

Atrial Fibrillation in Wolff Parkinson White Syndrome: About a Case in Senegal

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How to cite this paper: Mboup, W.N., Dia, K., Ka, M.M., Ndao, S.C.T., Balde, D.W., Ba, D.M., Mboup, M.C. and Kane, A. (2023) Atrial Fibrillation in Wolff Parkinson White Syndrome: About a Case in Senegal. *World Journal of Cardiovascular Diseases*, 13, 1-6.

<https://doi.org/10.4236/wjcd.2023.131001>

Received: November 23, 2022

Accepted: January 28, 2023

Published: January 31, 2023

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Abstract

WOLFF PARKINSON and WHITE (WPW) syndrome is the most common form of pre-excitation. It is associated in some cases with atrial fibrillation with a high risk of sudden death. We report the case of a 64-year-old hypertensive woman with a history of ischemic stroke. She presented with hyperkinetic palpitations without hemodynamics instability on admission. The electrocardiogram recorded a complete tachyarrhythmia by pre-excitation atrial fibrillation, with a mean rate of 300 beats per minute. Electrophysiological investigation revealed an accessory pathway located at the ostium of the coronary sinus, which was successfully ablated by radiofrequency. A drug treatment based on flecaine 100 mg was introduced. The patient was asymptomatic after one month of outpatient follow-up.

Keywords

Wolff Parkinson and White, Atrial Fibrillation, Senegal

1. Introduction

WPW syndrome is defined by the presence of a patent accessory pathway between the atria and ventricles, resulting in ventricular pre-excitation, associated with generally recurrent tachyarrhythmias [1].

The clinical presentation varies from the asymptomatic patient with incidental discovery on electrocardiogram to sudden death. Atrial fibrillation is one of the circumstances in which WPW syndrome is discovered. This frequent association (50% of WPW cases) is feared because of the risk of sudden death due to rapid conduction of atrial electrical activity to the ventricle via the accessory pathway

and potential deterioration into ventricular fibrillation. Catheter ablation, the current treatment of choice for patients with pre-excited atrial fibrillation, remains unavailable in most African countries [1] [2]. No study was done to assess the success rate of this therapy in pre-excited AF in Senegal.

We report a rare case of WPW syndrome with atrial fibrillation successfully treated by radiofrequency ablation. This communication highlights the feasibility of catheter ablation in low-income countries.

2. Observation

We report the case of a 64-year-old female patient admitted to the emergency department of the main hospital in Dakar for persistent hyperkinetic palpitations. She has been hypertensive for 10 years, with a history of ischemic stroke in 2016.

Initial examination revealed irregular tachycardia at 275 beats per minute (bpm). Blood pressure (BP) was 120/86mmhg and respiratory rate was 21 cycles per minute. The patient was afebrile with a saturation of 98% on room air, with no evidence of heart failure.

The electrocardiogram recorded a chaotic rhythm with a non-sinus tachycardia, irregular, wide QRS, variable morphologies with a mean ventricular rate of 300 beats per minute (bpm) and secondary repolarization disorders (Figure 1).

In the presence of this electrocardiographic aspect, 10 mg of bisoprolol was administered to the patient in the emergency department with secondary cessation of the tachycardia. The ECG in sinus rhythm showed a short PR at 110 ms and a Delta wave suggesting a left posteroseptal accessory pathway (Figure 2).

Trans-thoracic Doppler echocardiography (TTE) was normal.

Electrophysiological investigation showed an accessory pathway located at the ostium of the coronary sinus (Figure 3).

The accessory pathway was successfully ablated with radiofrequency after multiple attempts (Figure 4).

After ablation, endocardial ECG objected to the disappearance of AV fusion (Figure 5).

The surface ECG after ablation showed a disappearance of pre-excitation with normal PR at 160 ms (Figure 6).

The patient was started on flecaine 100 mg daily. Outpatient rhythmology follow-up was recommended. At one month follow-up, she remains asymptomatic on medical treatment.

3. Comments

Pre-excitation is a rare condition affecting 0.15% - 0.25% of the general population [1]. Few cases are reported from sub-Saharan Africa and Senegal. Patients with WPW syndrome have a high lifetime risk of sudden death, up to 04% [3]. This risk is partly related to the frequent association with atrial fibrillation. WPW is associated with a 3.12-fold increased risk of atrial fibrillation compared to patients without pre-excitation [4].

