



## Unusual Presentation Of Complete Heart Block - Emergency Medicine Resuscitation In Indian Perspective

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### Abstract

48year old gentleman with hypertension presented to the emergency with 2 episodes of seizures and postictal drowsiness. Initial clinical assessment and ABG were non-contributory. ECG showed sinus rhythm with bifascicular block. He was treated conservatively with IV fluids, IV PPI, IV Ondansetron and IV Levetiracetam. But he suddenly had an episode of witnessed cardiac arrest. CPR was started as per ACLS protocol. ROSC was achieved. ECG showed complete heart block. His haemodynamic parameters were unstable. Urgent bedside transvenous temporary pacemaker implantation was done in Emergency Department with help of surface anatomy and point of care ultrasound. Adequate paced rhythm was achieved. His haemodynamic parameters normalised. Later, permanent pacemaker implantation was done. He was discharged 2 days later after observation in a normal condition. He had an uncomplicated hospital stay after temporary pacemaker implantation. Hence, we present a case of sudden cardiac arrest in Emergency treated with pacemaker implantation by Emergency physician and had a favourable outcome.

**Keywords:** Complete Heart Block, Stoke Adams Syndrome, Temporary Transvenous Pacemaker, POCUS

### Introduction

Stoke Adams Syndrome is sudden, brief loss of consciousness with a large drop of cardiac output [1]. The association of syncope and seizure with a slow pulse in this disorder is due to ventricular standstill secondary to failure of idioventricular pacemaker in advanced or complete heart block [2]. Diagnosis is based on ECG recording during an active episode and should be done in hospital as it is a life-threatening disease. Pacemaker implantation should be done urgently for treatment [3]. Insertion of temporary transvenous pacemaker (TTPM) is an essential procedure for patients with impaired hemodynamics, life-threatening bradyarrhythmias and is one of the most common life-saving interventions performed in the emergency department (ED) [4].

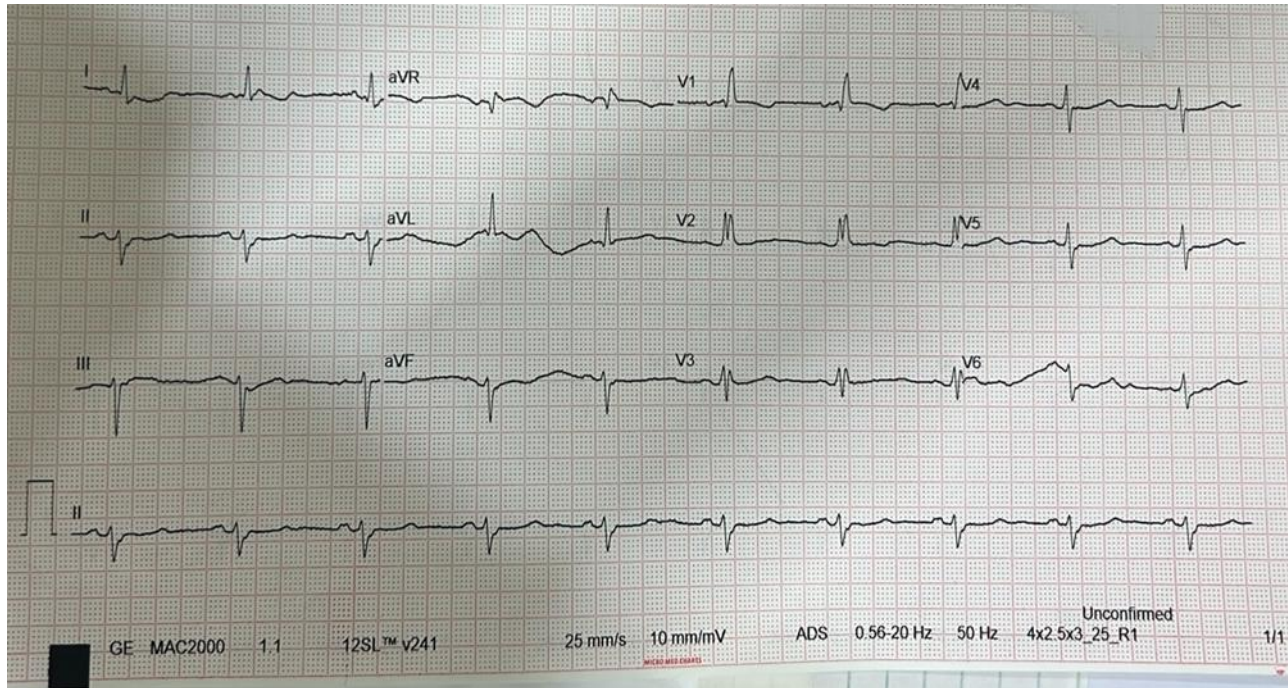
### Case Report:

48year old gentleman with hypertension on medications, presented to the Emergency with complaints of 2 episodes of transient loss of consciousness followed by convulsive movements and drowsiness in the last 12 hours. His family members did not complain of similar episodes in the past. On clinical examination, he was drowsy but arousable and was following commands. Vital parameters showed Pulse rate 60/min, Respiratory rate- 18/min, Blood Pressure 110/70 mm Hg, SpO<sub>2</sub> 98% in room air. Other general and systemic examination findings were normal.

