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Rapidly Worsening Left Ventricular Systolic Function and in Hospital Ventricular Fibrillation After Permanent Pacemaker Implantation – Is There a Missing Link?

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Keywords: Pacing induced cardiomyopathy, Ventricular fibrillation, Cardiac sarcoidosis

A 52-year-old-lady presented with recurrent syncope. Her baseline ECG is shown in Fig. 1A. Echocardiography was normal. Her detailed neurological and cardiac evaluation including coronary angiogram revealed no abnormality. After 2 months, she had a recurrence of syncope. This time ECG revealed bundle branch block and a high grade AV block (Fig. 1BC). She underwent dual chamber pacemaker implantation (Fig. 1D) but within the next 3 months she had rapid worsening heart failure (NYHA III-IV) and severe LV systolic dysfunction. She recently experienced a presyncope again. A plan for upgradation to cardiac resynchronisation therapy (CRT) was made after stabilisation. Meanwhile, she had an in-hospital ventricular

fibrillation (VF) requiring immediate cardioversion (Fig. 1E). Next day, she underwent CRT-D implantation uneventfully. A PET-CT scan showed significant cardiac inflammation (Fig. 1F) and PET-avid cervical lymph nodes, biopsy from which confirmed sarcoidosis. She improved on optimal medical therapy, anti-arrhythmic drugs and steroids. There is no recurrence of VF in the last 5 months.

This case highlights the dynamic nature of ECGs in cardiac sarcoidosis and the preponderance of VF among them. Initial ECG changes can be intermittent/non-specific (1A). A subset of pacing induced cardiomyopathy can actually have underlying cardiac sarcoidosis. High index of suspicion and timely intervention can prevent fatal outcomes.

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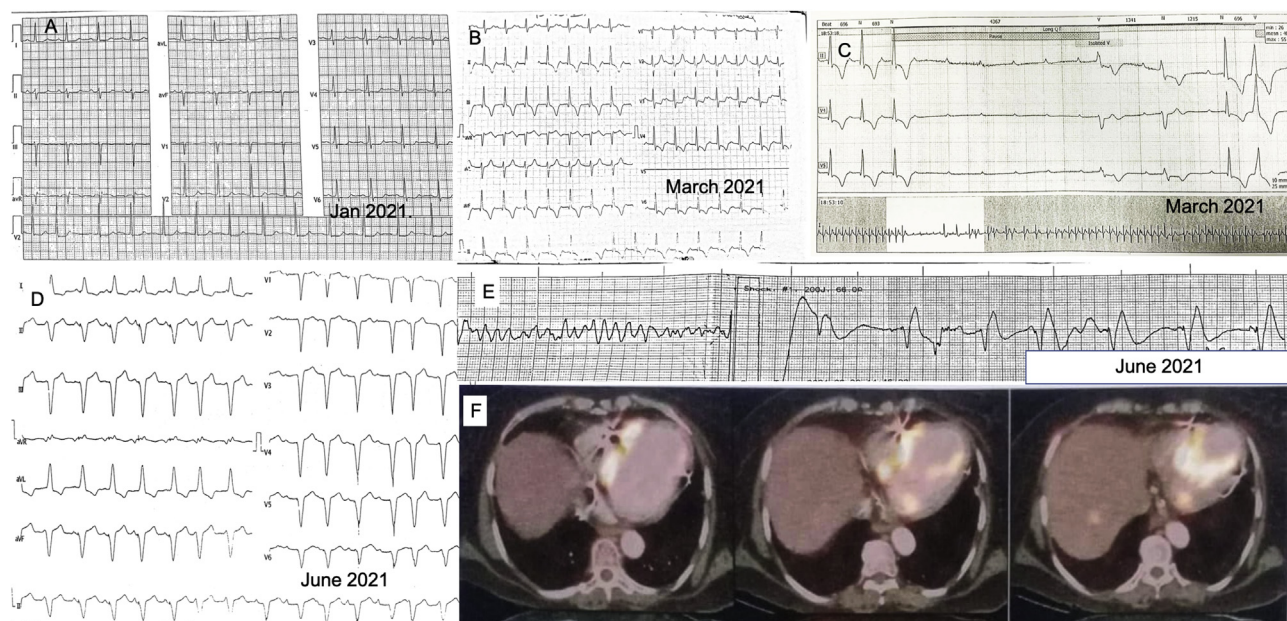


Fig. 1. A- Baseline ECG at initial presentation. B- ECG after 2 months showing bundle branch block and ST-T changes. C- High grade AV block documented during the same admission. D- ECG showing A(sensed)-V(paced) rhythm after dual chamber pacemaker implantation. E- ECG showing VF 3 months of her pacemaker implantation when she was admitted with heart failure with reduced ejection fraction. F- PET-CT scan revealed myocardial inflammation.

Author contributions

Conception and design of Study: Debabrata Bera, Subir Ghose. Literature review: Debabrata Bera, Subir Ghose, Koushik Dasgupta. Acquisition of data: Debabrata Bera, Subir Ghose. Analysis and interpretation of data: Ayan Kar, Koushik Dasgupta. Research investigation and analysis: Ayan Kar, Koushik Dasgupta. Data collection: Debabrata Bera, Subir Ghose. Drafting of manuscript: Debabrata Bera. Revising and editing the manuscript critically for important intellectual contents: Debabrata Bera, Subir Ghose, Ayan Kar, Koushik Dasgupta. Data preparation and presentation: Debabrata Bera, Subir Ghose, Ayan Kar, Koushik Dasgupta. Supervision of the research: Debabrata Bera, Subir Ghose.

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Data availability statement

All raw data during the case are available for review.

Conflict of interest

None.

Consent has been taken from patient.