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"BETWEEN MIND AND NERVES: DIAGNOSTIC CHALLENGES IN FLUCTUATING NEUROLOGICAL SYMPTOMS"

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ABSTRACT

Functional Neurological Disorder (FND) represents a common diagnostic challenge in neuropsychiatry, particularly when it occurs in the context of comorbid psychiatric disorders and fluctuating neurological symptoms.

We report the case of a 22-year-old man with a history of recurrent major depressive disorder with psychotic features who presented with episodes of transient loss of consciousness, gait instability, fluctuating motor weakness, and paresthesia in the setting of repeated psychological stress.

Neurological investigations, including electroencephalography (EEG), brain computed tomography (CT), electroneuromyography (ENMG), and spinal magnetic resonance imaging (MRI), revealed no significant abnormalities.

Following optimization of antidepressant and antipsychotic therapy, the patient showed marked clinical and psychiatric improvement, with complete recovery of motor function and resolution of sensory symptoms.

This case highlights the diagnostic challenges in distinguishing Functional Neurological Disorder (FND),from an evolving organic neurological disorder and underscores the importance of a multidisciplinary neuropsychiatric approach for accurate diagnosis and appropriate management.

INTRODUCTION

Functional Neurological Disorder (FND), formerly referred to as conversion disorder, encompasses a range of motor, sensory, cognitive, and dissociative neurological symptoms

that are incompatible with recognized neurological diseases and are not intentionally produced [1]. Clinical manifestations are highly heterogeneous and may include muscle weakness, sensory disturbances, abnormal movements, speech disorders, or dissociative seizures, often exhibiting a fluctuating course over time [1].

Historically considered a diagnosis of exclusion, FND is now defined in the DSM-5-TR by the presence of positive clinical signs that support the diagnosis, rather than solely by the absence of an underlying organic condition [2]. This paradigm shift has also highlighted the possibility of coexistence between FND and organic neurological disorders, including epilepsy, tic disorders, and Parkinson's disease [3].

Despite these advances, distinguishing FND from organic neurological disease remains challenging, particularly in patients presenting with atypical or fluctuating symptoms and comorbid psychiatric conditions. Psychological factors, stressful life events, and anxiety-depressive disorders are recognized contributors to the pathophysiology of FND and are frequently reported among affected individuals [4].

Through the presentation of a young patient with recurrent major depressive disorder with psychotic features who developed fluctuating neurological symptoms in the context of repeated psychological stress, we discuss the diagnostic challenges involved in differentiating FND from organic neurological disease and emphasize the value of an integrated neuropsychiatric approach.

Case Report

A 22-year-old man with a history of recurrent major depressive disorder with psychotic features (DSM-5-TR code F33.3) had been under psychiatric follow-up since the age of 12 years, the patient had a number of episodes of brief loss of consciousness without tongue biting or urinary incontinence, about 10 years before presentation, soon after he developed some depressive symptoms as a result of his parents' divorce and his father moving out of the family home, these episodes were always worsened after familial conflicts.

Later, following the death of a close friend, he gradually developed gait instability, periodic weakness of the lower limbs, balance problems, intermittent paresthesias of the lower limbs and periodic micturition disturbances.

An initial neurological assessment was requested by his psychiatrist,there were no abnormalities on electroencephalography (EEG), brain computed tomography (CT) or routine laboratory tests. The patient's clinical condition improved after treatment with antidepressant and antipsychotic drugs.

Neurologically he improved gradually with balance and gait improving such that he was able to walk with the support of crutches,loss of consciousness and urinary disturbance episodes cleared up.

Ten days before the current consultation, the patient experienced a significant psychological stressor related to his sister's visual condition and the possibility of vision loss requiring surgical intervention,Shortly thereafter, he developed heaviness and weakness of the right upper limb associated with reduced muscle tone and paresis,Neurological evaluation was done, Electroneuro-muscular-graphy (ENMG) did not show any abnormality while the magnetic resonance imaging (MRI) of the spine was normal.

