

Association between Epilepsy and Psychogenic Non-Epileptic Seizures: A Case Report

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Abstract

Epilepsy is a very complex disorder of the central nervous system. It is characterized by a sudden, disordered and excessive neuronal shock that causes different clinical evidences with specific related electroencephalogram (EEG). Psychogenic Non-Epileptic Seizures (PNES) can seriously complicate the diagnosis of epilepsy. The separoxysmal events have the same clinical evidences of epilepsy, such as an impairment of the self-control and a range of sensory, motor and mental manifestations, without the typical related electroencephalogram (EEG) because of the absence of an organic cause. The overwhelming majority of Psychogenic Non-Epileptic Seizures are related to psychological factors like dissociation. This is a defense mechanism used to cope stressful events or emotional conflicts. Psychological or psychiatric disorders, like Post Traumatic Stress Disorder (PTSD), are frequently associated to Psychogenic Non-Epileptic Seizures. In this article, we present a case report of epilepsy combined with Psychogenic Non-Epileptic Seizures. A joint intervention is of great significance in this occurrence. The subject received a psychological assessment including psychometric and projective tools. He stood MMPI-2, Wais-R, SCL-90, Rorschach test and graphic tests. A psychological disorder related to defense mechanisms was identified. The subject presents a tendency to convert his fears and emotive pains in rational and more socially acceptable problems, using his body to express his discomfort. Patient with epileptic seizures should receive a psychological assessment to exclude Psychogenic Non-Epileptic Seizures. Further studies should propose guidelines to integrate neurological, psychiatric and psychological intervention.

Keywords

Epilepsy, Psychogenic Non-Epileptic Seizures, PNES, Dissociation, PTSD

1. Introduction

The word epilepsy derives from the Greek and means to seize, to take possession of

something.

It can be defined as an intermittent nervous system dysfunction probably caused by an excessive, disordered and sudden neuronal shock [1]. This discharge generates various clinical symptoms.

The first epilepsy classification was made by Gastaut in 1970 [2] and it is based on these two factors: clinical evidences and video-electroencephalography monitoring. Even though some considerable modifications are made over the years, it is still used to make diagnosis of epilepsy.

International classification of epileptic seizures, adopted in all the countries, divides the seizures into focal (or partial) and generalized seizures.

Focal seizures are distinguished by an identified and demonstrated hurt. So it is possible to back to the epileptic focus. Lesion is really important because of the relationship with clinical evidences.

Focal seizures are simply when there isn't an impairment of consciousness. They can produce motor, sensitive or psychic symptoms. Instead they are defined to be complex when a loss of consciousness is included.

Generalized seizures haven't the certain and localized epileptic focus and the seizure seems to have a bilateral origin.

Complex seizures can be convulsive or not. The first are accompanied by tonic-clonic manifestations; the second are denominated absences because they essentially consist in a brief loss of consciousness.

According to Schmidt and Wilder (1968) [3] epileptic seizure is generated by a sudden alteration of the nervous system causing an acute shock at high frequency, or a low frequency but high voltage discharge.

This shock can originate in any neuronal group situated both in the cortical and in the subcortical regions, and even in the brain stem and spinal cord. It didn't need a lesion, because the discharge could depend by alcohol or drugs abuse. The reasons of the shock are currently unknown.

A specific pharmacological therapy is used in case of epilepsy. It usually produces a considerable improvement of the symptoms. In the most serious cases, when the patient doesn't respond to the classical therapy, it is possible to use surgery but only if the epileptic focus is delimited.

Epilepsy is often associated with other psychiatric disorders. This can complicate the diagnosis and the treatment. An interesting case is that of Psychogenic Non-Epileptic Seizures (PNES). These are episodes characterized by the same clinical evidences of an epileptic seizure without the related EEG because they haven't an organic cause. They are generated by psychological factors, and indeed today they are classified as a dissociative disorder by ICD and conversion disorder by DSM-5.

In the clinical practice, it can be very difficult to distinguish a real epileptic seizure from a PNES, though there are some little signals to consider [4] [5]. Some of these are: a longer duration; aimed, asymmetric and asynchronous motor activity; destructive behaviors or distortion rather than tonic-clonic spasms; screaming and crying. Emotional stimulus and suggestion can induce PNES differently from a real convulsive crisis.

In the XIX century Charcot named this disorder hysterolepilepsy. He thought that the origin was in the female reproductive system. He identified two steps: epileptoid phase characterized by tonic-clonic spasms and acrobatic phase characterized by emotional expressions like happiness or fear, strange postures and rhythmic body oscillations [6].