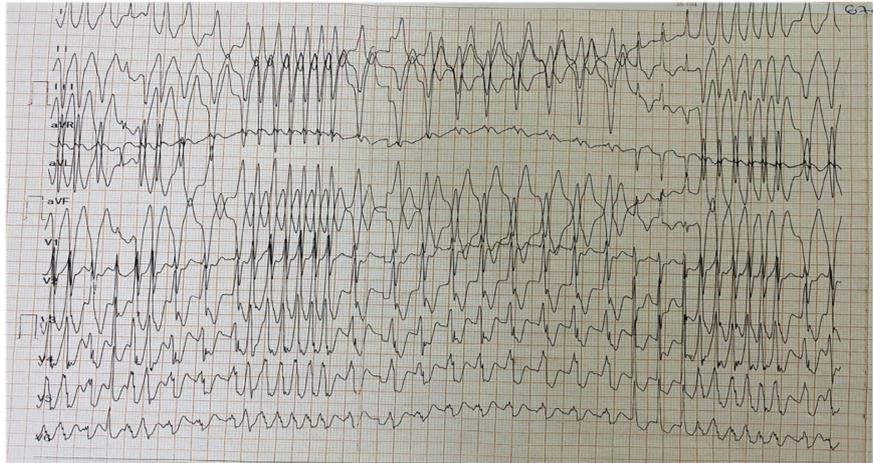


Figure 1. ECG at admission recorded a chaotic rhythm with a non-sinus tachycardia, irregular, wide QRS, variable morphologies with a mean ventricular rate of 300 beats per minute (bpm).

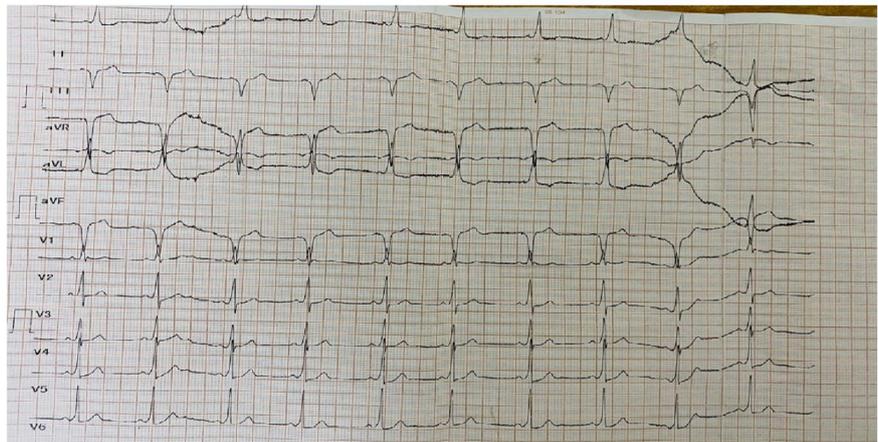


Figure 2. ECG in sinus rhythm with a short PR at 110 ms and a Delta wave suggesting a left posteroseptal accessory pathway.

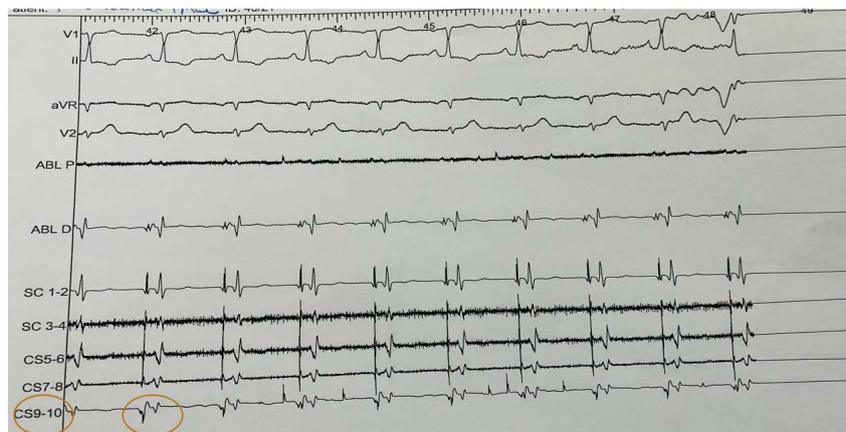


Figure 3. Endocavitary ECG: the red circle showed maximum auriculo-ventricular (AV) fusion at the ostium of the coronary sinus (C9 - 10) corresponding to the precise location of the accessory pathway.

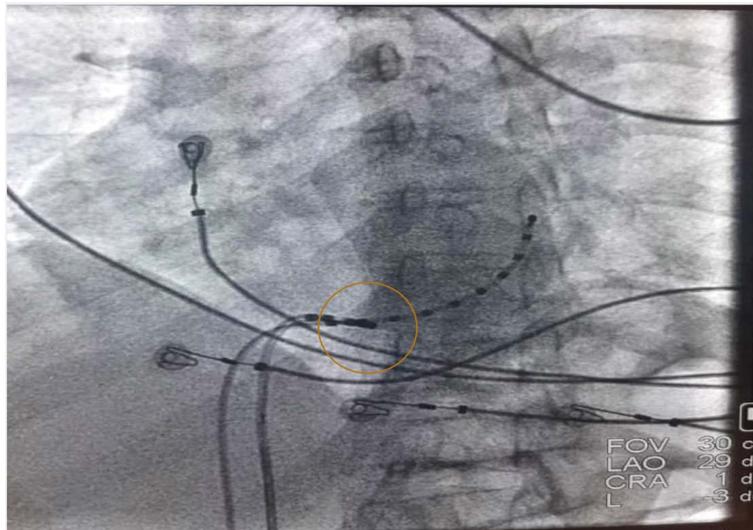


Figure 4. Red circle showed radiofrequency shots with ablation probe at the ostium of the coronary sinus.

