

Case Report

Conversion Disorder and Spinal Cord Injury: Case Report

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Abstract

Introduction: The aetiology of conversion disorder is unknown, though association with emotional stress and with organic brain disorder has been described. Paraplegia as a conversion reaction has been reported infrequently. Combination of motor and sensory disturbance, other than paraplegia, may occur as a manifestation of a conversion reaction, and may suggest Spinal Cord Injury (SCI).

Case Report: A 35-year-old Italian woman who had a history of post traumatic SCI which affected her lower limb when she was 29 years old. Patient was unable to empty his bladder completely. The aim of this paper is to describe the correlation between diagnosis of conversion disease and SCI.

Clinical Rehabilitation Impact: Chronic conversion disorder can be resistant to rehabilitation treatment. Neurophysiological diagnostic procedures adopted in our study discern the degree of central and peripheral nervous system damage and confirmed the integrity of spinal cord in conversion disorder.

Conclusion: Our case report describes the association between conversion disease, SCI, and neurophysiological tests and suggests to apply the neurophysiological tests to validate conversion disorder diagnosis in SCI.

Keywords: Conversion disorder; Paraplegia; Rehabilitation

Introduction

“Conversion disorder” is the term used in the DSM-IV classification system, originating from the description by Breuer and Freud, et al. of pseudoneurological symptoms resulting from conversion of an

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unconscious psychological conflict to somatic representation [1-4]. Other adjectives historically used to describe the same phenomena include “hysterical” and “psychogenic”. Typical comorbid diagnoses include mood disorders, panic disorder, generalized anxiety disorder, posttraumatic stress disorder, dissociative disorders, social or specific phobias, and obsessive-compulsive disorders [5-7]. In psychoanalytical terms, conversion is the symbolic transformation of a dangerous emotion (aggression, rage, sexual excitement) into a somatic symptom, representing a compromise between the undesirable affect and the defense against it. The symptoms of hysteria can affect any aspect of elementary neurological function including involuntary movements or paralysis, non-epileptic seizures, mutism, urinary retention, hallucinations, pain, blindness, deafness, and analgesia. Inconsistencies on examination suggest this diagnosis. These include simultaneous contraction of muscular agonists and antagonists, fluctuating weakness, non anatomical sensory loss, tunnel vision, and astasia-abasia. Some patients show a curious belle indifférence toward their neurological handicap [8]. Brain imaging, electroencephalography, and sensory evoked potentials are normal. Paraplegia as a conversion reaction has been reported infrequently [2,3]. Combinations of motor and sensory disturbance, other than paraplegia, may occur as a manifestation of a conversion reaction, and may suggest spinal cord injury. Hysterical paraplegia is not recorded by Guttmann, Bedbrook, et al. and other authors of book on spinal cord injury so that we can assume that the condition is rare. The diagnosis of conversion disorder is not one of exclusion [9]. There must be positive evidence demonstrating that the dysfunction is functional rather than organic. Imaging: NMR, X-ray, CT and electrophysiological studies, sensory and motor evoked potentials, urodynamics are usually normal however, presence of findings rarely elucidate the clinical symptoms. When a subject is admitted with paraplegia, normal reflexes and full control of sphincters, a routine X-ray is sufficient, and the diagnosis is clinical. CT and NMR are unnecessary, and are performed just as additional supporting evidence for the clinical diagnosis [10].

Case Report

In this study, we have evaluated a patient admitted to the Spinal Unit of the Scientific Institute of ICS Maugeri in Pavia, in the period between January and March 2020. The patient was a 35-year-old Italian woman, who had a history of post traumatic SCI which affected her lower limbs when she was 29 years old, while her upper limb had not been affected. There was no medical history of diabetes mellitus or alcohol dependence. Patient presented thyroid dysfunction and anxiety disorders. She was admitted to hospital where she alleged paralysis and loss of sensation in the both legs. Physical examination revealed normal tone and trophism and muscle strength of her lower limbs. There were no spasms. Deep tendon reflexes were evocable. Sensation to light touch, temperature and pain was intact. Bladder function was impaired: although voiding was attempted by manual compression of the bladder, patient was unable to empty her bladder completely causing significant post voiding residual volumes; self-catheterization, performed four times a day, showed reduced post

