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CASE REPORTS

CPR-INDUCED CONSCIOUSNESS FROM THE PATIENT PERSPECTIVE: A CASE REPORT

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ABSTRACT

Background: Cardiopulmonary resuscitation-induced consciousness (CPRIC) is increasingly recognized during high-quality chest compressions, but the patient's lived experience is under-reported.

Case: A 70-year-old man collapsed from witnessed ventricular fibrillation (VF) arrest. Bystanders began CPR within two minutes; EMS arrived at ten minutes. During compressions he displayed eye opening, groaning, lateral rolling, and purposeful localization that intermittently impeded compressions. Airway adjuncts were limited by trismus; bilateral nasopharyngeal airways and two-person bag-valve-mask ventilation were used. Three 200 J shocks were delivered; return of spontaneous circulation occurred approximately 17 minutes after collapse.

Patient perspective: Post-event he described vivid, dream-like awareness of being restrained and struggling to breathe described as "almost like being buried alive" without sound or ability to communicate. He recalled sharp left tibial pain with intraosseous access, the road journey, and emergency department handover.

Outcomes: Coronary angiography showed no obstructive disease. An implantable cardioverter-defibrillator was placed. He was discharged neurologically intact.

Conclusion: Patients may form explicit and distressing memories during CPR and early post-ROSC. Anticipatory communication, rapid recognition of interfering CPRIC, and titrated sedation/analgesia may improve care while preserving CPR quality. Systems should include structured follow-up to address psychological sequelae.

CASE REPORT

On a weekday morning in February 2026, paramedics were dispatched to a cardiorespiratory arrest involving a 70-year-old male. Response time of the first paramedic was ten minutes. The patient was witnessed by three bystanders collapsing. The patient later recalled that he had "suddenly felt very lightheaded" immediately prior to losing consciousness. Effective cardiopulmonary resuscitation (CPR) commenced by bystanders two minutes after collapse prior to ambulance arrival.

The patient had a past medical history of hypertension and type 2 diabetes mellitus (T2DM). He had a known left bundle branch block (LBBB) on prior EKGs, confirmed on hospital admission.

Apart from brief lightheadedness immediately before collapse, he denied chest pain, palpitations, dyspnea, or previous syncope. Regular medications included aspirin, cholecalciferol, metformin, and latanoprost. There was no family history of premature sudden cardiac death in a first-degree relative.

A single paramedic was applying defibrillation pads on arrival of a second crew member. Initial rhythm was coarse ventricular fibrillation (VF). Manual CPR continued per high-performance CPR principles, and anterolateral pads delivered 200 J biphasic defibrillation.

During compressions the patient exhibited features consistent with CPR-induced consciousness (CPRIC), including eye opening and blinking, groaning, attempts to roll laterally, and purposeful localization to the sternum. Neurological assessment recorded a maximum Glasgow Coma Scale (GCS) score of 9 (E2, V2, M5) in the absence of palpable pulses. Motor agitation intermittently impaired compression efficacy. The patient later described his recollections as:

> *"My first conscious thought was like a dream. I was in a dark place and seemed to be struggling to breathe. I saw faces… and they seemed, at first, to be attacking me, pushing me down but I was trying to get up… Probably almost like being buried alive by people and trying to get up. I had no awareness of sound, and I couldn't communicate with these people. What were these people doing to me? It was a vivid dream. It was black and grey."*

Airway management was complicated by marked trismus, preventing placement of oropharyngeal adjuncts. Bilateral nasopharyngeal airways were inserted with bag-valve-mask (BVM) ventilation commenced. Two-person BVM was adopted once additional resources arrived, with visible improvement in central cyanosis.

Three 200 J biphasic shocks were delivered for coarse VF during paramedic-led advanced life support (ALS), each accompanied by an audible groan from the patient. At seven minutes into ALS (17 minutes from collapse), return of spontaneous circulation (ROSC) was achieved, in pulsed polymorphic ventricular tachycardia (VT), then stabilized with synchronized cardioversion at 100 J biphasic to sinus tachycardia. Figure 1 shows the EKG during this defibrillation sequence.

