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FIRST PRESENTATION OF ATRIAL FIBRILLATION WITH PRE-EXCITATION SYNDROME IN OCTOGENARIAN

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Palpitation is a symptom of cardiac arrhythmia commonly presented at hospital admission. It has a wide range of clinical importance, from subtle insignificant cardiac ectopic beats to life-threatening cardiac arrhythmias with a risk of sudden cardiac death. Approach to palpitation emphasizes on the identification of its primary cause which relies strongly on the underlying risk factors and age groups. Cardiac arrhythmias due to innate cardiac conductive disorders such as accessory pathway in Wolff-Parkinson-White syndrome tend to present at a younger age while arrhythmias related to ischemic heart disease occur mostly in the elderly population. We report a case of first diagnosed atrial fibrillation in an 81-year-old patient with previously unknown pre-excitation syndrome.

Key words: arrhythmia; preexcitation; tachycardia; palpitation; accessory pathway

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Palpitation is one of the common patient complaints at hospital admission. Beyond insignificant idiopathic cardiac ectopic beats in some subjects, other cases have primary causes of palpitation ranging from dehydration, systemic illnesses such as sepsis, thyroid diseases to disabling structural heart diseases, and arrhythmias may be life-threatening. Thus, the initial approach to patients with palpitation focuses on identification of the primary etiologies by a focused history taking, physical and laboratory examinations, a 12-lead electrocardiogram, and cardiac imaging.

A 12-lead electrocardiogram is one of the most important tools in diagnosing a cardiac arrhythmia. A correct diagnosis from an electrocardiogram allows cardiologists to carry out necessary interventions such as electrophysiological study and ablation of an accessory pathway. On the other hand, a wrong interpretation of an electrocardiogram can lead to incorrect treatment that may result in disastrous outcome including death. A physician should therefore be well trained in interpreting electrocardiograms to ensure appropriate and correct acute management of cardiac arrhythmia before subsequent referral to the cardiac electrophysiologists [1].

The aim of the present case report is to demonstrate the rare case of late preexcitation syndrome diagnosis in an octogenarian hospitalized with first ever atrial fibrillation episode. Since atrial fibrillation against the background of ventricular preexcitation is a potentially life-threatening dysrhythmia, catheter ablation of the accessory pathway

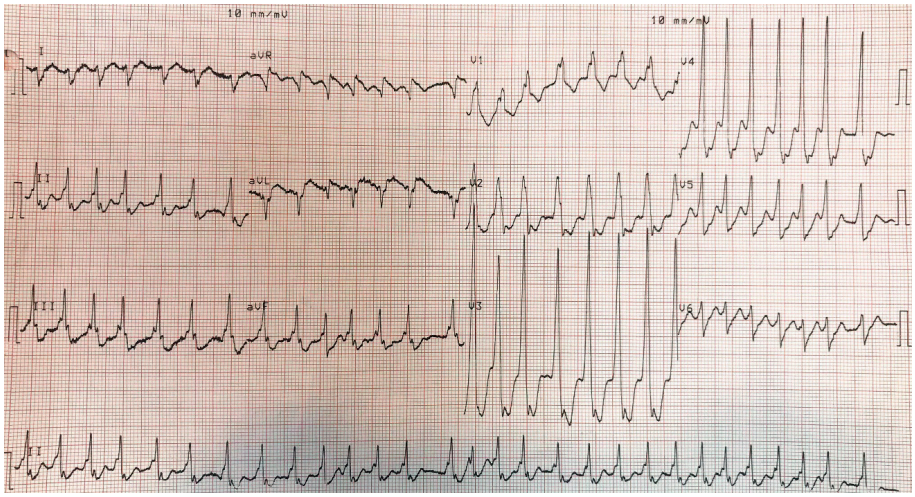

Fig. 1. Electrocardiogram on admission. Electrocardiogram showed irregularly irregular wide-complex tachycardia with slurred upstrokes in QRS complexes with the absence of P wave to suggest atrial fibrillation with pre-excitation.