voiding residual volumes. Magnetic Resonance Imaging (MRI) of the dorsal spine did not reveal any neurological compression of the cord or lumbar and sacral roots. The renal scintigraphic investigation showed a glomerular filtration function within the limits of normality. Motor Evoked Potentials, (MEPs) of the lumbar motor roots were bilaterally within normal limits, the latencies of the motor responses evoked in the lower limbs, as well as the relative times central management. Peripheral conduction (ankle-popliteal fossa) and cortical response (P40) resulting from electrical stimulation of the tibial nerve at the ankle resulted normal. We also studied the Motor Evoked Potentials (MEPs) in transverse perineal muscles by magnetic stimulation of the sacral motor roots to investigate the efferent motor path [11,12]. Needle Electromyography (EMG) of right transverse perineal muscle, innervated by the pudendal nerve, evidenced chronic denervation signs, without denervation activity at rest. The diagnosis was made by demonstrating normal motor and sensitive nerve conduction to the clinically weak muscles. The patient refused urodynamic examination. According to normal values used in our Unit of Clinical Neurophysiology, the sacral MEPs were bilaterally delayed.

During the hospitalization psychological monitoring were carried out. In personal anamnesis emerged important and complex events in the family context that represented a source of anxiety and psychological distress for the patient. We evaluated an intensive multidisciplinary treatment focusing on body-related mentalization and acceptance. The muscle weakness was treated by intensive physical personal rehabilitation program. Patient had no significant motor improvement at the end of the rehabilitation program.

Discussion

According to DSM-IV criteria [8], conversion disorder is characterised by: one or more symptoms affecting voluntary motor or sensory function resembling to neurological or medical disease involvement of psychological factors unintentional, unfeigned symptoms.

Case report identified an injury to which she related the start of her conversion symptoms. She had fall of a minor nature which could support a diagnosis of an extension injury but this was only in retrospect following radiography. It was difficult to reconcile the injury with the severity of the paralysis [13]. Conversion disorder shares high comorbidity with anxiety, depression, and personality disorders. Reich, et al. was the first author who undertook a careful description of the hysterical character [14]. The hysterical personality profile stands out for four of the seven features enumerated by Retch a long time ago. Histrionic behaviour, emotional lability, dependency, demandingness, suggestibility, excitability, vivid imagination. Case report presented four features of the hysterical personality. Histrionic behavior: Characterized by an air of artificial superiority devised to gain attention, sympathy or even admiration. Emotional lability: characterized by outbursts of most frequently-laughter or crying, precipitated by an insufficient cause, often in an uncontrollable manner. Seductiveness: a form of interpersonal behavior and a coping strategy used by the hysterical personality to draw sustenance from those around him. Egocentrism: in dynamic terms this is called "narcissism". An exaggerated tendency to serve and gratify one's own needs regardless of any other consideration. The elements of the physical examination of a patient with conversion disorder are most important [15]. Reflex function in the presence of paralysis should

alert an examiner to the possibility that no spinal cord injury exists, suggesting a functional paralysis. To test motor function the physician can place a hand under both heels and perform a straight leg rising test on one side and frequently if there is not a true paralysis, the examiner will feel a pushing down pressure on the unelevated heel. Regarding diagnostic studies, routine X-rays are all that is required. If the X-rays are normal and the patient has normal reflexes, further evaluation may be delayed for 24 to 48 hours. It is also of interest that the patient can generate new functional symptoms by actively directing attention towards the body during directed manoeuvres that are performed when examining a patient. Underlying this process may be at least three types of factors: a 'predisposing' loss of sensory attenuation, a 'precipitating' incident generating illness expectations, and a 'perpetuating' further increase in attention to bodily symptoms. The possibility that functional symptoms co-exist with other symptoms of established neurological disease should also be considered [16]. According to the literature the presence of psychiatric comorbidities was correlated with outcome in eight studies [17-24]; six found a negative effect on outcome [17,18,21-24]. Ibrahim, et al. found a high Hospital Anxiety and Depression Scale (HADS) score was correlated with bad outcome [17], Mace and Trimble found anxiety had a worse effect than depression, Feinstein, et al. found that the severity of psychiatric comorbidity influenced outcome [21]. Jankovic, et al. reported that any psychological, psychogenic or somatic comorbidity predicted negative outcome [18]. Binzer, et al. however, did not find any correlation between diagnosis and outcome. Personality disorder was negatively correlated with outcome in three studies [22,23,25]. The diagnosis of non-organic paraplegia is not easy. Without markers for a non organic lesion and without psychological features, the diagnosis of a functional disorder is incorrect. The etiology of conversion disorders in SCI patient represent a complex and individual process. The practical question is "how does the physician diagnose the patient likely to have a feigned or non organic paraplegia?" [26]. Psychodynamic theory suggests that the person derives "primary gain" by keeping an internal conflict or need out of awareness. In such cases, the symptom has a symbolic value that is a representation and partial solution of the underlying psychological conflict [27]. The learning theory explanation describes the conversion disorder symptoms as a learned maladaptive response to stress [28]. The person achieves "secondary gain" by avoiding a particular activity that is noxious to him or her, and getting support from the environment that otherwise might not be forthcoming. Patients with this diagnosis can be heterogeneous. Case report has told her life characterized by different and negative events: separation from her husband, two children to raise and a state of unemployment. A comprehensive psychiatric evaluation may be needed to diagnose emotional, behavioral, or developmental disorders. Evaluation included personal and family history of emotional, behavioral. Case report retraced her clinical history and some of the complex family events inherent the separation from her husband and the management of children that are the first cause of deep anxiety and emotional tension. Baker and Silvester found that the association with active matrimonial proceedings in women is significant [28]; but the overall divorce rate and matrimonial disharmony is no higher in people with conversion disorder. Doesn't exist any relationship with intelligence, the presence of "belle indifference" or circumscribed memory deficit, and subjective comments by doctors on the quality of the patient's history totally unhelpful [29-34]. Sexual history was unhelpful; many patients in both groups had problems with potency of libido, albeit transient, before injury. By Wen-Shing Tseng in the Handbook

