

# Conversion disorder upon emergence from general anesthesia—A case report and review of literature

## ABSTRACT

Conversion disorder (CD) is a neurological symptom that is not related to any medical or neurological disease. Symptoms can range from sensory complaints to loss of consciousness. Psychological stressors such as surgery and anesthesia are considered a precipitating factors. Early diagnosis is crucial to prevent unnecessary interventions. Here, we report a case of a patient who developed CD upon emergence from general anesthesia.

**Key words:** Conversion disorder; general anesthesia; hysteria

## Introduction

Conversion disorder (CD) is a neurological symptom or group of symptoms that cannot be explained by any medical or neurological disease.<sup>[1]</sup> It is considered a psychiatric condition where emotional stressors manifest physically in the form of difficulty in speaking, generalized muscular weakness with walking difficulties, psychogenic non-epileptic seizures (PNES), and or hallucinations.<sup>[1]</sup> These symptoms are not faked, hysterical, and can happen in both children and adults, with women to men ratio of 10:1.<sup>[2,3]</sup>

## Case Report

A 37-year-old male patient (weight 80 kg, height 164 cm), presented for bilateral microscopic testicular sperm extraction as a case of primary infertility. He is not known to have


any other medical condition and he is not on any regular medications.

He underwent general anesthesia (GA) for the same procedure 15 years prior to his current presentation and it was unremarkable for any postoperative complication. He also underwent testicular biopsy under spinal analgesia which was uneventful. His preoperative biochemical analysis was within normal ranges. GA was induced using propofol (150 mg) and fentanyl (200 mcg) followed by rocuronium (50 mg), followed by placement of the laryngeal mask airway (LMA). Anesthesia was maintained with sevoflurane 1 MAC in 50% oxygen/air mixture. The patient maintained normal oxygenation and hemodynamic parameters throughout the intra-operative course. He received dexamethasone (8 mg)

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and granisetron (1 mg) for prevention of postoperative nausea and vomiting (PONV). Also, he received oxycodone (2 mg), paracetamol (1 g), and lornoxicam (16 mg) for postoperative pain management. The operation time was 90 min. The patient received 500 ml of lactated Ringer's solution. Toward the end of the procedure, sevoflurane was switched off, and the muscle relaxant was fully reversed by sugammadex (200 mg). The patient recovered fully from GA then the LMA was removed and he was shifted to the post anesthesia care unit (PACU) with stable vital signs. Upon arrival to PACU his vital signs were SpO<sub>2</sub> 100%, heart rate 73 bpm, respiratory rate 20/min, blood pressure 136/85 mmHg, and he was pain free. Half an hour later, the patient lost his consciousness and was not responding to verbal or painful stimuli and showed resistance while attempting to open his eyes (pathognomonic sign) with roving of the eye globe. Corneal and lid reflexes were normal. He maintained his airway patency, reflexes, and normal hemodynamic parameters. He was given naloxone (0.02 mg) and still not regaining consciousness. Arterial blood gases showed normal acid base and electrolytes values. The patient was admitted to the high dependency unit (HDU) and an intensivist and a neurologist were consulted for further investigation. A computed tomography (CT) scan of the brain was done which showed no acute intracranial insult [Figure 1]. Neurological examination was performed by a neurologist few hours post-surgery which revealed Glasgow coma scale (GCS) of 3, pupils equal and reactive, intact corneal and gag reflexes, no facial deviation, resistance to eye opening, positive doll's eye reflex, 3+ reflexes in the upper and lower limbs, power could not be assessed as the patient was not responsive, and negative Babinski. Levetiracetam (anticonvulsant drug) was started at 500 mg twice daily thinking that the patient had seizure like activity which was excluded later. Electroencephalography (EEG) was performed and it was normal and Levetiracetam was discontinued later. Patient was assessed every 1 h. He was

afebrile with stable vital signs, and had a patent airway with normal venous blood gases. After 8 h, the patient regained his consciousness, and was alert and oriented with coherent speech. However, he could not move any of his limbs even with painful stimulation and could not feel below the level of the neck. MRI brain showed right periventricular old ischemic stroke [Figure 2], but no acute brain insult. MRI cervical spine was normal. Over the next few days, the patient regained full power in the upper limbs. Then the power in the lower limbs improved to normal except for left ankle flexion and extension which were 4+/5. However, he was able to ambulate freely without further intervention. The patient was discharged home on the fourth postoperative day. Five weeks later, the patient was seen in the neurology clinic, he regained full power in the lower limbs. Nerve conduction study was done and it was normal.