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should be performed.

An 81-year-old man presented with a two-week-duration of intermittent palpitations. The palpitation episodes had no precipitating factor and were not associated with physical exertions. He had a background medical condition of hypertension and diabetes mellitus, but there was no history of palpitations or other cardiac diseases. Upon presentation, his physical examination revealed irregularly irregular peripheral pulses with a heart rate range from 180 to 200 beats per minute and a blood pressure of 120/70 mmHg. Other systemic examinations were otherwise unremarkable particularly no extra heart sounds and murmurs.

His initial electrocardiogram showed irregularly irregular wide-complex tachycardia with a ventricular rate of 180 beats per minute. There was no P wave observed and the QRS complexes had slurred upstrokes (Fig. 1). A serial electrocardiogram revealed regular wide-complex tachycardia with a ventricular rate of 250 beats per minute representing atrial flutter with 1:1 conduction (Fig. 2), which subsequently reverted spontaneously to sinus rhythm with slurred upstrokes in QRS complexes (Fig. 3). The presence of broad QRS complexes with slurred upstroke representing delta waves suggested the presence of an accessory pathway. The upright QRS complexes in V1 and positive delta waves in all inferior leads suggested the location of accessory pathway was at the lateral wall of the left ventricle. He was not given any atrioventricular nodal blocking agent in view of the risk of ventricular tachyarrhythmia in atrial fibrillation and flutter with pre-excitation.

His blood tests including serum electrolytes, troponin I, and thyroid function test were normal. An echocardiography during sinus rhythm showed good left ventricular systolic function with an ejection fraction of 61% and no regional wall motion abnormalities. The cardiac chambers were normal in size. Invasive electrophysiology study revealed the presence of a left lateral atrioventricular accessory pathway, and inducible atrial flutter with atrioventricular conduction over the accessory pathway. Successful radiofrequency catheter ablation of the accessory pathway was done without complication. The patient was given an oral anticoagulant for stroke prophylaxis in atrial fibrillation and did not have further episodes of palpitation during a 6-months follow-up period.

DISCUSSION

The main finding of our case report is that previously asymptomatic ventricular preexcitation due to atrioventricular accessory pathway may be associated with the development of symptomatic atrial fibrillation and atrial flutter in older ages. Standard and sometimes extended electrocardiographic evaluation may be necessary for correct diagnosis.

The prevalence of Wolff-Parkinson-White pattern on electrocardiogram is estimated to be 0.1% - 0.3% in the general population [2,3]. It is more common in men than in women, with half of the patients being asymptomatic at diagnosis and tend to remain so thereafter [3]. The Wolff-Parkinson-White pattern in an asymptomatic patient may be intermittent and usually disappears permanently later in life [4]. However, elderly patients remain at risk of a dangerous form of Wolff-Parkinson-White and that sudden death may be the first event in an asymptomatic patient [5].

Wolff-Parkinson-White syndrome can manifest as different types of supraventricular arrhythmias, including atrioventricular reciprocating tachycardia (AVRT), atrial fibrillation and atrial flutter [6]. AVRT remains the most common arrhythmia in patient with Wolff-Parkinson-White syndrome [7]. Atrial fibrillation in the presence of accessory pathway is not uncommon and has a prevalence rate of 10-30% [8]. Atrial fibrillation occurs earlier in patients with AVRT compared to those without documented AVRT and is more common in patients with overt Wolff-Parkinson-White syndrome [9]. The prevalence rate of atrial fibrillation in asymptomatic patient with pre-excitation syndrome is 8% [3].