of Cultural Psychiatry [35], chapter on stress and coping patterns, discussed the dynamic nature of stress, its measurement, its effect on mental disorders. In Raskin, et al. study all patients had a stressful event associated with the onset of their weakness [36]. Emotional stress has been considered as one of the psychological criteria for this condition before injury. Some conversion reactions are transient, whereas others are very persistent [37]. There is evidence that even chronic conversion symptoms can resolve spontaneously but resolution may be helped by insight-oriented, supportive or behavioural therapy [38]. A shorter duration of symptoms prior to diagnosis was shown to predict a better outcome in nine studies [39-48]. There were no studies which did not find a relationship between duration of symptoms prior to diagnosis and outcome. Case report developed symptoms after a domestic fall in 2014 and the diagnosis of non-organic paraplegia was postulated in 2020. Conversion symptoms, especially when acute, may undergo spontaneous resolution following explanation and suggestion. Some patients respond to active rehabilitation. Those with chronic and entrenched conversion symptoms may require admission to a psychiatric unit that has expertise in conversion disorder. Such individuals may undergo psychiatric decompensation as their symptoms improve, revealing depression or even previously hidden psychosis [49]. In terms of diagnostic error, a systematic review which included 27 studies with 1466 patients, from 1965 to 2003 and with an average follow-up of five years, demonstrated that diagnostic errors or false positives are decreasing: in 1950, 29% (interval 23-36%); in 1960, 17% (12-24%); in 1970, 4% (2-6%), and in 1980, 4% (2-6%). This difference is statistically significant ($p < 0.02$), independently of age, gender and duration of symptoms [50]. There is growing evidence that physiotherapy is an effective treatment, but the existing literature has limited explanations of what physiotherapy should consist of and there are insufficient data to produce evidence-based guidelines [51]. SCI Patients with conversion disorder are referred to physiotherapists of Spinal Unit. Not all patients with an acute onset of conversion symptoms will require additional specific treatment. A proportion will experience spontaneous remission, but follow-up studies have shown that the majority of patients remain symptomatic in the long term [52,53]. Case report presented no significant motor improvement at the end of the rehabilitation program. Chronicity of symptoms and the mood instability can conditioning poor rehabilitative outcome. Feinstein, et al. found that the severity of psychiatric comorbidity influenced outcome. In others studies personality disorder of case report was negatively correlated with a positive outcome [21-23,25].

The limit of this study was caused by physiotherapy resources that are currently employed for case report but the supporting structures do not exist and there is a lack of information for physiotherapists to help plan their treatment. The patient's lack of motor recovery correlated to chronicity of the disorder could have been conditioned by the limitation of the rehabilitation experience. Therefore training or retraining in social skills becomes a needed ingredient in a comprehensive therapeutic regime.

Conclusion

Clinicians who treat patients with suspected functional neurological disorders now have the opportunity to adopt electrophysiological studies as diagnostic strategies. With the current interest for this clinical condition and the contribution from research

and neurosciences, it is possible to think that in the near future the understanding of the neurogenesis of these disorders will improve and patients will be offered better therapeutic approaches.

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