

# Atrial Electrical Silence Presenting as Seizures in the CCU

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## Abstract

A 54-year-old Hispanic female is admitted to the hospital, for hypoglycemia and complaints of nausea and vomiting, secondary to fecal impaction. During her hospital stay, the patient was found to have episodes of sustained run of narrow complex, regular tachycardia, with no clearly discernible atrial activity, and termination of which was followed by prolonged sinus node recovery and bradycardia. We describe the management of that patient.

## CASE REPORT

A 54-year-old Hispanic female is admitted to the hospital, for hypoglycemia and complaints of nausea and vomiting, secondary to fecal impaction. She is status post CABG and Mitral valve repair one week ago.

The patient has a past medical history, significant for Sick Sinus Syndrome, Coronary Artery Disease, Congestive Heart Failure, Mitral Regurgitation, End Stage Renal Disease on Hemodialysis, Diabetes Mellitus, Hypertension, Bronchial Asthma, Hypothyroidism, Peripheral Vascular Disease and History of stent placement, 2 years ago, and cataract surgery 5 years ago.

The patient had Troponin I of 2.52 on presentation and developed bradycardia with junctional rhythm and hypotension during inpatient hemodialysis, and was admitted to Cardiac Care Unit for cardiac evaluation and management of sick sinus syndrome.

During her hospital stay, the patient was found to have episodes of sustained run of narrow complex, regular tachycardia, with no clearly discernible atrial activity, and termination of which was followed by prolonged sinus node recovery and bradycardia.

### Figure 1



On the 3<sup>rd</sup> day of her CCU stay, the patient developed an episode of tachycardia at rate of nearly 150 bpm. The EKG strip revealed a narrow complex, regular tachycardia with no appreciable P waves. The patient also had hypotension of 92/21 mm Hg and was having no active complaints.

### Figure 2



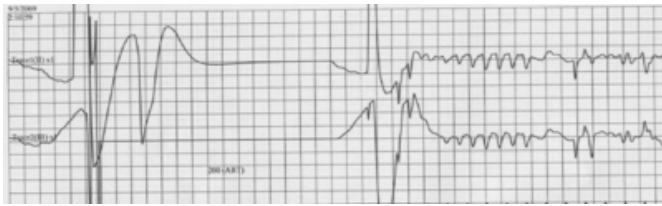
As seen above, the tachycardia resolved by itself, and was followed by a pause of about one second, broken by a junctional beat with no discernible P wave. The rate and rhythm that followed was junctional in origin and bradycardic, which lasted for the next 18 seconds.

### Figure 3

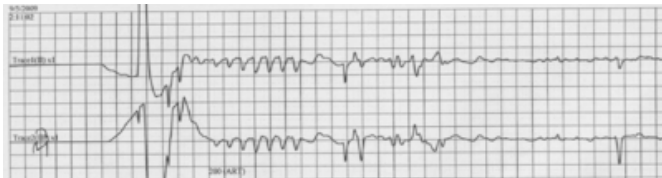


The patient became unresponsive by the end of this 18-second period, and started showing seizure activity in all of her extremities associated with rolling up of her eyes. The junctional rhythm was replaced by a fibrillatory rhythm, which lasted for another 15 seconds. The patient's pulse rate, SPO2 and Blood pressure was not measurable on the monitor.

**Figure 4**



**Figure 5**



By the time, the team could initiate a code blue, fibrillatory rhythm was replaced by a regular rhythm with each QRS complex preceded by a P wave. The patient's pulse rate, blood pressure and SpO<sub>2</sub>, returned to baseline, with the following rhythm.

**Figure 6**



That morning, the patient was taken to the OR for Dual Chamber Permanent pacemaker placement. During the pacemaker programming, sinus recovery time was found to be approximately 9 seconds, which is significantly longer

than normal recovery time, thus supporting the diagnosis of Sick Sinus Syndrome.

**Figure 7**



## LEARNING OBJECTIVES

### THE ABOVE-MENTIONED CASE REPORT HIGHLIGHTS THE NEED TO CONSIDER:

- 1) Tachycardia induced suppression of nodal rhythms.
- 2) Transient recurrent episodes of atrial arrhythmias can cause reverse electrical remodeling of the sinus node.
- 3) Importance of considering reversible causes of seizure.
- 4) Diligence in the use of negative chronotropic medications.

## References

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