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Case Report

A rare ischemic ventricular tachycardia

Rahul Gudaghe*, Surender Deora

Department of Cardiology, All India Institute of Medical Sciences, Jodhpur, Rajasthan, India

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***Correspondence:**
Dr. Rahul Gudaghe,
E-mail: drrahulgudaghe@gmail.com

ABSTRACT

Many times, physicians in emergency may get confronted with tachycardia. Some tachycardia are easily mistaken as supraventricular tachycardia (SVT) with aberrancy which is actually a ventricular tachycardia. So, here we report a case of such tachycardia which was thought to be a SVT but which, in fact, was a ventricular tachycardia instead.

Keywords: Ventricular, Supraventricular, Tachycardia

INTRODUCTION

Supraventricular tachycardia (SVT) with aberrancy are frequently encountered in emergency. They are easily managed with routine medications if they are correctly identified. But some ventricular tachycardia (VT) mimic as SVT due to some electrocardiographic characteristics. These tachycardia at times do not respond to usual medications. They either require specific drug or electrical cardioversion. So, such tachycardias must be identified correctly so that appropriate treatment can be initiated. Here we report a case of tachycardia which was misdiagnosed as SVT with aberrancy.

CASE REPORT

Here, we have a 72-year-old male with previous history of chronic obstructive pulmonary disease (COPD) and hypertension presented with chief complaint of chest pain for 3 days. On electrocardiogram (ECG) he had ST depression in inferolateral leads on day 1 which reverted to normal in subsequent ECGs (Figure 1). His cardiac biomarkers were normal. Other hemodynamic parameters were within normal limit. His transthoracic echocardiogram (TTE) showed normal left ventricular function with no structural changes. He underwent coronary angiography with revealed triple vessel disease with ectatic coronaries. But on the evening after coronary angiography, he had palpitation and sweating. His vitals were normal. He was conscious and talking. His ECG showed tachycardia with heart rate of 169/min with right bundle branch block (RBBB) pattern and left axis deviation (LAD) (Figure 2). As he was a case of COPD, it was thought to be of SVT with aberrancy. He was given IV adenosine 6 mg two doses followed by IV metoprolol 5 mg. This was not successful. It was followed by IV amiodarone 150 mg over 10 min. But that was also not successful in reverting (Figure 3). So, he was given a synchronised direct current (DC) of 150J which reverted the rhythm to sinus (Figure 4).

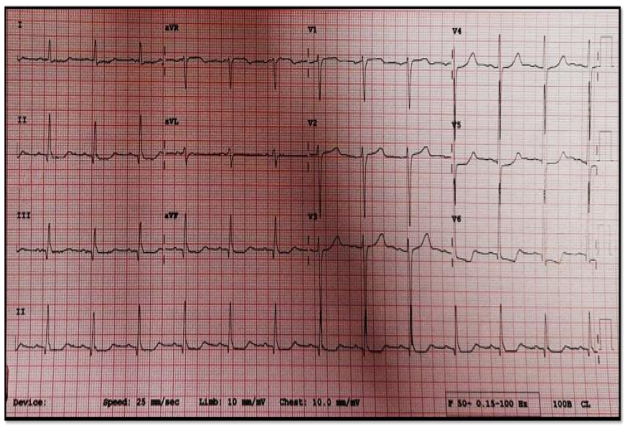

Figure 1: 12 lead ECG of the patient on admission.

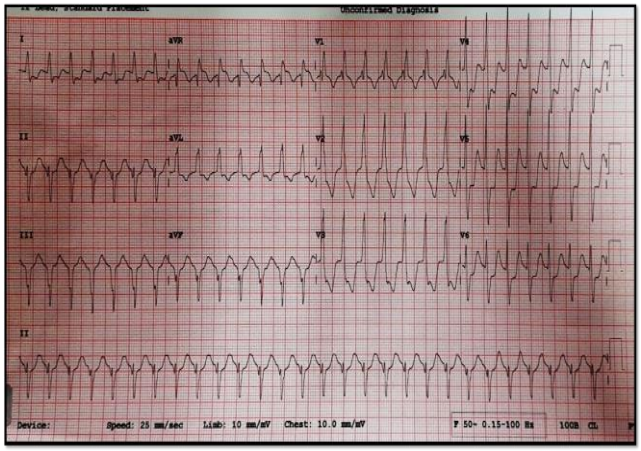

Figure 2: 12 lead ECG of the patient in evening day 2.

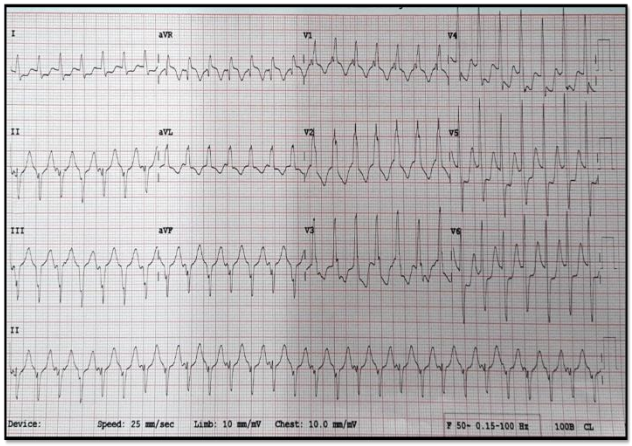

Figure 3: 12 lead ECG of the patient after IV amiodarone.