Approximately 30 seconds post-ROSC, intraosseous access was established in the left proximal tibia following two unsuccessful intravenous attempts during resuscitation. On saline flush, the patient demonstrated a marked pain response, withdrawing his leg and attempting to sit upright. He later recalled:

> *"Then I [sic] felt a sharp pain in my left shin near my knee. I think I tried to kick. I think I tried to look towards my left leg."*

Neurological recovery was rapid. Within two minutes post-ROSC, the patient obeyed commands, including opening his mouth to facilitate oropharyngeal suctioning of secretions. Within five minutes he was verbally responsive. No advanced airway was required. The patient described this period:

> *"The black faded as the faces became more visible and I noticed the uniforms and realized the people around me were paramedics. It was still 'grey,' but this gradually became daylight. I had no awareness of where I was."*

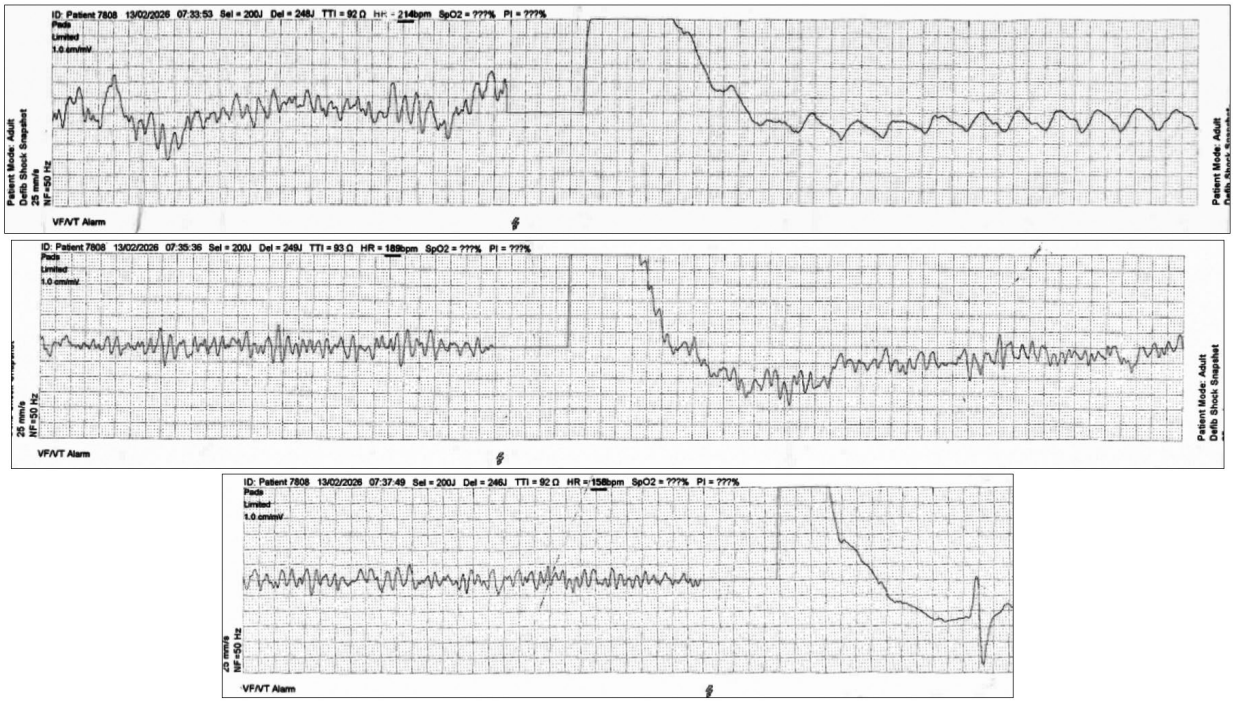

Figure 1. Arrest rhythm and defibrillation sequence.

For analgesia, 40 mg of 1% lidocaine was administered intraosseously, followed by 50 mcg of fentanyl approximately two minutes post-ROSC. This was provided for anticipated post-compression pain, guided by the patient's level of consciousness. The patient later stated:

> *"I can't recall any pain during the entire process to this point except for the sharp pain in my left shin."*

Extrication occurred 13 minutes after ROSC. During extrication and transport, the patient was hemodynamically stable, maintained conversation, and a GCS of 15. A 12-lead EKG showed sinus tachycardia with left bundle branch block, consistent with his known baseline pattern (Figure 2). The patient later described his recollection of arriving at hospital:

> *"I remember the drive back to the hospital, and at times trying to work out where I might be on the journey. The pulling into the ambulance bay, the removal from the ambulance, the wheel into emergency is all quite vivid in my memory. I have a good recollection of people coming into the room and the paramedic talking with me and then briefing the ER team on the sequence of events."*