Freud instead thought that seizures were expression of a psychological disorder caused by the repression of an instinctual drive. So they would have an unconscious origin.

Recent researches [7] [8] [9] have clearly evidenced the role of traumatic antecedents on PNES. They would be influenced by recent and ancient stressors.

Another factor involved in the genesis of them would be the dissociative experiences. Probably these patients use the dissociation as a defense mechanism [10].

In DSM-5 the dissociative disorders' chapter follows the chapter on disorders related to traumatic and stressful events to indicate the proximity of these types of mental disorders. Post traumatic stress disorder and his antecedent, the acute stress disorder, can include symptoms of dissociation like depersonalization, derealisation and amnesia [11].

People with dissociative disorders show a loss of experience continuity so they are unable to access the information and they live a fragmentation of identity.

Phenomena like trance or possession are states of dissociation used in some cultures to express discomfort largely accepted, thus not considered disorders.

When an organic disorder as epilepsy is associated with a psychiatric disorder as PNES it would be desirable a joint intervention and a collaboration between different specialists like a neurologist, a psychologist and a psychiatrist [12] [13].

This is surely essential for the differential diagnosis and above all for a correct therapy.

The psychologist's role is primary for both diagnosis and therapy [14] [15] because he can use tools and other instruments to know the patient's personality, his defense mechanisms and his cognitive functioning. This is essential to understand the origin of PNES. So he can facilitate the diagnosis and help the other specialists. Psychotherapy is helpful to reduce frequency and intensity of seizures and to improve the patient life quality.

2. Case Presentation

In this study a young man is evaluated, using the following tools, widely acknowledged to inquire the personality features in psycho diagnostics: the Minnesota Multiphasic Personality Inventory-Second Edition (MMPI-2), the Rorschach test, the Wechsler Adult Intelligence Scale-Revised (WAIS-R), the Symptom Checklist 90-R (SCL-90-R) and the graphic tests.

The Minnesota Multiphasic Personality Inventory (MMPI) is the most widely used and researched standardized psychometric test of adult personality and psychopathology. The original MMPI, first published by the University of Minnesota Press in 1943, was replaced by an updated version, the MMPI-2, in 1989 [16] [17].

The original authors were Starke R. Hathaway and J. C. McKinley. In 1989, the MMPI became the MMPI-2 as a result of a restandardization project to develop a new

set of normative data representing current population characteristics.

The changes concern also form and content of the items in order to have a terminology closer to the terms currently in use.

The current MMPI-II has 567 items correlated to 7 Validity Scales, 10 Basic Clinical Scales, 15 Content Scales and 15 Supplementary Scales.

MMPI-II is a self-report test thus the validity of the profile depends only on the sincerity of the individual.

The projective tests are based on the psychological unconscious mechanism of projection, for which the subject in front of a vague stimulus like an inkblot or a general instruction like “Draw a house”, will project parts of his personality, emotions and feelings. According to Passi Tognazzo (1975) [18] “People organize and structure an experience projecting on it their interior experiences, the structure of their personality”. For this reason the projective tests represent an important resource for the psychologist.

The Rorschach test is a psychological test in which subjects’ perceptions of inkblots are recorded and then analyzed using psychological interpretation and precise techniques procedures. It is used to examine personality characteristics and emotional functioning but also to detect underlying thought disorders [19] [20].

There are ten official inkblots, each printed on a separate white card. Each of the blots has near perfect bilateral symmetry. Five inkblots are of black ink, two are of black and red ink and three are multicolored, on a white background. After the test subject has seen and responded to all of the inkblots (*free association* phase), the tester then presents them again one at a time in a set sequence: the subject is asked to note where he sees what he originally saw and what makes it look like that (*inquiry* phase). As the subject is examining the inkblots, the psychologist writes down everything the subject says or does. So the interpretation is largely based on three elements: location, determinants (like form or color) and contents, but there are a lot of other elements taken in consideration.

There are different methods of interpretation. In our study we use the Klopfer/Rizzo method.

The Graphics tests consist in simple instructions given to the subject. They are based on the belief that people drawing, projecting emotions, feelings, desires and fears.

In this study we have used the test of the human figure or test of Machover [21], the tree test [22], the family test or test of Koch [23] and the test of the man in the rain or test of Fay [24].