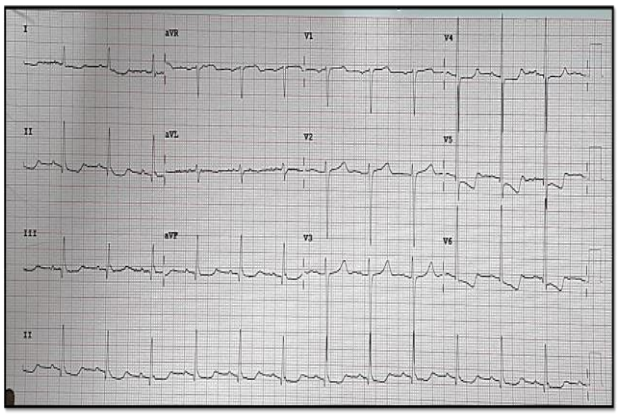

Figure 4: 12 lead ECG of the patient after DC cardioversion.

DISCUSSION

SVT with aberrant conduction is easily mistaken as ventricular tachycardia in emergency. Although there are various criteria to differentiate between these two entities, these criteria are difficult to remember for an emergency physician and they are none is accurate.[1] Amiodarone and DC shock usually reverts most of tachycardia. But some VT appear as narrow complex and easily mistaken as SVT.[2] This is because, VT in such cases utilise the His-Purkinje system for conduction. In such cases, clinical scenario also adds to the diagnostic clue. Generally, such patients are young male without any structural heart disease. Here in our case, the patient was an old male with hypertension, COPD and CAD. Although, there was no structural heart disease identified at TTE, his tachycardia was thought to be a SVT with RBBB and LAD, as it was a narrow complex tachycardia. As it was not a wide complex tachycardia typical of VT, ischemic VT was also not thought of. But when, despite adenosine, metoprolol and amiodarone, his rhythm was not reverted and which was only reverted with DC shock, he was suspected to have VT. As electrophysiology was not available, the source of arrhythmia was not found, but his ECG was re-evaluated and literature was searched. It was found that in patients with narrow complex tachycardia, fascicular VT should be kept as a differential as they respond differently.[3] The most common is left ventricular posterior fascicular VT (LVPfVT) which presents as relatively narrow complex tachycardia with RBBB and LAD. The features for differentiation from SVT was given by Michowitz et al (Figure 5).[4]

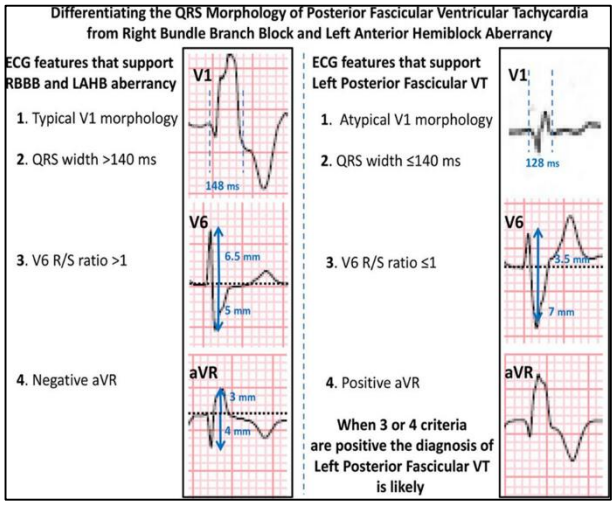

Figure 5: Difference between SVT with RBBB and LAD and LVPfVT.[4]

In our patient with positive aVR, QRS <140 msec and atypical V1 morphology 3 out of 4 criteria was met and so it was a LVPfVT (Figure 2). Although LVPfVT occur in young male with structurally normal heart, but there are case reports of such tachycardia in patients with ischemic heart disease (IHD) also similar to our case.[5] A 2006 study by Bogun et al confirmed the involvement of Purkinje fibres in post-infarction ventricular tachycardia which had narrow QRS complexes.[6] So, this suggests that LVPfVT can occur in patients with (IHD). Hence, it must be kept in mind in emergency if such tachycardia is confronted with. This is because, such VT responds only to Verapamil and DC cardioversion. The mechanism is

re-entry. Our patient was advised for CABG and discharged with antiplatelets and verapamil and also advised electrophysiology and ablation in follow up.

CONCLUSION

Fascicular ventricular tachycardia mimics as SVT but do not respond to usual medications. They respond to verapamil. So, it is important to consider diagnosis of fascicular ventricular tachycardia in patients presenting with SVT with aberrancy.

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