

CASE REPORT

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# Functional movement disorder similar to Parkinson's disease: a case report

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## Abstract

**Introduction** Functional neurological disorder challenges conventional medical understanding, presenting neurological symptoms without organic explanations. This report delves into the intricate interplay between psychological and physical manifestations, emphasizing the importance of timely diagnosis and intervention and its impact on a patient's mental health and quality of life.

**Case presentation** A 40-year-old single Iranian man was admitted for the third time owing to exacerbation of mood symptoms, including depression, irritability, aggression, suicidal ideation, and movement and sensory problems. The patient's symptoms began with psychological stressors and family conflict, leading to muscle weakness and tremors in the left hand. Over a year, muscle weakness escalated, leading to slow movement, motor impairment in the lower limbs, and reliance on a cane for walking. The patient still exhibited symptoms, such as a mask-like face, stooped walking posture, and a relative improvement of symptoms periodically. At first, the patient was suspected of Parkinson's disease and was placed on levodopa and amantadine. However, the medication was discontinued owing to an unsatisfactory response and the lack of strong evidence in favor of neurological problems on frequent examinations and reviews. Despite multiple hospitalizations, the patient's symptoms remained unresolved. Finally, after years of investigations, based on specialists' recommendations, he was admitted to the psychosomatic ward for diagnostic evaluation, and he was diagnosed with functional neurological disorder (psychogenic parkinsonism). He underwent pharmacotherapy, electroconvulsive therapy, and psychotherapy. He was discharged with partial improvement of symptoms, but showed periods of relapse and remission during the following years.

**Conclusion** This case study illuminates functional neurological disorder complexities, emphasizing the need for a holistic diagnostic approach. Timely interventions, including psychological support, can alleviate symptoms, reduce healthcare costs, and improve the overall prognosis. The report contributes to evolving functional neurological disorder understanding in psychiatry and neurology. The report underscores early recognition, advocating for comprehensive interventions involving psychiatric support, cognitive-behavioral therapy, and patient psychoeducation.

**Keywords** Psychogenic, Parkinsonism, Conversion disorder, Functional movement disorder

## Introduction

Functional neurological disorder (FND) is a condition in which the signs and symptoms are not effectively explained by known neurological or medical illnesses, or there is a discrepancy between the symptoms and ailments recognized as disorders [1].

FND represents a complex and often misunderstood category of conditions where patients experience neurological symptoms without an apparent organic cause.

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This enigmatic disorder challenges the conventional understanding of brain–body interactions, delving into the intricate interplay between psychological factors and physical manifestations. Mental health may be negatively impacted by the unpredictability of FND symptoms and their correlation with psychological variables, which may result in social isolation, stigma, and strained relationships [2]. The Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM5) lists a wide range of symptoms as specifiers for this illness, such as “with weakness or paralysis,” “with abnormal movement,” “with swallowing symptoms,” and so on [3].

Functional movement disorder (FMD) is a subtype of FND (also known as conversion disorder) and is characterized by abnormal body movements owing to abnormal functioning of the nervous system. The signs and symptoms of this condition do not resemble known neurologic disorders [2]. Neurologists or neuropsychiatrists should make the diagnosis based on the presence of “positive signs” of inconsistency and incongruency with neurological diseases [4]. According to the DSM-5, a current method for diagnosing FND involves identifying “positive signs” that can confirm the diagnosis of FMD rather than relying on excluding other neurological illnesses [4, 5]. Exploring the etiology of FND reveals the role of stress, trauma, and emotional distress in triggering symptoms that mimic neurological disorders. FMD is common in clinical settings, but the diagnosis is often delayed or missed, and the prognosis for complete remission is generally poor. Despite its prevalence, FND remains underdiagnosed, with epidemiological studies shedding light on the substantial impact it has on individuals and healthcare systems. Over time, more emphasis has been placed on physical examination signs to guide the diagnosis and use of evidence-based treatments, including physiotherapy and multidisciplinary rehabilitation [6].

In this article, we present a case of functional Parkinsonism (psychogenic Parkinsonism), previously diagnosed as Parkinson’s disease and followed up at neurology clinics with antiparkinsonian treatment. As a striking example of functional Parkinsonism with an atypical presentation and a chaotic clinical course of Parkinsonism symptoms, we aimed to discuss the recognition of the disorder through specific findings and observations based on “rule-in” diagnosis during psychiatric evaluations to emphasize the importance of timely diagnosis and early intervention.