ECG showed sinus rhythm with bifascicular block. ABG showed pH- 7.36, PaO<sub>2</sub>- 75, PaCO<sub>2</sub>- 38, Sodium- 136, Potassium 3.8, Lactate-2. He was treated conservatively primarily with IV

Levetiracetam, IV Fluids, IV PPI, IV antiemetic and other supportive medications. He was planned for NCCT Brain and 2D Echocardiography.

### Ecg During Admission



But he suddenly had an episode of witnessed cardiac arrest. CPR was started as per ACLS protocol. ROSC was achieved after 4 cycles of CPR. Airway was protected with Endotracheal intubation and he was put on AC/VC ventilation. Repeat ECG showed Complete Heart Block. Vitals were unstable- Pulse rate- 32/min, Blood Pressure- 70/40 mm Hg. Repeat ABG showed metabolic acidosis with high lactate and normal electrolytes. Cardiology opinion taken.

### Ecg After Cardiac Arrest

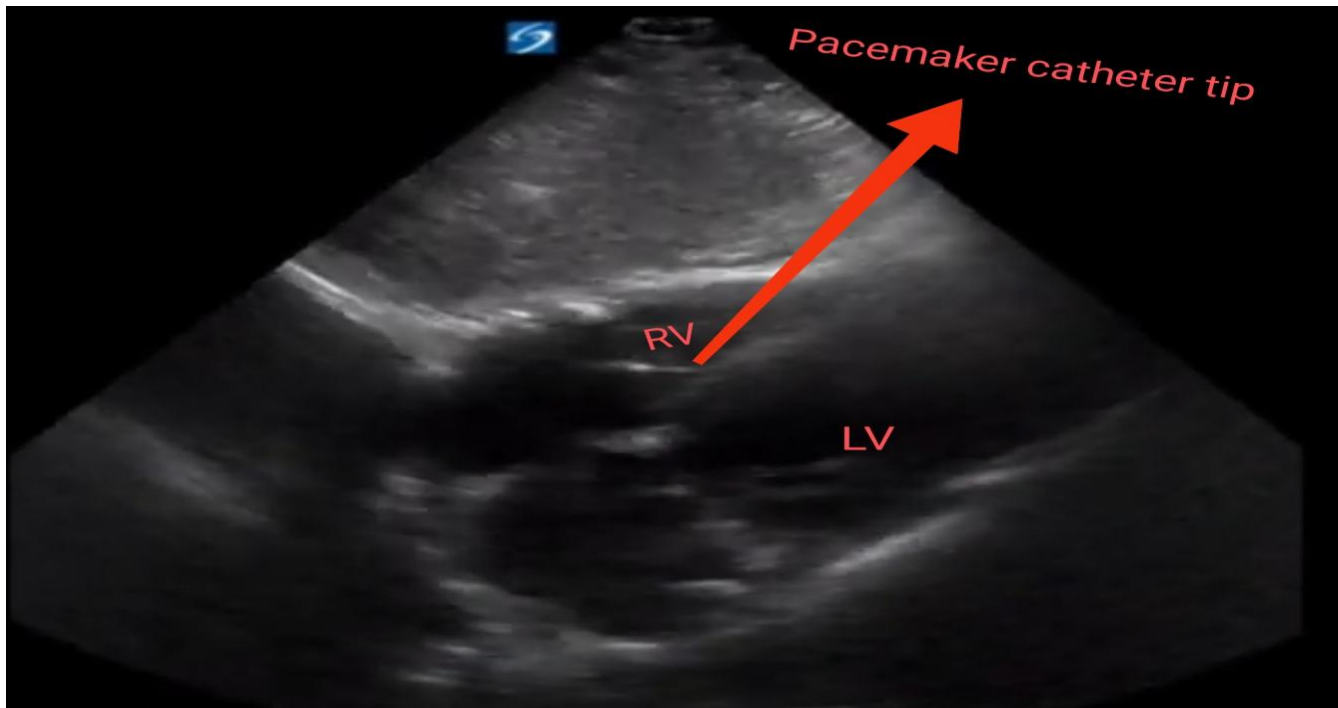


He underwent urgent bedside transvenous temporary pacemaker insertion, done via femoral vein using surface anatomy and point of care ultrasound (POCUS) showing subxiphoid 4 chamber view for proper placement of pacemaker tip by Emergency Medicine team. Pacemaker tip was safely and accurately placed in right ventricular, under ultrasound guidance. Adequate paced rhythm was achieved. His vital normalised; Pulse rate- 64/min,