## Discussion

In 1985 Orr *et al.*, described two cases of hysterical conversion reactions manifested as unresponsiveness following GA.<sup>[4]</sup> Others have reported cases of functional paralysis following anesthesia.<sup>[5-7]</sup> When delayed returning of consciousness happens, all potential causes should be excluded, such as potent pharmacological agents (e.g., opioids, hypnotics, and anticholinergic) metabolic issues (e.g., hypoglycemia, electrolyte derangements, and malignant hyperthermia) or neurological conditions (e.g., ischemic stroke and intracranial bleed).<sup>[4]</sup> The diagnosis in our case was established by ruling out any organic pathology. CD morbidity reaches up to 33%.<sup>[8]</sup> The diagnosis is usually challenging as the patient with CD has complex presentation.<sup>[9]</sup> The diagnostic criteria according to the DSM-5 (Diagnostic and Statistical Manual

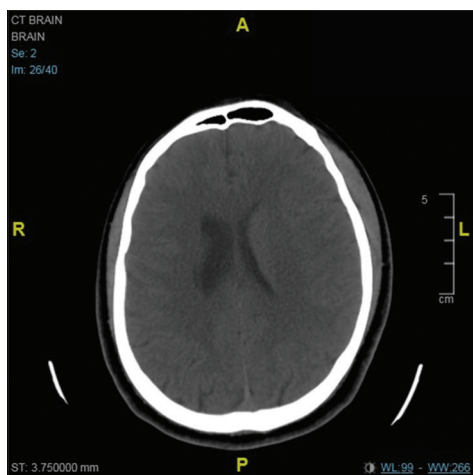


Figure 1: CT brain. No evidence of acute intracranial insult



Figure 2: MRI brain. There is old infarction seen at the right periventricular white matter with surrounding gliosis, and ex-vacuo dilatation of the lateral ventricle. No evidence of acute infarction or intracranial hemorrhage. No evidence of masses, edema or hydrocephalus

of Mental Disorders, fifth edition), for CD are: a) one or more of voluntary motor or sensory deficit, b) clinical findings that show evidence of incompatibility between the symptoms and recognized neurological or medical conditions, c) symptom or deficit that is not explained by another medical or mental disorder, d) symptom or deficit that cause clinically significant distress or impairment in social, occupational, or other vital areas of functioning and deserves medical evaluation.<sup>[1]</sup> A study that was done in Stoke Mandeville Hospital, UK, showed that a complete recovery after preservation of normal tone and reflexes despite apparent weakness is considered diagnostic of non-organic paraplegia.<sup>[10]</sup> Risk factors for CD include emotional stressors, a personal or family history of psychiatric illness, childhood abuse, or neglect and a history of neurological disease that causes the same symptoms.<sup>[11]</sup>

CD is associated with poor prognosis with a large proportion of patients having a residual deficit, the longer the duration to reach a diagnosis the worse the prognosis.<sup>[12,13]</sup> Probably, this patient presented hysteria with paraplegia symptoms.

In conclusion, CD following GA is a serious and mysterious event that requires immediate attention and intervention to rule out any organic or drug related pathology. Following recovery from GA, in the absence of organic or drug-related pathology, loss of consciousness and quadriplegia with resistance to eye opening are diagnostic criteria of CD. In our patient, the multidisciplinary approach including a neurologist and intensivist provided proper diagnosis and favorable outcome. Patients with CD should have long-term follow-up by a psychiatrist for proper rehabilitation and psychological support.

#### Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other

clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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#### Conflicts of interest

There are no conflicts of interest.

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