Based on the neurologist's recommendation, a brachial plexus and nerve root MRI was planned to further exclude peripheral neuropathic involvement.

At the same time, the patient's depressive symptoms worsened and she started to feel perceptual disturbances and thoughts of suicide,the optimisation of psychotropic treatment included fluoxetine 20 mg/day and aripiprazole 15 mg/day.

After treatment adjustment, there was significant psychiatric and neurological improvement with restoration of strength in the right upper limb, recovery of muscle tone and complete resolution of paresthesia.

The overall timing of symptom exacerbation with psychological stressors, the variable nature of neurological symptoms, the lack of objective abnormalities on repeated neurological testing, and the good response to psychiatric treatment were all very strongly suggestive of Functional Neurological Disorder (FND),However, the differential diagnosis of an evolving organic neurological process (EONPS) and especially peripheral neuropathy was an important one throughout the diagnostic evaluation.

DISCUSSION

Diagnostic Challenges Between Functional Neurological Disorder and Organic Neurological Disease

Functional Neurological Disorder (FND), previously referred to as conversion disorder in earlier diagnostic classifications, is a common condition encountered in both neurology and consultation-liaison psychiatry [5], It is characterized by motor, sensory, or dissociative neurological symptoms that are incongruent with recognized neurological diseases and cannot be fully explained by an identifiable structural or physiological neurological abnormality [6].

Clinical manifestations of FND are heterogeneous and may include limb weakness, sensory disturbances, abnormal movements, speech disorders, visual symptoms, dysphagia, or dissociative seizures,these symptoms frequently emerge following psychologically distressing events and are not intentionally produced.

Although no underlying structural neurological lesion is identified, the symptoms are genuine and may result in substantial functional impairment and reduced quality of life.

In the present case, several clinical features initially raised concern for an underlying neurological disorder, particularly gait impairment, fluctuating weakness, lower-limb paresthesia, and urinary disturbances.

However, the absence of significant abnormalities on repeated neurological investigations, including EEG, brain CT, ENMG, and spinal MRI, together with the marked fluctuation of symptoms over time, favored the diagnosis of FND [7].

Distinguishing FND from organic neurological disease remains challenging, especially in patients presenting with atypical neurological manifestations or comorbid psychiatric disorders.

Such diagnostic uncertainty may lead either to prolonged diagnostic investigations and excessive healthcare utilization or, conversely, to the underrecognition of an evolving neurological disorder.

Therefore, careful clinical assessment and longitudinal follow-up remain essential to ensure diagnostic accuracy.

Pathophysiological Mechanisms of Functional Neurological Disorder

The pathophysiology of FND is complex and multifactorial,Contemporary neurobiological models no longer consider FND solely as a psychogenic disorder but rather as a dysfunction of large-scale brain networks involved in motor control, sensory processing, emotional regulation, attention, and self-awareness [8].

Functional neuroimaging studies have identified abnormal connectivity between the prefrontal cortex, supplementary motor area, limbic system, amygdala, and parietal regions involved in body perception and motor control [9].

These abnormalities may contribute to altered integration of emotional and sensorimotor information, leading to the emergence of neurological symptoms in the absence of structural neurological damage.

Psychological stressors and emotionally salient experiences are thought to trigger aberrant activation of limbic networks, which may subsequently interfere with motor and sensory

circuits [10]. Consequently, patients experience symptoms that are subjectively real and disabling despite the absence of objective neurological lesions.

Furthermore, early-life psychological trauma, adverse childhood experiences, repetitive emotional stress, and unresolved intrapsychic conflicts have been associated with alterations in attentional mechanisms and sensorimotor processing [11].

Current models suggest that functional symptoms arise from unconscious alterations in predictive processing and the brain's interpretation of bodily signals rather than from deliberate symptom production.

In the present case, neurological manifestations consistently occurred in the context of major emotional stressors, including parental divorce, family conflicts, the death of a close friend, and concerns regarding the potential visual loss of the patient's sister.

