



Case Report

# A shock, a silence, a pulse – the revival after electrocution

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## Abstract

**Background:** Electrical injuries represent some of the most sudden and devastating emergencies in the Emergency Department. A momentary contact with current can halt both heartbeat and breath, demanding immediate, structured resuscitation. Early defibrillation, uninterrupted CPR, and adherence to ACLS algorithms remain the cornerstones of survival.

**Case Presentation:** A 32-year-old electrician sustained a high-voltage electrocution and arrived pulseless, cyanotic, and in ventricular fibrillation (VF). Resuscitation began instantly following ACLS protocol – three shocks of 200 J each, four cycles of high-quality CPR, intravenous adrenaline 1 mg per cycle, and 300 mg amiodarone IV bolus for refractory VF. After twenty relentless minutes, return of spontaneous circulation (ROSC) was achieved. Post-ROSC management included airway protection with intubation, ventilatory support, correction of severe metabolic acidosis, fluid resuscitation, and noradrenaline infusion for persistent hypotension. Bedside echocardiography revealed a stunned myocardium (EF ≈ 30 %). The patient underwent Targeted Temperature Management and achieved full neurological recovery by day 3.

**Summary:** Structured, algorithmic resuscitation can turn electrocution-induced cardiac arrest into survival when guided by persistence and teamwork.

**Conclusion:** This case highlights that even in the silence following electrocution, structured teamwork and disciplined adherence to resuscitation algorithms can restore life and rhythm. The ABCDE approach provided order amid chaos, proving that timely defibrillation and sustained effort can revive both the pulse and the possibility of survival.

**Key words:** Antibiotic stewardship; Antibiotic prescribing pattern; Neonatal

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## 1. Introduction

Electrical injuries strike with both violence and silence—a flash, a fall, and the sudden stillness of a heart. In the Emergency Department, these events demand both science and composure. Mortality in electrocution is primarily due to ventricular fibrillation and asystole precipitated by direct myocardial depolarization. Prompt defibrillation and uninterrupted CPR determine outcomes. This case illustrates how early recognition, algorithmic action, and coordinated teamwork turned a cardiac arrest into a story of revival.

### 1.1. Case Presentation

A 32-year-old male electrician was brought to the ED after a high-voltage electrocution. On arrival, he was unresponsive, pulseless, and cyanotic. The monitor revealed ventricular fibrillation (VF).

Resuscitation began at 09:50 a.m., following ACLS protocol:

- Three defibrillations (200 J each)
- Four cycles of high-quality CPR
- Intravenous adrenaline 1 mg per cycle
- Amiodarone 300 mg IV bolus for refractory VF

After 20 min of continuous effort, return of spontaneous circulation (ROSC) was achieved. The patient was intubated and mechanically ventilated, ensuring airway protection and oxygenation.

Post-ROSC management

- 3 L crystalloids administered
- Sodium bicarbonate and dextrose to correct acidosis and hypoglycemia
- Central venous line placed for guided resuscitation
- Noradrenaline infusion for persistent hypotension

### 1.2. Investigations

Arterial blood gas (ABG) revealed severe mixed acidosis: pH 6.91,  $\text{HCO}_3^-$  9 mmol/L,  $\text{pCO}_2$  54 mmHg, Lactate 10.9 mmol/L, Glucose 64 mg/dL.

Bedside echocardiography showed a stunned myocardium ( $\text{EF} \approx 30\%$ ), consistent with post-electrocution depression.

