

An Unusual Case of Functional Neurological Disorders and Psychogenic Coma following Physical Assault: Clinical and Medico-Legal Considerations

Fiorella Caputo^{1,2}, Rosario Barranco¹, Pietrantonio Ricci², Santo Gratteri², Francesca Maria Elena Frigiolini¹, Gabriele Rocca¹, Francesco Ventura¹

¹Department of Legal and Forensic Medicine, University of Genova, Genova, Italy, ²Department of Legal and Forensic Medicine, Institute of Legal Medicine, Magna Græcia University of Catanzaro, Catanzaro, Italy

Abstract

Functional neurological disorders can have different clinical manifestations, including coma, in the setting of an unknown etiology. In this article, we present a case of a young man affected by intellectual disabilities who, after a physical assault reported serious neurological alterations and a functional coma. This case shows how a stressful psychophysical event can bring acute and variable neurological manifestations of functional significance to a victim with previous intellectual disabilities. Despite the growing interest in this field, research is still very limited and studies in this field could better explain the nature of the psychogenic coma. From a medico-legal point of view, problems of evaluation may emerge for these disorders emerge as a result of acute psycho-physical stress and without any detectable structural alterations.

Keywords: Functional coma, functional neurological disorder, psychogenic disorders, stressful events

INTRODUCTION

Functional disorders (which are also described as psychogenic or non-organic disorders) have been historically neglected in scientific research.^[1] The diagnosis is based on the identification of clinical signs that are not compatible with an organic disorder.^[2] In a minority of the cases, coma can be attributed to psychiatric causes.^[3] Despite being a rare condition, psychogenic or functional coma represents a diagnostic dilemma.^[4] In this work, the authors present the case of a 26-year-old man affected by intellectual disability who, after a physical assault, developed a series of neurological alterations and he fell into a functional coma.

CASE REPORT

A 26-year-old man suffering from mild-moderate intellectual disability was a victim of an assault perpetrated by several people. Anamnestic data revealed that the man had experienced head trauma after an accidental fall at the age of three, which induced generalized learning difficulties.

During the assault, that lasted about 15 min, he was punched and kicked in the head and was verbally assaulted. However,

he did not lose consciousness at any given moment. After the assault, he immediately came back home accompanied by his friends. While he was returning home, his friends noticed that he began walking abnormally and had stopped talking. The next morning, he was brought to the hospital because he was in a soporous state with involuntary movements of his head, arms, and legs. By the time he arrived at the emergency room, his level of consciousness had improved but he appeared agitated. A brain computed tomography scan revealed there were no pathological findings. A cerebrospinal fluid analysis indicated there were no alterations and the toxicological tests were negative. In the meantime, the man began to suffer a generalized tonic-clonic seizure. He was sedated with propofol, fentanyl

Address for correspondence: Dr. Rosario Barranco,
Department of Legal Medicine, University of Genova, via De' Toni 12,
16132 Genova, Italy.
E-mail: rosario.barranco@libero.it

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and midazolam, intubated, and administered intravenous therapy with levetiracetam. An electroencephalography (EEG) revealed an overall and generalized low voltage, which did not change even after the administration of flumazenil and naloxone. A brain magnetic resonance imaging ruled out any structural alterations. During the following days, the patient was awakened. A subsequent EEG revealed medium voltage slow activity with the predominance of theta-delta waves. On the 4th day of hospitalization, he presented tremors and paresis to the four limbs (which ceased with reassurance). On the 6th day of hospitalization, his EEG resulted normal during sleep and the pattern appeared organized and reactive during the wake stage. However, the patient presented signs of hostility, agitation, and motor restlessness. Due to the lack of organic alterations, the hypothesis of a possible psychogenic reaction to the trauma was considered. The patient remained disoriented as well as suffering from confabulation and amnesia during the remaining period of hospitalization. In the following days, the patient was tranquil, and his EEG results appeared normal. He was discharged on the 13th day after being diagnosed with a posttraumatic psychogenic reaction. Later on, the patient presented symptoms of posttraumatic stress disorder characterized by dissociative, anxiety, and sleep disorders. The cause of the functional neurological alterations was acute psycho-physical stress (derived from the assault).

DISCUSSION

Functional coma is an involuntary coma-like state that occurs in the absence of structural lesions or metabolic damage to the brain.^[4] In the case here presented, neurological changes and the state of functional coma surfaced after the physical assault. A stressful stimulus can destabilize or desynchronize the components of the cognitive-emotional system and interfere with the activities of coordination and attention. This can result in aberrant behavioral, cognitive, and sensorimotor responses.^[5] In addition, people with mental disabilities could develop abnormal neurocognitive disorders as adaptive behaviors in an attempt to control stressful events.^[6,7] In this case, the subject presented movement and consciousness disorders after the assault.

In the literature, two groups of patients with functional coma are recognized: those who become irresponsive due to explanations unrelated to surgery and those who become irresponsive after surgery.^[8,9] Furthermore, it is not clear if the use of anesthetic drugs may play a role in the underlying vulnerability.^[10]

In this case, the patient's neurological picture was revealed to be highly complex as he entered into a state of coma that persisted despite the withdrawal of sedative drugs and the administration of antagonist drugs. A psychogenic nature was suspected days after when the patient awoke from the coma, and when the psychomotor alterations ceased when the patient was calm. From a medical-legal point of view, the absence of structural alterations of the brain caused problems in establishing a specific correlation with the physical assault.

A careful and casual link evaluation was performed through an in-depth Forensic evaluation^[11] and Hill's causal criteria.^[12] A temporal concordance throughout the causal chain was observed: in the case here presented, neurological changes and the functional coma occurred immediately after the physical assault.

The evaluation of cause-effect compatibility and congruity proved to be more difficult. Through a careful psychiatric and neurological examination, we investigated if the stressful event had a relevant psychological and emotional value for the victim, according to the vulnerable cognitive-emotional system. The assault was a stressful psychophysical event and the latter was worsened by the previous intellectual disabilities that the victim suffered from. However, a causal relationship between the assault and the functional coma is difficult to ascertain based on the results of a single case study. More consistent studies are needed in this field to verify correlations between violence and these types of neurological disorders.

Moreover, we excluded other causes of functional neurological disorders: In fact, the patient's condition was not justified by the presence of structural or metabolic damage and the psychomotor alterations tended to cease when the patient was calm. In our opinion, the stressful event was sufficient to determine a cause-effect relationship.

In conclusion, this case reveals how a stressful psychophysical event can determine the acute and variable neurological manifestations of functional significance in a subject with previous intellectual disabilities. The physical attack and neuropsychiatric consequences should be evaluated by the interdisciplinary collaboration of medicolegal experts in the field of neurology, psychiatry, and forensic medicine.

Research results are still very limited and further identification of cases along with a literary description could better explain the nature of the psychogenic coma.^[4] From a medico-legal point of view, problems of evaluation may emerge if these disorders emerge as a result of acute psycho-physical stress without any detectable structural alterations. In particular, the causal correlation between a traumatic event such as a physical assault and the manifestation of the disorder cannot be evident, especially with subjects with preexisting neuropsychiatric diseases. Research in this area may be of interest to the forensic medical field for in some cases it is necessary to assess the responsibility of third parties when an onset of functional manifestations occurs.

On a final note, the aggressors who committed this crime were charged according to Italy's penal code.

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Conflicts of interest

There are no conflicts of interest.

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