This strong temporal relationship between psychological distress and neurological symptom exacerbation supports the hypothesis of functional dysregulation involving emotional and motor networks.

Role of Psychological Factors and Stressful Life Events

Psychological factors play a central role in both the development and maintenance of FND [9]. Numerous studies have reported a high prevalence of psychological trauma, adverse life events, family dysfunction, and chronic psychosocial stress among individuals diagnosed with FND [12].

In the present case, fluctuating neurological symptoms appeared closely linked to emotionally distressing life events.

Episodes of transient loss of consciousness were consistently precipitated by family conflicts, whereas neurological deterioration occurred following periods of significant psychological distress.

Notably, the recurrent episodes of loss of consciousness without tongue biting or urinary incontinence were suggestive of psychogenic non-epileptic seizures (PNES), a condition frequently associated with FND [13], PNES is currently recognized as part of the broader spectrum of functional neurological symptoms and is commonly linked to emotional dysregulation and dissociative mechanisms.

The temporal association between emotional stressors and symptom exacerbation observed in our patient is consistent with previous findings supporting the role of psychological stress in precipitating functional neurological symptoms.

Association Between Major Depressive Disorder and Functional Neurological Symptoms

Psychiatric comorbidities, particularly anxiety and depressive disorders, are frequently reported among patients with FND [14], mood disorders may contribute to the development, maintenance, and exacerbation of functional symptoms through complex interactions involving emotional dysregulation, attentional biases, and altered perception of bodily sensations.

In the present case, recurrent major depressive disorder with psychotic features had been present since adolescence, Neurological symptom exacerbations appeared to parallel periods of psychiatric decompensation, including worsening depressive symptoms, perceptual disturbances, and suicidal ideation.

The marked improvement in both psychiatric and neurological symptoms following optimization of antidepressant and antipsychotic treatment further supports the contribution of functional mechanisms to the patient's clinical presentation [15].

Although psychiatric improvement alone does not establish a diagnosis of FND, the parallel recovery of mood symptoms and neurological deficits suggests a close interaction between psychopathology and functional neurological manifestations.

Importance of a Multidisciplinary Approach

The diagnosis and management of FND require a multidisciplinary approach involving neurologists, psychiatrists, psychologists, and rehabilitation specialists [16].

Effective management begins with clear communication of the diagnosis in a manner that validates the patient's symptoms while explaining the functional nature of the disorder.

Current evidence supports a biopsychosocial treatment model integrating psychiatric care, psychological interventions, and physical rehabilitation tailored to the patient's specific symptoms and needs [17],cognitive behavioral therapy, physiotherapy, and treatment of comorbid psychiatric disorders have demonstrated beneficial effects in many patients with FND.

In cases characterized by fluctuating neurological symptoms, atypical clinical presentations, or significant psychiatric comorbidity, comprehensive neuropsychiatric assessment is particularly important [18,19].

Close collaboration between neurology and psychiatry facilitates diagnostic clarification, reduces unnecessary investigations, and promotes more effective treatment planning.

The present case illustrates the importance of considering FND in the differential diagnosis of unexplained neurological symptoms, particularly when symptom fluctuations, psychosocial stressors, psychiatric comorbidity, and normal neurological investigations coexist,early recognition and multidisciplinary management may improve both functional outcomes and quality of life.

CONCLUSION

This case highlights the complexity of the differential diagnosis between Functional Neurological Disorder (FND) and organic neurological disease in a patient with a comorbid psychiatric condition.

The fluctuating nature of neurological symptoms, their occurrence in the context of significant emotional stress, the absence of relevant abnormalities on comprehensive neurological investigations, and the clinical improvement following psychiatric management collectively supported the diagnosis of FND.

This case underscores the importance of a multidisciplinary neuropsychiatric approach and a thorough clinical evaluation in order to avoid both excessive diagnostic investigations and the potential underrecognition of an early-stage neurological disorder.

It also emphasizes the crucial role of psychological factors in the expression and persistence of functional neurological symptoms.

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