

Case Report

WOLFF-PARKINSON-WHITE SYNDROME PRESENTING AS PALPITATION – A CASE REPORT

*N. S. Neki

Department of Medicine Government Medical College/ Guru Nanak Dev Hospital
Amritsar, India- 143001

*Author for Correspondence

ABSTRACT

Palpitation can occur in many medical conditions. Wolff – Parkinson – White (WPW) syndrome is a cardiac conduction disorder which may present with palpitation and ultimately leading to sudden cardiac death. WPW syndrome can be easily detected by electrocardiogram (ECG) by the presence of delta waves in various leads. Electrophysiological (EP) study with radiofrequency catheter ablation confirms the accessory pathway responsible for conduction disturbance.

Keywords: Wolff-Parkinson-White Syndrome; Palpitation; Supraventricular Tachycardia

INTRODUCTION

Palpitation is a common presenting symptom in the emergency department (Begleiter *et al.*, 2007). WPW syndrome is classified among the paroxysmal supraventricular tachycardia (PSVTs) (Tu *et al.*, 2010). It occurs due to abnormal electrical conductivity of the heart and can result in sudden cardiac death (Kulig and Koplán, 2010; Sidhu and Roberts, 2003). It can cause early excitation (pre excitation) of the ventricles due to antegrade conduction through accessory pathway, which occur in 0.15 – 0.25 % of general population (Begleiter *et al.*, 2007; Sidhu and Roberts, 2003). Early recognition of WPW syndrome and its management can save the life of patient (Calkins, 2009; Erdem *et al.*, 2010; Pappone *et al.*, 2008).

CASES

We report a case of 16 year old school going boy presenting with palpitation since 6 hours while doing meditation. There was no history of chest pain/discomfort, vomiting, anxiety, dizziness, dyspnoea and syncope. He was non smoker, non alcoholic and non drug abuser. On physical examination, blood pressure (BP) was 115/70 mmHg, Pulse rate 220 beats/min. Examination of cardiovascular, central nervous, abdominal and respiratory system was unremarkable. ECG revealed wide complex regular tachycardia with rate of 225 beats/min, with no P wave, normal axis, normal QRS complexes. 2D Echocardiography was normal. Laboratory investigations including serum electrolytes and cardiac biomarkers did not reveal any abnormality. He was put on 150 mg intravenous amiodarone infusion.

Following this his ECG showed sinus rhythm with heart rate of 80 beats/min, normal axis, shortened PR interval (0.10 sec) slurred and widened QRS complex (delta waves) and inverted T waves in inferior leads. Positive delta waves were seen in lead II, III, a VF and V1 suggesting accessory pathway in left lateral wall. Patient refused electrophysiological (EP) studies due to financial constraints. He was put on oral amiodarone 300 mg daily and was referred to higher cardiac centre for intervention.

DISCUSSION

The diagnostic criteria of WPW syndrome consists of short PR interval (<0.12 sec) slurred QRS complex (delta waves) and widened QRS complex (Calkins, 2009; Soo *et al.*, 2011; Gautam *et al.*, 2010). The site of accessory pathway can be located on ECG delta wave pattern in WPW syndrome in various leads like L1, a VL, II, III, a VF and V1 (Calkins, 2009; Soo *et al.*, 2011; Kaushik *et al.*, 2003). Various studies have reported that 40-60 % of accessory pathways are located on the left free wall space, 25% in the posterolateral and midseptal spaces, 15-20 % in the right free wall space and 2% in the anterolateral space (Calkins, 2009; Soo *et al.*, 2011; Gautam *et al.*, 2010; Kaushik *et al.*, 2003). Anterograde conduction of pathways occur in 2-3 % while 20-31 % conduct in retrograde

