

Preexcited Atrial Fibrillation in an 83-Year-Old Patient with Wolff-Parkinson-White Syndrome: Successful Accessory Pathway Ablation. an Unusual Case Report Due to Age and Literature Review

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ABSTRACT

We present the case of an 83-year-old woman with well-controlled systemic arterial hypertension who was admitted due to the sudden onset of palpitations, dyspnea, nausea, and dizziness. The initial electrocardiogram revealed a wide QRS, irregular tachycardia with high ventricular rate and hemodynamic compromise, later identified as preexcited atrial fibrillation conducted with aberrancy. Due to lack of response to intravenous amiodarone and progression to 220 bpm with signs of low cardiac output, synchronized electrical cardioversion was performed successfully. The post-cardioversion ECG showed features consistent with Wolff-Parkinson-White (WPW) syndrome, including a short PR interval and delta wave, which were later confirmed by an electrophysiological study.

Echocardiography revealed preserved left ventricular function and no significant structural heart disease, while coronary angiography ruled out obstructive coronary artery disease. The patient was referred to a tertiary care center where successful ablation of a right posteroseptal accessory pathway was performed. At six-month follow-up, she remains asymptomatic and free of arrhythmia recurrence.

This case highlights the importance of recognizing preexcited atrial fibrillation as a potentially life-threatening manifestation of WPW syndrome, even in elderly patients, where presentation is uncommon but possible. It also demonstrates that catheter ablation is a safe and effective curative option in well-selected geriatric patients, challenging the traditional reluctance to perform invasive procedures solely based on chronological age.

KEYWORDS: Wolff-Parkinson-White syndrome; Preexcited atrial fibrillation; Catheter ablation; Elderly patient; Wide QRS tachycardia; Sudden cardiac death; Accessory pathway

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INTRODUCTION

Wolff-Parkinson-White (WPW) syndrome is characterized by the presence of an accessory conduction pathway that enables early ventricular activation, bypassing the normal atrioventricular (AV) conduction system. This phenomenon, known as preexcitation, is electrocardiographically evident as a short PR interval, initial widening of the QRS complex due to the delta wave, and may be associated with repolarization abnormalities in the T wave and ST segment ¹.

WPW is a known cause of supraventricular tachycardia, predominantly diagnosed in young and middle-aged

individuals; however, it may also be identified later in life. Many affected patients are asymptomatic, with the diagnosis made incidentally through routine ECGs. When symptoms are present, they are typically related to tachyarrhythmia, including palpitations, dizziness, or, in severe cases, syncope ². The main arrhythmogenic mechanism in WPW is AV reentrant tachycardia (AVRT), where a reentrant circuit forms between the accessory pathway and the AV node, generating rapid and recurrent impulses toward the ventricles.

Timely diagnosis allows for prevention of tachyarrhythmic episodes and potentially fatal complications such as sudden

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cardiac death. In this regard, appropriate electrophysiological evaluation and catheter ablation of the accessory pathway have proven to be highly effective, with a high cure rate in symptomatic patients³.

Atrial fibrillation (AF), the most common supraventricular arrhythmia in the general population, becomes particularly relevant when associated with WPW. The accessory pathway conducts atrial impulses at a significantly higher rate than the AV node allows, leading to rapid ventricular responses and increasing the risk of malignant arrhythmias such as ventricular fibrillation⁴.

Preexcited AF may present with very rapid, disorganized QRS complexes, making ECG diagnosis difficult and often confounding it with other types of ventricular arrhythmias. Moreover, acute management may be especially challenging, requiring urgent interventions such as immediate synchronized cardioversion in cases of very rapid ventricular response and hemodynamic compromise⁵.

Among therapeutic options, catheter ablation is a cornerstone in treatment, as it eliminates the accessory conduction pathway, significantly reducing the risk of recurrent preexcited AF episodes, malignant arrhythmias, and sudden cardiac death. This strategy has shown high efficacy, improving both quality of life and patient prognosis⁶.

