

Hole in Heart: An Unexpected Cause of Pleuritic Chest Pain

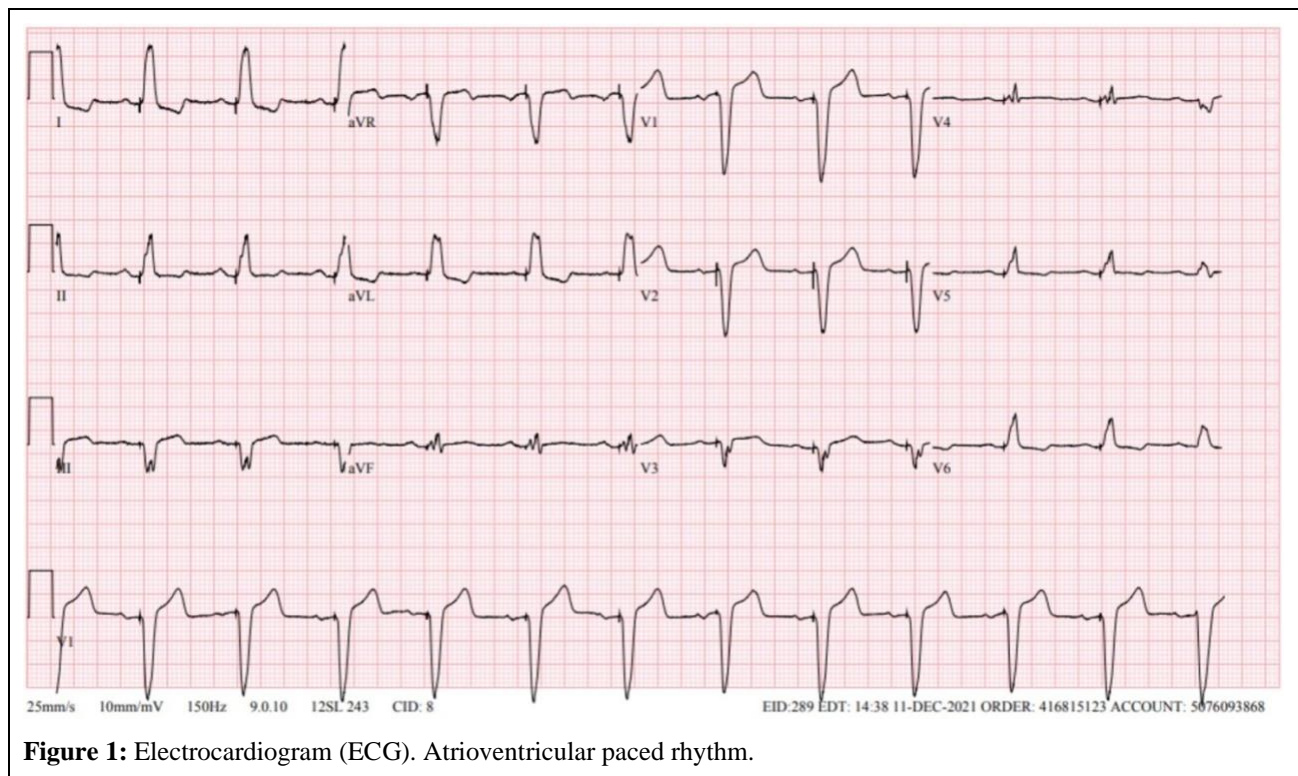
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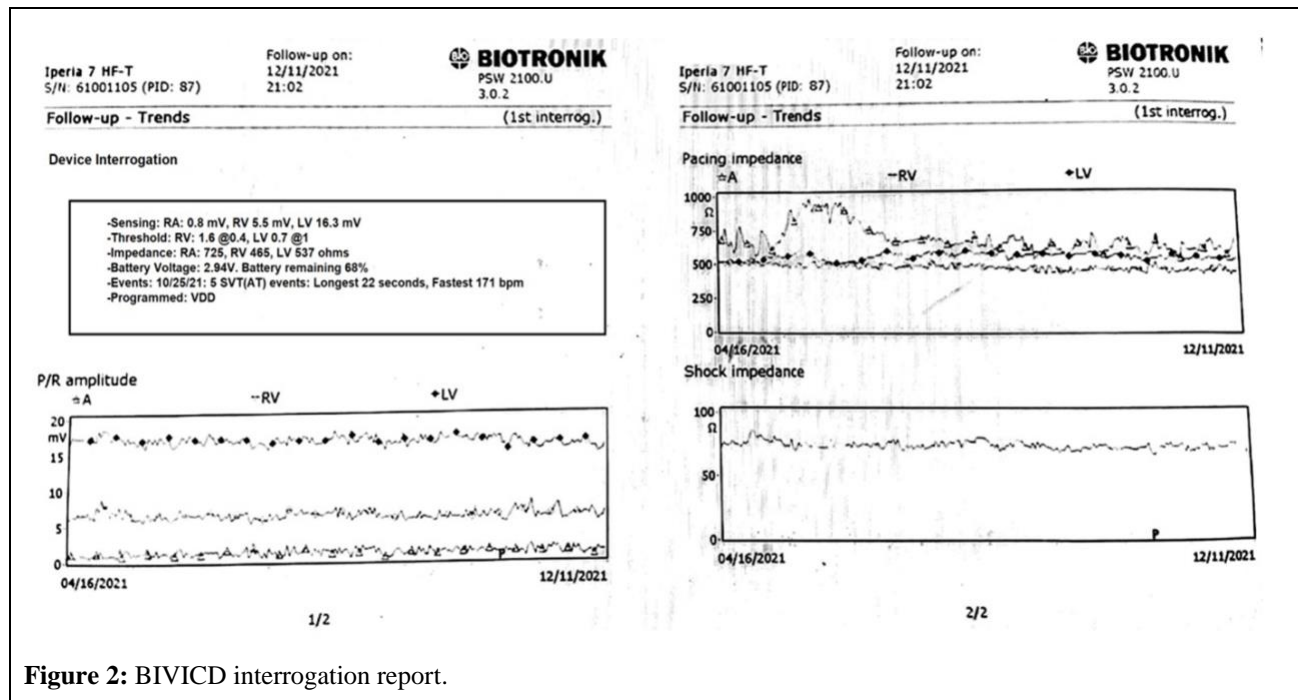


Figure 2: BIVICD interrogation report.