The interpretation considers both the content issues that the graphics issues like the position in the space, the dimension, the stretch, the trait, any erasures or corrections. Each element has in fact an interpretation useful to know the personality of the subject and eventually other factors like the family relationship, his reaction to stressors, his perception of the male and the female and the perception of himself in the world.

The Wechsler Adult Intelligence Scale (WAIS) is a test designed to measure intelligence and cognitive ability in adults and older adolescents. It allows to individuate the subject IQ [25].

The original WAIS (Form I) was published in February 1955 by David Wechsler, as a

revision of the Wechsler-Bellevue Intelligence Scale, released in 1939.

According to Wechsler general intelligence is composed of various specific and interrelated functions or elements that can be individually measured.

The WAIS-R, a revised form of the WAIS, was released in 1981 and consisted of six verbal and five performance subtests. The verbal subtests are: Information, Comprehension, Arithmetic, Digit Span, Similarities, and Vocabulary. The Performance subtests are: Picture Arrangement, Picture Completion, Block Design, Object Assembly, and Digit Symbol. It produces a verbal IQ, a performance IQ and a full scale IQ [26].

The Symptom Checklist-90-R (SCL-90-R) is a brief self-report questionnaire published by the Clinical Assessment division of the Pearson Assessment & Information group [27]. It is designed to evaluate a large range of psychological problems and symptoms of psychopathology. It is made up of 90 items and it takes 12 - 15 minutes to complete it. The dimensions analyzed are: somatization, obsessive-compulsive, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation and psychoticism. It also produces three global indices: global wellness index, hardiness, and symptom free.

The patient expressed his informed consent for processing of personal data for the purpose of research.

The subject is a male of 23 years. Student at the faculty of Engineering, he moved to a private university for his cognitive difficulties. He complains headache, poor concentration and attention. He was sent by the neurologist responsible of the Epilepsy Center of Diagnosis and Treatment of the Hospital Agency "Federico II" in Naples to the responsible of the Psychiatric Department of the same hospital with a diagnosis of temporal epilepsy. We'll call him M. M.

M. M complains absences of 30 - 40 seconds once a week. The mum reports that in the last period the seizures are become more frequent instead their duration is decreased. Recently he had 2 seizures in the same day.

The pharmacological therapy actually consists in OXCARBAZEPINA 600, 300 mg in the morning, 300 mg at lunch, 300 mg in the afternoon and 600 mg in the evening; LAMOTRIGINA 200 mg in the morning and 200 mg at night. He also meets a psychologist once a week.

He was born on 11/05/1992 with a Caesarean operation about 20 days before the expected parturition because of a fetal distress due to retro placental hematoma. The child experienced one minute of intrapartum asphyxia so he stayed in neonatal therapy for 15 days.

He was monitored with EEG until he was 3 years old. There weren't abnormalities.

The mother refers a "beautiful pregnancy" though she had 3 important losses during it: the father and two aunts.

Development is proceeded normally. During the primary school he shows social difficulties probably due to his hearing problems. In the following years, indeed, he submits two plastic eardrum interventions.

M. M reports with regret his academic difficulties saying that since the primary school his performance didn't reflect the study.

He flunked out at the 4th year of high school. Then he decided to change school for

some conflicts with a teacher.

M. M says that he hasn't social problems but he hasn't intimate friendships.

The first seizure has appeared when he was 16 years old, after the death of the paternal grandfather. He was very attached to him.

From 2008 to 2012 seizures consisted essentially in absences not prolonged, but in November 2013 tightening and closing of the punches appear. The seizure is followed by a confusion state that lasts some minutes. Its duration is decreased during the year.

He is in therapy since November 2009.

He complains a significant loss of autonomy due to the disorder. He can't drive and he can't practice sports-he played rugby for three years. He prefers going out with the sister and talking of his disorder to the friends.

He never had a romantic relationship.

3. Discussion

Considering the results of the MMPI-2 the Clinical Scales that score higher than others are: Hypochondriasis (Hs = 82), Depression (D = 68), Hysteria (Hy = 67), Schizophrenia (Sc = 70) and Hypomania (Ma = 68).

The Hypochondriasis Scale is related to a broad range of physic symptomatology (Hs = 82). M. M shows an excessive worry about his health and his body, physical diseases without organic basis, weakness, lack of energy, attention and efficiency and sleep disorders. He is often dysphoric and unhappy (D3 = 63%; Hy3 = 46%; HEA = 74).

From the Depression Scale (D = 68) discontent, pessimism, low self-esteem emerge.