Reporting a case of WPW with preexcited AF in the elderly is important, as WPW is traditionally associated with younger

individuals. Nonetheless, its occurrence in older adults is increasingly documented, often with atypical or complex clinical courses due to comorbid cardiovascular or degenerative conditions. In this age group, the rapid and irregular ventricular response during an episode of preexcited AF may destabilize an already fragile hemodynamic state, increasing the risk of heart failure or precipitating coronary events^{7,8}.

In this context, we present the case of an 83-year-old woman with WPW syndrome, whose initial manifestation was preexcited AF, successfully treated with accessory pathway ablation. This report underscores the particularity of WPW in the elderly and reviews the current literature on its management in this age group.

CASE PRESENTATION

An 83-year-old woman with an 18-year history of systemic arterial hypertension, managed with metoprolol (50 mg twice daily) and losartan (50 mg twice daily), presented with sudden-onset palpitations, dizziness, nausea, and dyspnea. The initial ECG showed a wide, irregular QRS tachycardia with an average ventricular rate of 130 bpm and a mean arterial pressure of 65 mmHg. The episode resolved spontaneously after approximately two minutes, but symptoms recurred shortly thereafter with greater intensity, accompanied by wide, irregular QRS tachycardia (Figure 1)

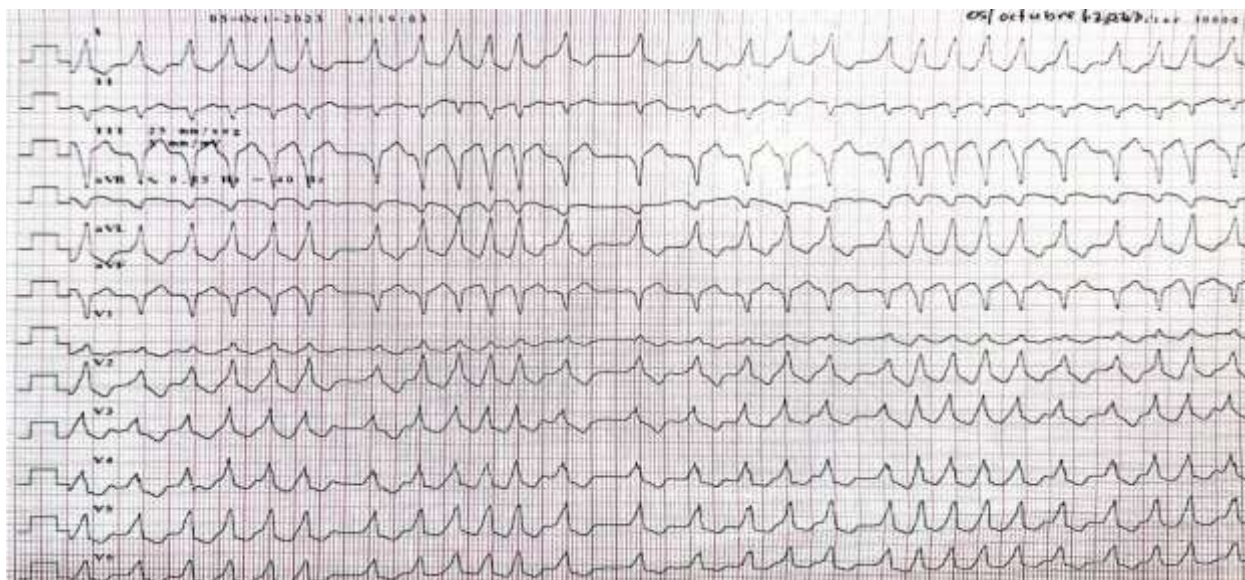


Figure 1

Intravenous amiodarone was administered, with no adequate clinical response. Preexcited AF with aberrant conduction was suspected. The tachycardia progressed to 220 bpm, associated with signs of low cardiac output, prompting synchronized electrical cardioversion. An initial shock of 50

J was unsuccessful; a second 100 J shock restored sinus rhythm.