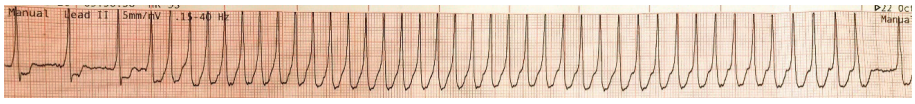

Fig. 2. Electrocardiogram showed regular wide-complex tachycardia representing atrial flutter with 1:1 conduction.

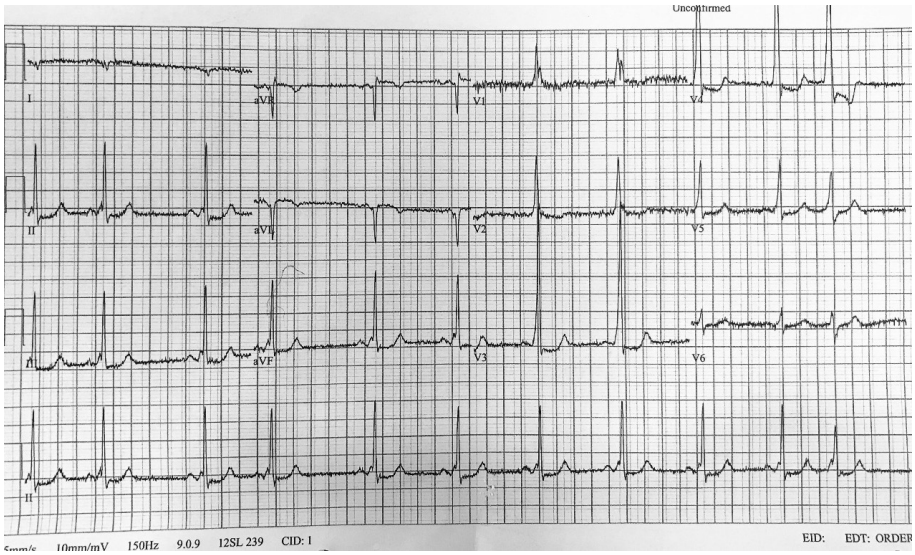

Fig. 3. Electrocardiogram showed sinus rhythm with slurred upstrokes in QRS complexes, which suggested the presence of an accessory pathway.

Atrial fibrillation with pre-excitation is potentially life-threatening as it may degenerate into ventricular fibrillation and result in sudden cardiac death. Treatment with atrioventricular nodal blocking agents such as adenosine, calcium channel blockers, beta blockers and possibly amiodarone are contraindicated as impulses from the atria would preferentially conduct through the acces-

sory pathway to the ventricle, resulting in the degeneration of the rhythm into ventricular fibrillation [10,11]. Hemodynamically stable patients may be treated with procainamide or ibutilide. Synchronized electrical cardioversion is recommended for hemodynamically unstable patients. The treatment of choice in long term is catheter ablation of an accessory pathway [12].

Despite the relative awareness of Wolff-Parkinson-White syndrome among medical doctors, the recognition of atrial fibrillation with pre-excitation syndrome on an electrocardiogram can be challenging. In one survey, electrocardiograms of Wolff-Parkinson-White with atrial fibrillation was identified as Wolff-Parkinson-White in only 18% of the emergency physicians, and only less than 10% were able to identify atrial fibrillation [13]. In our case, the man had remained asymptomatic in the past eight decades with undiagnosed accessory pathway until the current presentation. The differential diagnosis of a broad QRS complex tachycardia includes ventricular tachycardia, supraventricular tachycardia with aberrant atrioventricular conduction, antidromic atrioventricular reciprocating tachycardia, and atrial fibrillation with the presence of an accessory pathway as in our case. A monomorphic ventricular tachycardia was ruled out as the initial electrocardiogram had revealed an irregularly irregular rhythm.

CONCLUSION

Pre-excited atrial fibrillation can be the first form of presentation in a previously asymptomatic individual with an undiagnosed accessory pathway. Prompt recognition of the diagnosis on an electrocardiogram is crucial in managing this potentially fatal arrhythmia.

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