The Hysteria Scale describes the subject tendency to avoid stressful situations, which involve taking responsibility, developing physical symptoms (Hy = 67). M.M is psychologically immature; he researches attention and affection and when he doesn't receive them he can show resentment and anger (Hy2 = 50%). He is socially extroverted so he doesn't have difficulties to interact with other people (Hy1 = 82%). In the meantime he denies aggressive impulses and he lacks of empathy and criticism thus having problems in intimate relationship.

The Schizophrenia Scale reveals a certain dysfunctionality on the thought processes, and daily adaption to reality (Sc = 70). He has problems in the impulses and emotion's control (Sc5 = 54%).

The Hypomania Scale evidences a dysphoric and dysregulated mood, an energy investment in activities that are many times not completed (Ma = 68). The thought processes are accelerated. The subject is nervous, restless and impulsive (Ma2 = 45%).

The content scale of Negative Treatment Indicators TRT shows good possibilities of Treatment's adhesion.

By SCL-90 test the areas worthy of attention are the following: Paranoid Ideation (score 1), Sleep disorders (score 1), Obsessive-Compulsive (score 0.8).

The first area refers to a thought disorder characterized by suspicion, fear of autonomy loss and hostility.

The second area refers to a general tendency of waking up early in the morning with difficulty to sleep again and a quite presence of disturbed and restless sleep.

The third area refers to ideas and impulses not controlled by the subject.

At the Wais-R the subject obtains an IQ of 45: this indicates a moderate mental delay.

The score is a little higher in the performance subtests that evaluate the visuospatial and motor organization's skills, instead the verbal subtests measure the verbal reasoning and the use of acquired knowledge (PIQ = 55; VIQ = 49).

The Mental deterioration Index (MDI) is, considering the young age of the subject, high and clinically significant (31%).

The subtests scores let us to make some considerations. The subject isn't able to anticipate and plan the events and he has a poor understanding of the social situations typical of his cultural context. The problem solving skills are much compromised such as the social environment adaptation. He hasn't social intelligence and empathy so he has difficult to establish intimate relationships (Comprehension = 1; Picture Arrangement = 3).

He show a poor verbal comprehension, few cultural academic knowledge, thought the high degree of schooling, and a poor intellectual curiosity. He isn't able to abstract and elaborate the acquired knowledge (Information = 2; Vocabulary = 4).

There is an important memory deficit and problems of maintaining attention and concentration (Arithmetic = 3; Digit Span = 4; Digit Symbol = 3).

The thought processes are rigid and uncreative (Similarities = 4; Object Assembly = 3).

The subject can't recognize the important details and elaborate a concept from singular details. His abstract thought skills aren't sufficient for working on visual material (Picture Completion = 5; Object assembly = 3).

The visual motor coordination, although poor, is the most preserved cognitive skill (Block Design = 6).

Starting the analysis of the Rorschach test from the cognitive profile the subject is few productive, he gives only 14 responses and almost all of them have a poor formal quality.

The content is limited, often stereotyped so his personality isn't dynamic.

The thought is rigid and not spontaneous (F% = 57%; Fk + F + Fc/R% = 57%).

The world vision is very stereotyped (A% = 71%; P = 1).

To approach the reality and solve the problems he uses a mode of thought typically theoretical-abstract, so he is projected to an ideal world and he lacks of concrete thought. This could indicate intellectual difficulties or an emotive disorder (W% = 79%; D% = 21%).

He is also too ambitious compared to his real skills (W/M = 11/0).

The reality examination is very compromised (Reality Index = 1).

The affective profile indicates that the subject reacts with ambivalence to the affective stimulus, showing moments of closing even if prevails an instinctual reaction (Affective Index = 1 and 29%).

Both for the actual relationships that for his personality base style he can be defined an "Extratensive" (T.V.I = 0/2,5; t.v.i = 1/2). This means that he is oriented to shallow relationships and he has problems in the intimate relationships.

The Impulsivity Index of 0.75 suggests a high instinctual level associated to a poor restraint (Restraint Index = 1/2). The subject isn't able to modulate his impulses (TTN/

TTC = 9.2/9.8).

The analysis of the EGO deep structure, considering the presence of barriers and penetrations, reveals a personality with rigid borders but deep structural lesions (Bs = 2; Ps = 4).

Another important element is the total absence of human figures (H = 0). This indicates a difficulty to recognize the other people and a lack of empathy.

The Graphic tests show important elements of the personality both on the graphic plan that on the content plan.