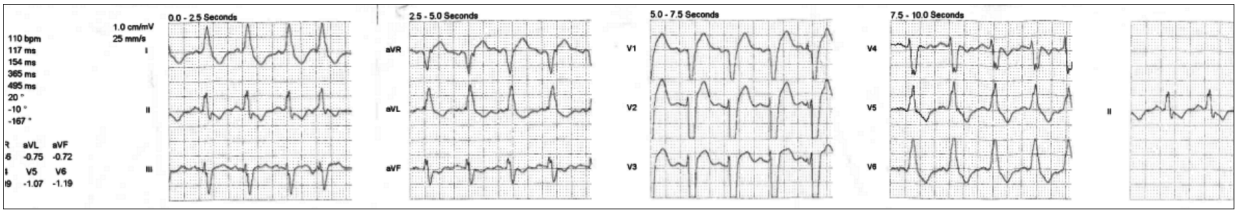

Figure 2. Post-ROSC EKG. Sinus tachycardia with left bundle branch block, consistent with baseline pattern.

Initial laboratory testing showed isolated hyperglycemia with no other abnormalities. Chest radiography was unremarkable. Transthoracic echocardiography showed normal left ventricular (LV) size and preserved LV systolic function, with no significant valvular disease or right ventricle (RV) dilation. Coronary angiography the following day revealed no obstructive coronary artery disease.

The differential diagnosis for ventricular fibrillation arrest included acute coronary occlusion, electrolyte disturbances (hypo- or hyperkalemia, hypomagnesemia), drug or toxin effects, pulmonary embolism, primary electrical disorders (e.g., Brugada syndrome, long-QT syndrome, catecholaminergic polymorphic ventricular tachycardia), and structural cardiomyopathy. Acute coronary occlusion was considered less likely given the absence of new ischemic changes on EKG and non-obstructive coronary angiography. Electrolyte results were within reference ranges. There were no history or examination findings to suggest toxin exposure. Echocardiography showed no structural abnormality to account for the arrest. A primary arrhythmogenic cause was presumed, and an implantable cardioverter-defibrillator (ICD) was placed. The patient was discharged home neurologically intact, with no apparent deficits. A concise visual timeline is provided in Table 1.

Time (min)	Event	Details
0	Collapse	Witnessed by three bystanders after brief lightheadedness
2	Bystander CPR	Effective CPR initiated prior to EMS arrival
10	Paramedics arrive / ALS begins	Initial rhythm coarse VF; high performance compressions; anterolateral pads; 200 J biphasic defibrillation planned
10-16	Ongoing ALS	CPRIC behaviors observed (eye opening, groaning, lateral rolling, purposeful localization), intermittently impairing compressions; three 200 J biphasic shocks delivered
16	ROSC	ROSC in pulsed polymorphic VT; stabilized to sinus tachycardia with synchronized cardioversion 100 J
17	IO access	Left proximal tibia; patient exhibits marked pain response and later recalls sharp shin pain
18	Neuro recovery	Obeys commands; oropharyngeal suctioning facilitated
21	Verbal	Conversational; no advanced airway required
29	Extrication	Hemodynamically stable; 12 lead EKG later shows sinus tachycardia with LBBB (Figure 2)
43	ED arrival	Handover; patient recalls journey and ED entry
Next day	Angiography	No obstructive CAD; arrhythmogenic cause presumed
3 days post collapse	ICD	implantable cardioverter-defibrillator (ICD) placed without complication
4 days post collapse	Discharge	Neurologically intact; ICD in situ; follow up arranged

(Times are approximate and referenced to collapse as t = 0 min)

Abbreviations: CPR, cardiopulmonary resuscitation; EMS, emergency medical services; ALS, advanced life support; VF, ventricular fibrillation; CPRIC, CPR-induced consciousness; ROSC, return of spontaneous circulation; VT, ventricular tachycardia; IO, intraosseous; EKG, electrocardiogram; LBBB, left bundle branch block; ED, emergency department; CAD, coronary artery disease; ICD, implantable cardioverter-defibrillator.

Table 1. Timeline of events from collapse to discharge.

DISCUSSION

This case report describes out-of-hospital ventricular fibrillation arrest complicated by CPRIC with explicit recall. During high-quality chest compressions the patient demonstrated eye opening, vocalization, and purposeful motor activity that intermittently impeded compressions, yet had no spontaneous cardiac output and no ability to communicate. Post-event, he described distressing sensations of being restrained and unable to

breathe, likened to being buried alive, as well as sharp pain at intraosseous cannulation and recollection of transport and handover. These observations illustrate that CPRIC can involve both complex, life-like behavior and psychologically charged conscious experience, even when arrest is relatively brief and neurological recovery is rapid.