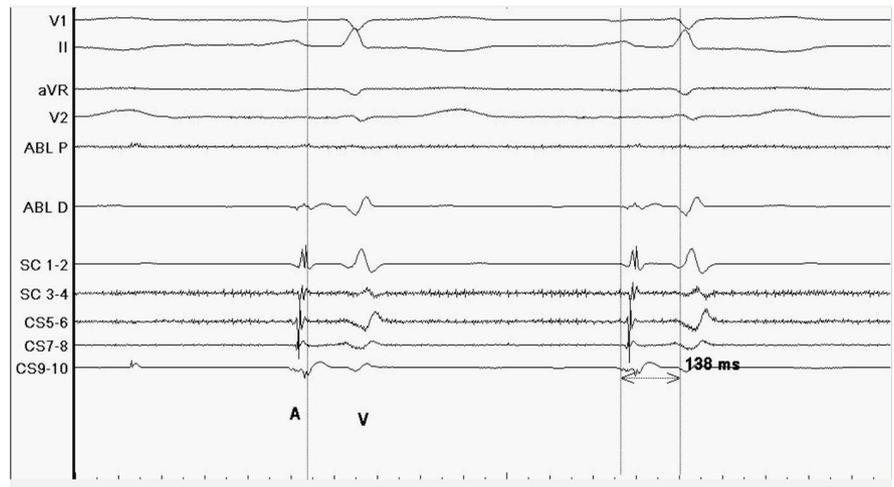


Figure 5. Endocardial ECG, disappearance of AV fusion.

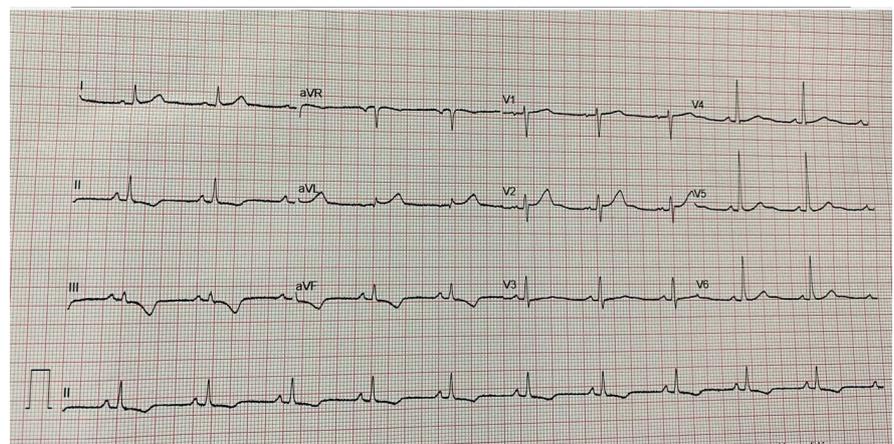


Figure 6. Post-ablation surface ECG: disappearance of pre-excitation with normal PR at 160 ms.

Like our patient, patients with atrial fibrillation in WPW syndrome generally do not have structural heart disease. The circumstances of discovery are variable, ranging from well-tolerated episodes of supraventricular tachycardia, manifesting as simple palpitations, to sudden death. The risk of life-threatening arrhythmia is increased when the accessory bundle has a short anterograde refractory period of less than 250 ms [1].

The prevalence of threatening episodes of complete atrial fibrillation tachyarrhythmias (RR < 250 ms) varies from 00% to 09% depending on the series [5]. They present as irregular tachycardias with QRS complexes of varying widths. They may be accompanied by hemodynamic instability or deteriorate into ventricular fibrillation [1] [6].

The management of WPW with episodes of atrial fibrillation depends on the clinical presentation. In the case of hemodynamic instability, synchronized external electric shock is recommended as first-line therapy.

Impulse conduction may occur preferentially through the accessory bundle, which may have a shorter anterograde refractory period than the atrioventricular node. Therefore, therapies that slow conduction in the atrioventricular node (adenosine, verapamil, diltiazem, beta-blockers, digoxin) should be avoided in atrial fibrillation with pre-excitation as they may promote the occurrence of ventricular fibrillation [7] [8]. Amiodarone is also contraindicated due to a risk of ventricular fibrillation [1] [9] [10]. Ibutilide or procainamide and flecaine or propafenone are the recommended first- and second-line therapies in patients without hemodynamic instability [1].

Radiofrequency ablation remains the therapy of choice for fibrillation with WPW. It has a success rate of 90% - 95% [11]. It reduces or eliminates the risk of sudden death linked to the accessory bundle, considerably reducing mortality in ablated patients [12]. Some studies even suggest WPW patients with AF that undergo AP ablation have their atrial vulnerability parameters normalized to the point that AF is no longer inducible [13]. In Senegal, catheter ablation is only available in the city of Dakar, at a cost that is not very accessible to the population.

4. Conclusion

The association of atrial fibrillation and WPW syndrome is relatively frequent and potentially dangerous, with a risk of sudden death depending on the anterograde permeability of the accessory bundle. Its management relies mainly on radiofrequency ablation, which is an effective technique but not widely available in developing countries.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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