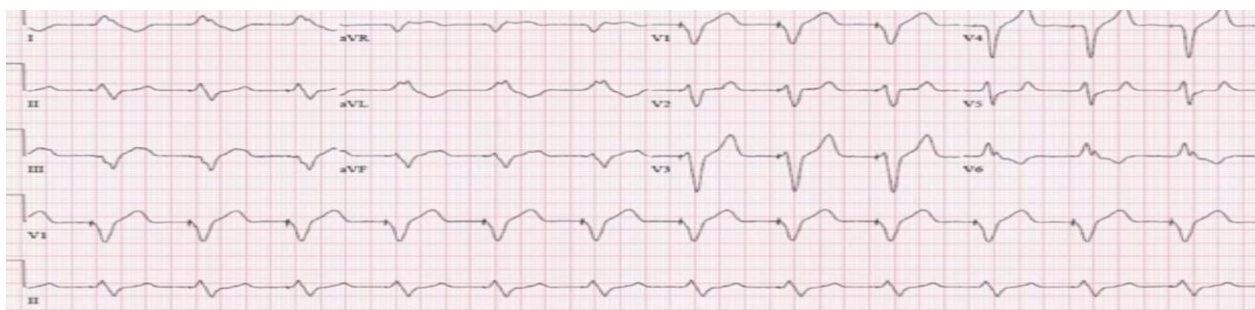
Blood pressure- 120/70 mm Hg. His sensorium improved. He was taken to cath lab for temporary pacemaker position confirmation which was optimal.

### Subxiphoid Four Chamber View (POCUS)



Routine blood investigations showed- Haemoglobin- 12.2, TLC- 9000, Platelet- 1.6lac, Creatinine- 1.4, Sodium- 138, Potassium- 4.3, Magnesium- 2.1, TSH- 1.7. NCCT Brain and 2D Echocardiography was normal. He was extubated the following day. On the same day, he underwent permanent pacemaker implantation and temporary pacemaker was taken out. He had an uncomplicated hospital stay and was discharged 2 days later after observation. He has now returned to his normal daily life.

### Paced Rhythm Ecg



### Discussion:

Stoke Adams Syndrome is associated with a very high mortality rate of at least 50% if not treated urgently with pacemaker implantation. If acute emergency is managed well, outcome is usually good [5]. Temporary transvenous pacing is traditionally used to stabilize patients with haemodynamically

unstable bradyarrhythmias [6]. In a study from Turkey by Senturk et al, it has been found that emergency Temporary pacemaker implantation in patients is associated with better outcome by reducing exposure time to hypoperfusion of vital organs. There were no complications associated with the procedure [7]. In a study by Birkhahn et al, it was found that for emergency temporary transvenous

pacing, proficiency of Emergency Medicine physicians and Cardiologists were the same [8].

Our patient had an episode of cardiac arrest, was revived but he was having complete heart block with unstable haemodynamic parameters when pacemaker was put in by Emergency Medicine team. We also like to highlight the use of Point of Care Ultrasound technique, as guide which was used here for proper placement of pacemaker tip placement in right ventricle, which enhances safety and efficacy of the procedure. He had an uneventful hospital stay after pacemaker implantation and he is back to normal life after discharge.

In the absence of specialist Cardiologist, patients undergoing a clinical course like our patient would have succumbed if aggressive resuscitation including beside TTPM were not done. Availability of a specialist cardiologist is sometimes difficult specially in the suburbs and due to high patient load.

#### **Conclusion :**

This report signifies the importance of Emergency Medicine as a specialty. In India, Department of Emergency medicine is still in an infant stage of development. Currently, interventions like these in Emergency is done in a few selected places including our centre in Eastern India. We want to highlight the role of efficient and effective teamwork at emergency department which can lead to better outcome even in cases of high risk of mortality. We also like to highlight the role of "Point of Care Ultrasound" which can help in safe and accurate placement of pacemaker tip in right position with minimal risk of complication, which can be of great use at centers without cathlab. Appropriate measures should be taken so that emergency medicine physicians are given the infrastructure, adequate training and encouraged so that practice like this becomes a routine in India.

#### **Ethical Approval**

Informed consent taken from patient. All authors have read the manuscript and agreed for publication.

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