The patient completed a solicited, open-ended written narrative of the event. The three authors independently reviewed the narrative and cross-checked content against the electronic prehospital care record (ePCR) and hospital electronic medical record to confirm timing and interventions; discrepancies, if any, were resolved by consensus. Tolerability and adverse effects were derived from contemporaneous clinical observations during resuscitation and transport and from patient self-report at follow-up. Adverse events and tolerability findings are outlined in Table 2.

Domain	Event/ Description	Timing/ Context	Patient Reported Experience	Observed Effect and Management	Impact on Care
Immediate intra arrest discomfort	Audible groaning with each 200 J shock and during CPR	During defibrillation and while CPR ongoing	Distress recalled without sound perception	Defibrillation continued as indicated; team noted groans	Some movement by the patient during the arrest may have impacted CPR quality
Airway related discomfort	Trismus prevented oropharyngeal adjuncts	During CPR	Patient didn't report awareness of airway adjuncts	Bilateral nasopharyngeal airways inserted; two person BVM once additional resources arrived; cyanosis improved	Limited effective early airway management
Vascular access pain	Sharp pain at left proximal tibial IO flush	Approximately 30 seconds post-ROSC	Focal shin pain later recalled	Leg withdrawal and attempted sit up observed; proceeded with analgesia	Potential for dislodgement of IO – did not occur in this case.
Abbreviations: CPR, cardiopulmonary resuscitation; BVM, bag-valve-mask; IO, intraosseous; ROSC, return of spontaneous circulation.					

Table 2. Adverse events and tolerability. Summary of intra-arrest and post-ROSC adverse events, patient-reported experiences, observed effects, and management.

CPRIC is increasingly recognized as a complication of contemporary resuscitation practice, particularly in the context of high-performance CPR, compression-only CPR, and mechanical compression devices. It is characterized by life-like behavior in patients who remain in cardiac arrest, including eye opening, jaw tone, speech, and purposeful body movement (Olaussen et al., 2017; Pinto et al., 2020; Pourmand et al., 2019). Expert consensus has defined CPRIC as a demonstration of consciousness during ongoing CPR in the absence of measurable spontaneous circulation and has further distinguished between interfering and non-interfering subtypes according to whether observed activity impedes resuscitative interventions (Howard et al., 2024). This patient's attempts to roll, localize to the sternum, and withdraw from painful stimuli, together with his later narrative of struggling against perceived restraint, are consistent with interfering CPRIC.

The patient's account provides insight into the phenomenology and potential psychological impact of CPRIC. He recalled a dark, grey environment in which he felt he was being attacked and pushed down while trying to get up, with no perception of sound and no sense that he could communicate. Only later did he recognize the uniforms of paramedics and reframe the experience as an attempted rescue. These descriptions mirror reports from the AWARE II study and other cases, in which survivors have described pain, pressure, bouncing, and the presence of electrodes during CPR (Parnia et al., 2023; Pound et al., 2017), and they align with observational data on CPRIC in out-of-hospital

cardiac arrest (Doan et al., 2020). Patients who experience CPRIC may therefore be at risk of psychological distress and longer-term sequelae, which supports the value of post-resuscitation debriefing and psychological support.

CPRIC also presents practical and ethical challenges for resuscitation teams. Interfering movements may lead clinicians to mistakenly interpret patient activity as sustained return of spontaneous circulation and cease compressions prematurely, or may physically hinder compressions, airway management, and vascular access (Pourmand et al., 2019). In this case, motor agitation intermittently impaired compression quality and complicated airway management in the setting of trismus, requiring bilateral nasopharyngeal airways and two-person bag-valve-mask ventilation. Rescuers must reconcile the imperative to continue potentially life-saving interventions with the apparent distress and resistance of a conscious patient.

Current international guidance on the management of CPRIC remains limited. The International Liaison Committee on Resuscitation Advanced Life Support Task Force suggests that, where feasible, small doses of sedative and or analgesic drugs may be considered to prevent pain and distress in conscious patients during CPR, cautions against the use of neuromuscular blockade in this context, and notes that the optimal drug choice is uncertain and should be guided by local guidelines (West et al., 2021). A scoping review identified multiple prehospital guidelines that include management options for CPRIC and demonstrated wide variation in recommended medications and doses, with ketamine, fentanyl, and midazolam most frequently listed (Howard et al., 2022). This variability reflects both the emerging nature of the evidence base and differing priorities regarding hemodynamic stability, ease of use, and potential psychological benefit.