The post-cardioversion ECG demonstrated classic WPW features, including a short PR interval and prominent delta wave, along with findings suggestive of complete left bundle branch block (Figure 2).

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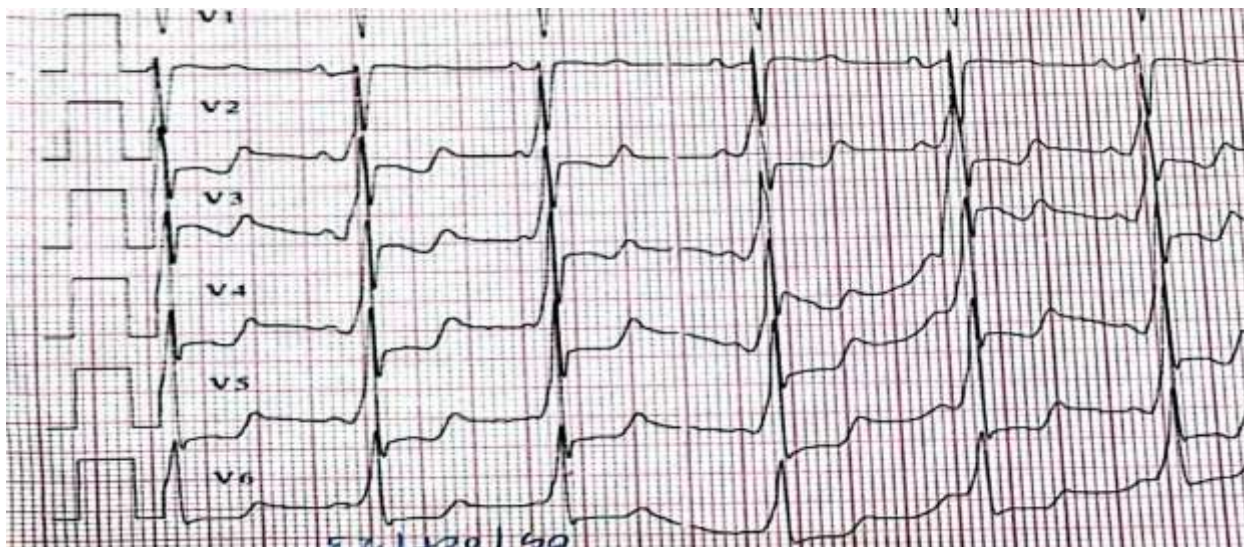


Figure 2

Transthoracic echocardiography revealed normal left ventricular dimensions (end-diastolic diameter 38 mm, end-systolic 21 mm), a preserved ejection fraction (51%), and no significant structural abnormalities. Estimated pulmonary artery systolic pressure was 35 mmHg.

Diagnostic coronary angiography showed no obstructive coronary artery disease (Figures 3A and 3B). Given the high risk of recurrent preexcited AF and sudden cardiac death, the patient was referred to a tertiary center for electrophysiological study and ablation.

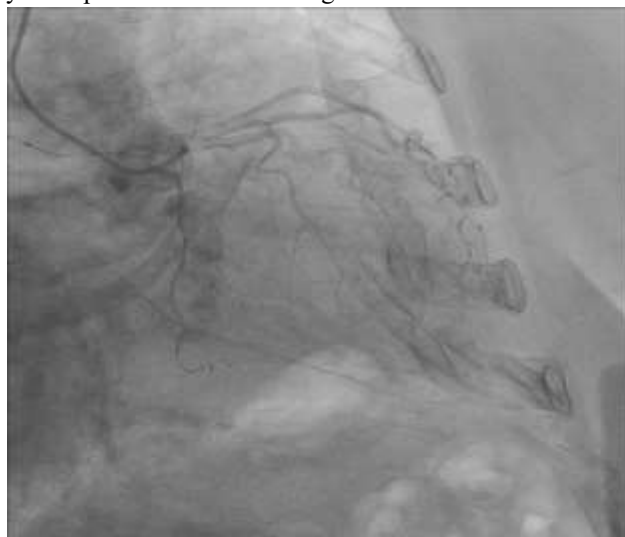


Figure 3A



Figure 3B

Ablation of a right posteroseptal accessory pathway was successfully performed due to the high risk of recurrent preexcited atrial fibrillation and sudden cardiac death. A post-

procedure ECG showed sinus rhythm with a heart rate of 75 bpm, regular RR intervals, and a normalized PR interval of 200 ms (Figure 4).