Case Report

direction (Calkins, 2009). About 50-60 % of WPW syndrome patients present with palpitation and syncope while others present with dyspnoea, chest discomfort/tightness, pre-syncope or syncope, anxiety, dizziness (Sidhu and Roberts, 2003; Calkins, 2009). These patients can have recurrent tachycardia (5) which may be responsible for sudden cardiac death (Kulig and Koplán, 2010; Sidhu and Roberts, 2003). EP studies are done to confirm the presence of accessory pathway responsible for tachycardia, role in ablative therapy and to diagnose other forms of supraventricular tachycardia (Schweikert and Packer, 2007). Catheter ablation has curative rate of 95% with low complications and is considered the first line therapy (Calkins, 2009; Blomström-Lundqvist, 2003). Radiofrequency ablation of supraventricular tachycardia is cost effective and known to improve quality of life of WPW syndrome patients (Olgin and Zipes, 2008). As our patient did not afford EP studies, so catheter ablation treatment could not be carried out. He was referred to higher cardiac centre for evaluation of EP studies and intervention.

Conclusion

Palpitation due to WPW syndrome can result in sudden cardiac death if not recognised early and managed effectively. Amiodarone has to be taken regularly to prevent recurrence of supraventricular tachycardia.

REFERENCES

- Begleiter DE, Gernsheimer J and Waseem M (2007).** Wolff-Parkinson-White syndrome: An Uncommon cause of palpitations. *Hospital Physician* **43** 49-54.
- Tu CM, Chu KM, Cheng CC, Cheng SM and Lin WS (2010).** Reversion of left ventricular systolic dysfunction and abnormal stress test by catheter ablation in a patient with Wolff-Parkinson-White syndrome from Para-Hisian Kent bundle. *Texas Heart Institute Journal* **37** 483-5.
- Kulig J and Koplán BA (2010).** Wolff-Parkinson-White syndrome and accessory pathway. *Circulation* **112** e 480-3
- Sidhu J and Roberts R (2003).** Genetic basis and pathogenesis of familial WPW syndrome. *Indian Pacing and Electrophysiology Journal* **3** 197-201.
- Calkins H (2009).** Supraventricular tachycardia : AV nodal re-entry and Wolf-Parkinson-White syndrome. In O'Rourke RA, Walsch RA, Fuster V. Editors. *Hurst's the Heart*, 12th edition (Singapore: Mc Grew Hill) 983-1002.
- Carina Blomström-Lundqvist, Melvin M Scheinman, Etienne M Aliot, Joseph S Alpert et al. (2003).** ACC/AHA/ESC guidelines for the management of patients with supraventricular arrhythmias: executive summary: a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines and the European Society of Cardiology Committee for Practice Guidelines. *Journal of the American College of Cardiology* **42** 1493-531
- Erdem A, Madak N, Yilmaz A, Yontar OC, Yucel H, Gul I et al. (2010).** Development of malignant ventricular arrhythmias in a young male with WPW Pattern. *Indian Pacing and Electrophysiology Journal* **10** 195-200.
- Pappone C, Radinovic A and Santinelli V (2008).** Sudden death and ventricular pre excitation : is it necessary to treat the asymptomatic patients ? *Current Pharmaceutical Design* **147** 762-5.
- Soo WM, Chong E, Teo SG and Pohn KK (2011).** ECG delta waves in patients with palpitation. *Singapore Medical Journal* **52** 68.
- Gautam MP, Thapa L and Gautam S (2010).** Wolff-Parkinson-White syndrome presenting as atrial fibrillation with broad QRS complex. *Journal of College of Medical Sciences – Nepal* **6** 52-7
- Kaushik ML, Sharma M and Ganju N (2003).** Wolff-Parkinson-White syndrome presenting as atrial fibrillation with wide QRS complexes. *Journal of Indian Academy of Medicine* **4** 152-55.
- Schweikert RA and Packer DL (2007).** Atrioventricular nodal dependent tachycardias and pre excitation. In: Topol EJ editor. *Textbook of Cardiovascular Medicine*, 3rd edition, (Philadelphia: Lippincott Williams and Wilkins, Pennsylvania) 1077-92.
- Olgin JE and Zipes DP (2008).** Specific arrhythmia: Diagnosis and treatment. In Libby P, Bonnow RO, Mann DL, Zipes DP editors. *Braunwald's Heart Disease: A Textbook of Cardiovascular Medicine*, 8th edition (Philadelphia, Pennsylvania, Saunders Elsevier) 882-93.