The most comprehensive attempt to standardize the definition and management of CPRIC to date is a Delphi study that proposed operational definitions and expert-consensus recommendations (Howard et al., 2024). In that work, interfering CPRIC, defined as activity that actively impedes resuscitative interventions such as resisting compressions, removing lines or airway devices, or exhibiting higher-level responses including verbalization, was considered to warrant pharmacological management. Non-interfering CPRIC, characterized by less disruptive signs such as blinking, eye movements, groaning, or minor limb movement, generated more divergent views. Experts expressed concern that sedatives given for non-interfering CPRIC might worsen hemodynamics, but some also supported treatment on humane grounds to reduce pain and potential psychological trauma (Howard et al., 2024; Rice et al., 2016).

Expert consensus favors ketamine as the first-line agent for interfering CPRIC, at 0.5 to 1.0 mg per kg administered as an intravenous bolus (Howard et al., 2024). There was no clear consensus on second-line therapy, with fentanyl and midazolam both commonly proposed (Howard et al., 2024). Ketamine, already carried by paramedics in many systems, has several features that make it attractive in this setting, including combined sedation and analgesia with typically mild sympathetic stimulation rather than cardiovascular depression (Medical Advisory Committee, Ambulance Victoria, 2021; Rice et al., 2016). Although there is a theoretical concern that ketamine could increase myocardial oxygen demand through sympathetic activation, this has not been demonstrated in cardiac arrest and preserved or enhanced perfusion pressures may be advantageous (Medical Advisory Committee, Ambulance Victoria, 2021; Rice et al., 2016). Co-administration

of opioids or benzodiazepines may attenuate sympathetic responses and emergence phenomena but carries a greater risk of hypotension. During arrest, ventilatory support is already in place, but cardiovascular compromise remains a key concern (Medical Advisory Committee, Ambulance Victoria, 2021).

This case should be interpreted in light of its limitations. As a single case report, it cannot determine the incidence of CPRIC, the effectiveness or safety of specific pharmacological strategies, or the long-term psychological outcomes associated with different management approaches. Neurologic prognosis after brief arrest with rapid recovery is generally favorable (Park et al., 2022). However, patients who recall CPR may experience persistent psychological symptoms, including intrusive memories, anxiety, sleep disturbance, and features consistent with post-traumatic stress (Sawyer et al., 2020). In systems with follow-up pathways, structured screening and support are recommended (Sawyer et al., 2020). For this patient, follow-up included ICD clinic review within 4 to 6 weeks and an offer of psychological support, which was not required. Formal screening with tools such as the Impact of Event Scale-Revised (IES-R) and subsequent referral or self-management resources should be considered for patients who have experienced CPRIC (Wagner et al., 2025).

The patient's recollections may also be influenced by peri-arrest hypoxia, analgesia administered post-ROSC, and subsequent discussions with clinicians. Nonetheless, his detailed account is consistent with observational studies and case reports describing CPR-related awareness and distress, and it contributes a patient perspective from an Australian out-of-hospital setting (Al Atbi et al., 2022; Brede et al., 2024; Doan et al., 2020; Kalawila & Weerasingha, 2024; Mittelman et al., 2024; Pinto et al., 2020; Pound et al., 2017; Silvestri et al., 2023; Talikowska et al., 2024; West et al., 2021; Zhou & Sun, 2024). The case also highlights the need for structured post-resuscitation follow-up to identify and address psychological sequelae. No diagnostic challenges related to access, financial, language, or cultural factors were encountered in this case.

CONCLUSIONS

This case provides a detailed, time-anchored prehospital narrative of CPRIC with explicit patient recall. It integrates patient-reported experience with clinical observations and links airway, analgesia, and communication decisions to system-level follow-up. The account offers novel insights into the content and timing of recall during CPR and the immediate post-ROSC period, informing humane and performance-preserving practice. This case reinforces that CPRIC is a clinically important phenomenon associated with vivid, sometimes distressing awareness during arrest and early post-ROSC. For clinicians and systems, these observations support several practical steps: proactive recognition of CPRIC; anticipation and mitigation of its effect on compression quality; consideration of titrated sedation and analgesia, particularly when movements interfere with resuscitation; clear local guidelines aligned with emerging consensus; and structured post-resuscitation follow-up with psychological screening. Further research should clarify the global epidemiology of CPRIC, determine the hemodynamic and survival effects of different sedative and analgesic regimens, and optimize patient-centered outcomes in this growing survivor population.

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