200/NA	Flecainide and digoxin in fetal life. Has asymptomatic preexcitation after birth on no medication	Awaiting EPS	Alive

### Conclusion

Atrial fibrillation or atrial flutter leading to rapid ventricular conduction and life threatening arrhythmias can be the first manifestation of WPW syndrome from fetal life through early childhood and adolescence. The significance of asymptomatic preexcitation needs to be re-evaluated in larger prospective multicentre studies.