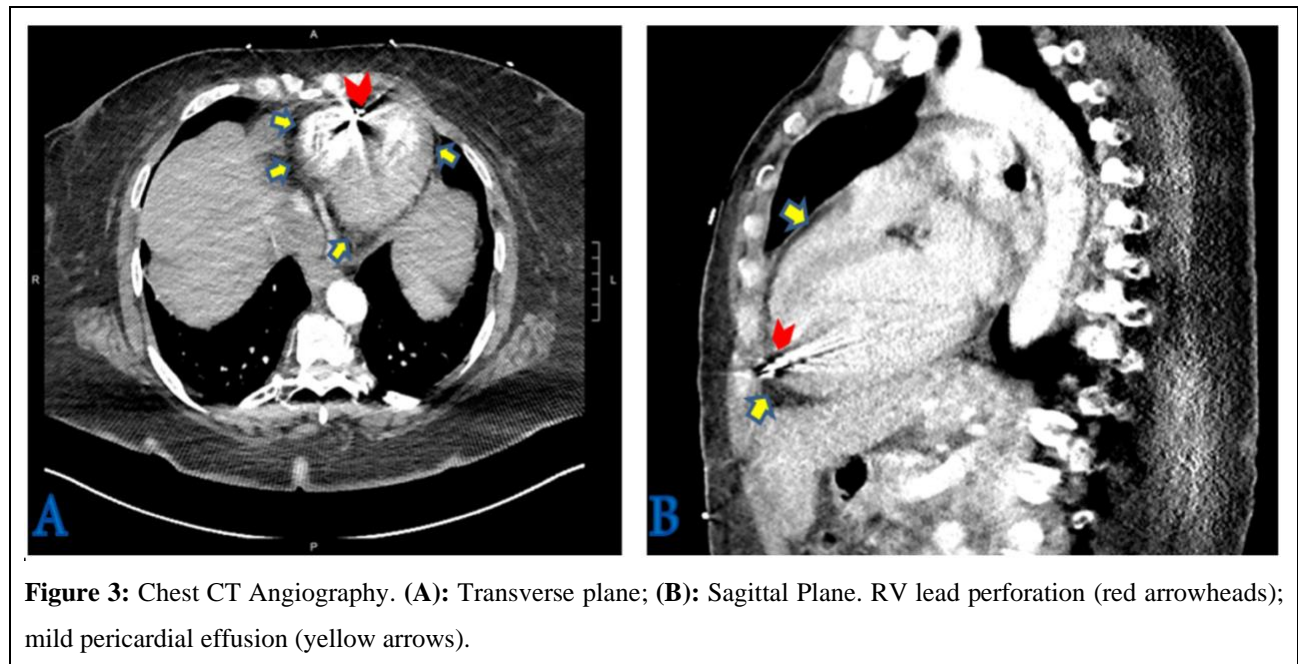


Figure 3: Chest CT Angiography. (A): Transverse plane; (B): Sagittal Plane. RV lead perforation (red arrowheads); mild pericardial effusion (yellow arrows).

Clinical Image

A 51-year-old female, after a recent long trip, presented with pleuritic chest pain, palpitations, and headache. The pleuritic chest pain radiated to her back and left clavicle and was worsened with movement or coughing. Her medical history was significant for heart failure with reduced ejection fraction (HFrEF) status post implantation of a biventricular implantable cardioverter-defibrillator (BIVICD) in April 2019. On physical examination, vital signs were normal on ambient air.

The remainder of the examination was unremarkable. Labs revealed negative Troponin T x3. The Electrocardiogram documented atrioventricular paced rhythm (Figure 1). Interrogation of the BIVICD (Biotronik Iperia 7HF-T) demonstrated normal pacing, sensing, and impedance measurements in all leads (Figure 2). The routine protocol of CT angiogram of the chest, abdomen, and pelvis demonstrated no evidence of aortic dissection, pulmonary embolism, or pneumonia. Surprisingly, however, it showed perforation of the right ventricle (RV) lead into the pericardial space with mild pericardial effusion, the presumed cause of the patient's pleuritic chest pain (Figures 3A and 3B). While lead perforations typically occur early after implantation, delayed perforations, defined as those beyond 4 weeks post implantation (with most being reported at 6-10 months) are not frequent [1,2] but need to be considered in the differential diagnosis of pleuritic chest pain in individuals with implanted cardiac devices. In our patient, the perforation was clinically recognized at 32 months which is not the usual time frame suggested by the literature. Moreover, our case shows diagnosing delayed lead perforation during routine device interrogation could be challenging and the finding of normal lead measurements does not necessarily rule out perforation. The patient was ultimately transferred to the tertiary care center where the device was originally placed for further evaluation and management.

REFERENCES

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2. Khan MN, Joseph G, Khaykin Y, et al. Delayed lead perforation: A disturbing trend. *Pacing Clin Electrophysiol.* 2005; 28: 251-253.