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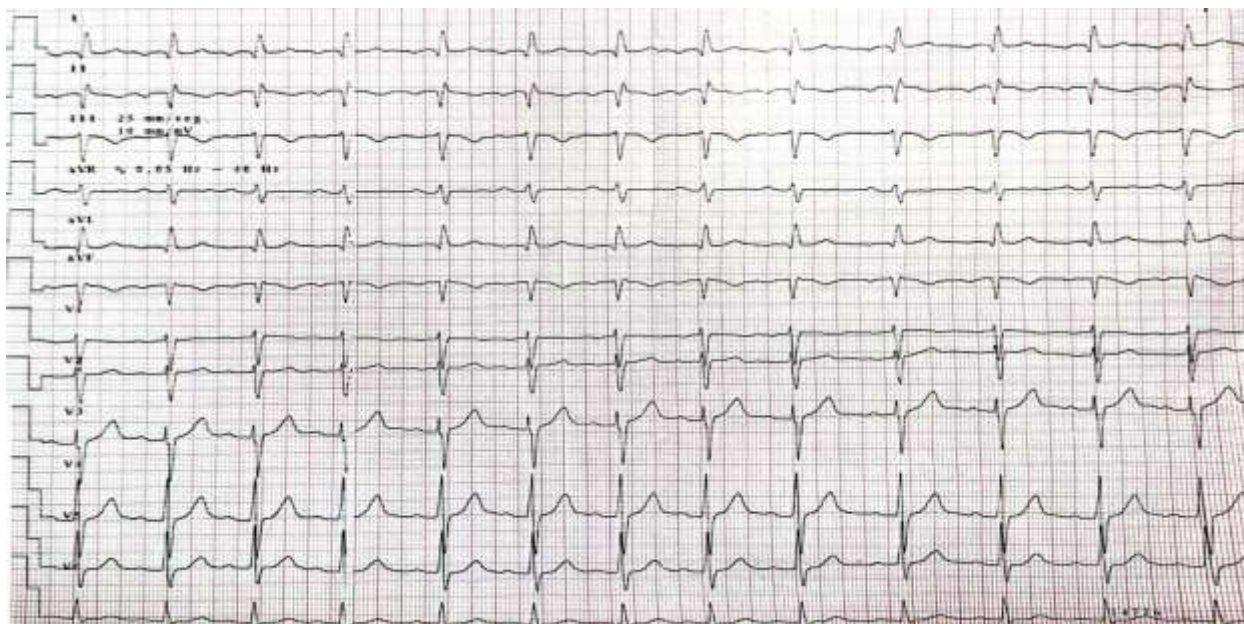


Figure 4

At six-month follow-up, the patient remained asymptomatic with no recurrence of arrhythmia.

DISCUSSION

WPW syndrome involves an accessory AV conduction pathway, allowing early ventricular depolarization and increasing the risk for potentially lethal arrhythmias. Preexcited AF is particularly dangerous, as the accessory pathway may conduct impulses at very high rates, precipitating ventricular fibrillation and sudden death.

Although WPW typically presents in young adults, it is rarely diagnosed in the elderly, likely due to under-recognition in this age group. In symptomatic or high-risk cases, radiofrequency ablation is the definitive treatment. In older adults, safety concerns may arise due to comorbid conditions, vascular fragility, and the presence of atherosclerotic disease. However, current literature shows that catheter ablation in elderly patients has a favorable safety profile and success rates comparable to younger populations.