Regarding the graphic elements a light and dashed line emerges, this suggest a certain weakness of the EGO and an incomplete integration of the own body image.

The figures are located in the upper part of the sheet to indicate that the subject represents himself on a spiritual and intellectual plan.

His graphic style doesn't reflect his age. The figures are very similar and not elaborated. The head is very big, there isn't the neck and it's difficult to separate the bust from the limbs.

This could suggest cognitive difficulties.

The eyes half closed and the feet detached from the edge of the sheet without support could point out a lack of contact with reality. The closed mouth shows a difficult opening to the external world and problems to establish relationships.

The pointy nose, the big hands with fingers pointed and the lack of neck, underline the impulsivity of the subject, his inability to control the instincts.

Regarding the content of the tests, at the family test the subject draws first an ideal family composed by his friends and then the real family.

There is a gap between the real self and the ideal self. The subject would be different but he hasn't enough energy for being what he wants.

He uses the ideal world like a refuge to escape from stressful events, in fact in the Fay test he represents a man under the rain without umbrella, but he says that this man is his Russian friend.

The psycho diagnostic assessment reveals an environment maladjustment. The cognitive functioning is compromised and the mental deterioration is very alarming considering the age of the subject. Especially he hasn't problem solving and decision making abilities that are fundamental to take on the difficulties of everyday.

Attention and concentration are the cognitive abilities more damaged.

His affective functioning is immature and shows a certain impulsivity badly controlled. The subject is dominated by impulses in search of instant gratification. He researches affection and love, often in a hidden way. He doesn't recognize the other's needs and he hasn't empathy. Even if he is able to have social interactions he can't establish intimate relationships.

His Ego is dominated by defensive mechanisms such as negation and dissociation, so he avoids stressful situations, searching refuge in an ideal world. These mechanisms let him to maintain a certain mental balance, and to have a normal functioning in the everyday life.

On the other hand such a psychic configuration takes him to develop vague and nonspecific physical symptoms and health worries.

Finally we can say that the subject presents the tendency to convert his fears and emotive pains in rational and more socially acceptable problems, using his body to express his discomfort.

4. Conclusions

The clinical practice can be complicated, especially when the patient presents more disorders.

The case study reported in this article represents an example of how a neurological disorder, such as epilepsy, can be accompanied by psychiatric and psychological disorders that confuse and make difficult diagnosis and treatment.

Our patient experienced the first epilepsy seizure at the age of sixteen in 2008. His crisis consists in absence not prolonging. Only in 2015, after seven years from the first manifestation, he received a psychological assessment that evidenced the presence of PNES (Psychogenic Non-Epileptic Seizure). We know that dissociative mechanism is related to conversion disorder such as PNES.

A recent research conducted by Ozdemir *et al.* (2016) [28], has investigated dissociative experiences in epilepsy patients using the Dissociative Experiences Scale (DES). The DES scores are significantly higher for the patient with epilepsy than the healthy individuals. Furthermore, higher levels of dissociation are associated with frequency of seizures.

Sundararajan *et al.* (2016) [29] have found that PNES is hyperlinked with dissociation and emotional dysregulation centres in the brain, examined with Functional MRI.

Another study [30] has evaluated the variables associated with co-existing of epilepsy seizures and Psychogenic Non-Epileptic Seizure. Somatoform, conversion or cluster B personality disorders were considerably more frequent in subjects with PNES than with ES.

People with PNES have high rates of psychiatric comorbidity, notably including Posttraumatic Stress Disorder (PTSD), personality and anxiety disorders.

Even if these studies evidence the necessity of making a psychological assessment to patients with epilepsy, in the clinical practice this procedure hasn't spread yet. In fact the neurologists rarely send patients with ES to psychiatric department. This case study strongly supports the need of creating a communicative canal between the various specialists to promote a correct diagnosis, prognosis and treatment.

Making a correct, quick differential diagnosis lets to establish if the causes of symptoms are organic or not. This is essential, in particular when the patient presents both PNES and ES because they may not receive it well [31]. A study on 75 patients with ES and PNES confirms that a significant number of patients with PNES feel that there is no hope for cure of their seizures and others don't agree that PNES has a psychological cause. The authors suggest that earlier diagnosis may prevent this miscommunication and result in better outcomes.

The present case study aims to bring attention on PNES and its features, but further researches should address a statistical approach and deepen the role of dissociation and posttraumatic stress disorder in the genesis of PNES.

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