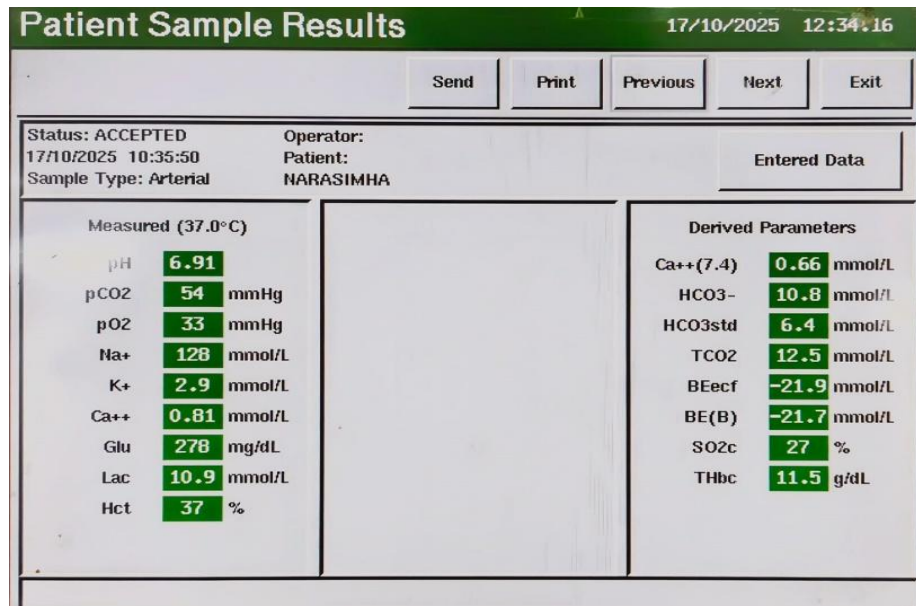


Fig (1): Arterial blood gas showing profound acidosis, post glucose correction

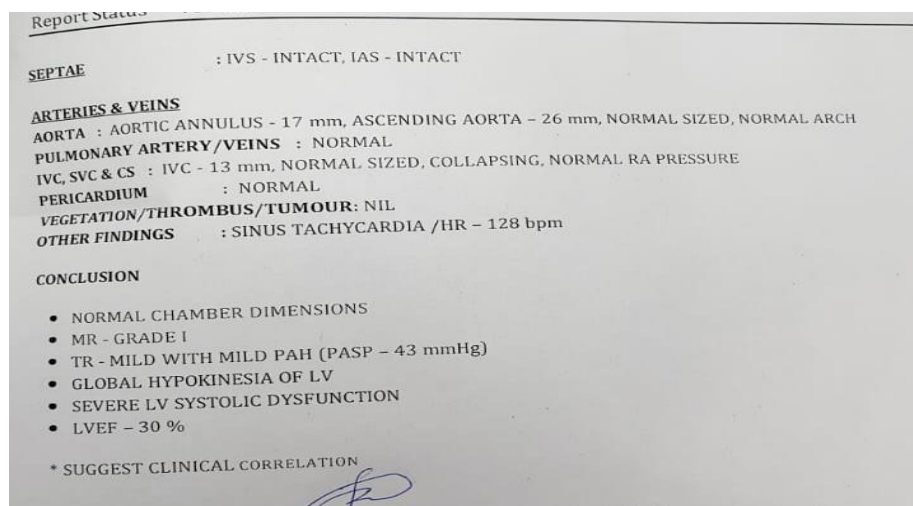


Fig (2): Echocardiography image showing EF ~ 30 %

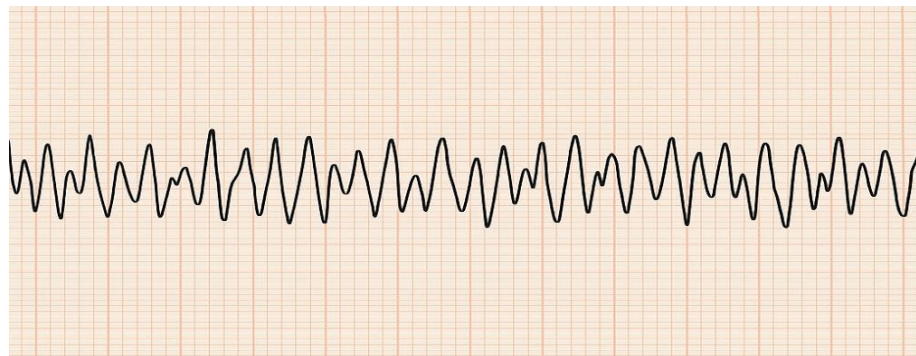


Fig (3): Initial Ventricular fibrillation ECG strip

## 2. Discussion

Electrical injury is a trauma where internal insult often exceeds visible damage. Cardiac arrhythmias—especially VF—are the leading cause of death in high-voltage exposures. Early defibrillation and uninterrupted CPR are pivotal.

The ABCDE approach remains the compass in chaos:

- A (Airway): Secured with intubation.
- B (Breathing): Mechanical ventilation corrected hypoxia and acidosis.
- C (Circulation): CPR, defibrillation(200J), Adrenaline, and Amiodarone(300mg) re-stored perfusion.
- D (Disability): Pupillary reactivity and consciousness tracked neurological recovery.
- E (Exposure): Entry and exit burns mapped current pathways.

Severe metabolic acidosis and myocardial stunning are reversible with early targeted intervention and post-ROSC care. This case underscores the synergy between rapid recognition, disciplined protocol, and cohesive teamwork.

## 3. Conclusion – The Poetry of Survival

Between electricity and eternity stood the Emergency Department. Three shocks, four cycles, twenty minutes of faith — and the void gave way to rhythm.

In that storm of alarms and silence, medicine turned to art. Hands became hope, and protocol became prayer. When the monitor found its beat again, the room stood still not in fear this time, but in reverence for what endurance can revive.

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