In the present case, the patient experienced preexcited AF with rapid ventricular response, unresponsive to pharmacologic therapy and requiring immediate cardioversion. A sinus rhythm ECG confirmed WPW syndrome, and subsequent ablation of the right posteroseptal pathway led to clinical resolution without complications.

This case emphasizes that therapeutic decisions in elderly patients should be guided by functional status and arrhythmic severity, rather than age alone. It also reinforces the need to include WPW in the differential diagnosis of irregular wide-complex tachycardias, especially when associated with rapid ventricular response. Catheter ablation remains a safe and curative intervention, even in selected geriatric patients.

CONCLUSION

The significance of this case lies in the advanced age of the patient and the unusual presentation of preexcited AF, which posed both diagnostic and therapeutic challenges. Despite her age, the patient underwent successful accessory pathway ablation, demonstrating that treatment decisions should prioritize clinical status and arrhythmic risk over chronological age.

This report underscores the importance of considering WPW syndrome in elderly patients presenting with wide-complex irregular tachycardias and highlights catheter ablation as a safe and effective strategy in appropriately selected geriatric populations.

REFERENCES

- I. Page, R. L., Joglar, J. A., Caldwell, M. A., Calkins, H., Conti, J. B., Deal, B. J., ... & Al-Khatib, S. M. (2016). 2015 ACC/AHA/HRS guideline for the management of adult patients with supraventricular tachycardia: a report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines and the Heart Rhythm Society. *Journal of the American College of Cardiology*, 67(13), e27-e115. <https://doi.org/10.1161/CIR.0000000000000311>
- II. Vătăşescu, R. G., Paja, C. S., Şuş, I., Cainap, S., Moisa, Ş. M., & Cintează, E. E. (2024). Wolf-Parkinson-White Syndrome: Diagnosis, Risk Assessment, and Therapy—An Update. *Diagnostics*, 14(3), 296. <https://doi.org/10.3390/diagnostics14030296>
- III. Barat, M., Barba, D. T., & Ho, G. (2025). Wolff-Parkinson-White syndrome: Diagnostic and management strategies. *Cleveland Clinic journal of medicine*, 92(2), 119-127.

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doi:10.3949/ccjm.92a.24059.

<https://doi.org/10.3949/ccjm.92a.24059>

- IV. Klein GJ, Bashore TM, Sellers TD, Pritchett EL, Smith WM, Gallagher JJ. Ventricular fibrillation in the Wolff-Parkinson-White syndrome. *N Engl J Med*. 1979 Nov 15;301(20):1080-5. <https://doi.org/10.1056/NEJM197911153012003>. PMID: 492252.
- V. Takasugi N, Kubota T, Okura H. Wide QRS Complexes in an Asymptomatic Elderly Man With Permanent Atrial Fibrillation. *Circulation*. 2020 May 19;141(20):1656-1661. doi: 10.1161/CIRCULATIONAHA.120.046266. Epub 2020 May 18. PMID: 32421417.
- VI. Bautista, W, Crozier, I, Sorgente, A. Un electrocardiograma que nunca envejece: fibrilación auricular en el contexto de preexcitación auriculoventricular manifiesta. *J Am Coll Cardiol Case Rep*. 2019 Oct, 1 (3) 405–406. <https://doi.org/10.1016/j.jaccas.2019.08.008>.
- VII. Brembilla-Perrot Béatrice Management of Wolff-Parkinson-White Syndrome in the Elderly. *European Cardiology* 2008;4(2):72–4. <https://doi.org/10.15420/ecr.2008.4.2.72>
- VIII. Chen SA, Chiang CE, Yang CJ, Cheng CC, Wu TJ, Wang SP, Chiang BN, Chang MS. Accessory pathway and atrioventricular node reentrant tachycardia in elderly patients: clinical features, electrophysiologic characteristics and results of radiofrequency ablation. *J Am Coll Cardiol*. 1994 Mar 1;23(3):702-8. doi: 10.1016/0735-1097(94)90757-9. PMID: 8113555.