This report also endeavors to unravel the nuances of FND and a patient’s unique condition, offering insights into the intricate landscape of functional disorders within psychiatry and neurology.

## Case presentation

A 40-year-old unmarried Iranian man with a bachelor’s degree in management was admitted to the psychiatric ward with self-consent for the third time owing to movement problems and exacerbation of mood symptoms, including depressed mood, irritability, aggression, and suicidal ideation. At the same time, he blamed his family for the above problems.

Neuropsychiatric symptoms began 4 years ago with the manifestation of physical symptoms such as weakness and numbness in the left upper limb, gradually involving the left shoulder, lower limb, and face. Despite comprehensive examinations by various specialties, such as neurologists and rheumatologists in various hospitals, to diagnose and treat physical symptoms, physicians have not reached a definitive diagnosis. It is noteworthy that the patient was farmer before his illness. He used to do other work, such as tiling and welding, but in recent years he has not been able to perform effectively owing to his illness. The patient and his family have no history of substance use, and no physical or mental illnesses were found in their medical records. There was no secondary gain in the investigations and during the follow up.

His issues, initially related to psychological stress and family and emotional stressors. The psychological stressors in patient’s life was love loss and emotional breakdown owing to the family’s opposition to their marriage, and the patient’s symptoms gradually manifested 1 or 2 months later as muscle weakness and tremors in the left hand following prolonged work in the garden. Subsequently, the muscle weakness intensified, causing motor impairment in the lower limbs, and he relied on a cane for walking. Despite multiple medical visits and thorough examinations, there was no improvement, and over the course of a year, his muscle weakness continued. The lower jaw and neck muscles also experienced weakness and occasional stiffness, making swallowing difficult and reducing appetite, leading to weight loss. Additionally, spasms in the facial region occurred, and the patient could only move his eyes during certain periods, particularly improving during sleep and recurring upon waking. During a neurological visit, there was a suspicion of Parkinson’s disease, and he was placed on a trial treatment with levodopa and amantadine. However, owing to the lack of proper treatment response, the side effects of the drug, and the patient’s intolerance, the drug was stopped after a while. Through numerous hospitalizations, consultations with neurology and internal medicine services, as well as various tests including Electromyography Test and Nerve Conduction Velocity (EMG-NCV), and radiological evaluations, such as brain and cervical magnetic resonance imaging (MRI), barium swallow

endoscopy, and various laboratory tests, the only paraclinical finding was partial damage to the left ulnar nerve. Other evaluations were reported as normal.

Finally, based on specialists' recommendations, he was admitted to the psychosomatic unit for diagnostic evaluation by a psychiatrist. In the clinical description, in addition to somatic symptoms, mood swings, irritability, sudden anger attacks, and aggression toward family members were noted. He exhibited a mask-like face and stooped walking posture during the physical examination. Although he used a cane for assistance, he could sit, stand, and walk without it during neurological examinations. He walked easily on his toes and heels and had good balance. There was stiffness in the elbow and wrist joints, which mostly favored *Gegenhalten* (oppositional paratonia). He performed well in the clock drawing test.

Muscle force was measured at 5/5 without fasciculations. No colonic movements in the limbs were noticed. His speech was incomprehensible owing to a low voice tone and jaw movement weakness, which fluctuated throughout the interview, but the form and content of his thoughts appeared normal. Tremors were also seen in the upper limbs, which fluctuated in intensity and frequency during the examination. The association between psychiatric manifestations and their impact on the deterioration of somatic symptoms (motor and sensory problems) was also highlighted. Consequently, with the initial diagnosis of major depressive disorder and FND (psychogenic parkinsonism), he underwent pharmacotherapy with sertraline (100 mg/day) and quetiapine (12.5 mg/day). After partially improving his emotional and movement symptoms, he was discharged. Following poor therapeutic compliance, he was urgently rehospitalized owing to the discontinuation of medications and a recurrence of symptoms, including suicidal thoughts. On the second admission, he received treatment with electroconvulsive therapy (ECT). Despite a satisfactory improvement after three sessions, he left the hospital with personal consent.

On the third admission, after a few months and a detailed evaluation of the clinical condition, the relationship between psychological conflicts and vivid clinical manifestations became more apparent. The patient was referred for psychotherapy after treatment with escitalopram (10 mg/day), sodium valproate (200 mg/day), and quetiapine (25 mg/day). At the time of discharge, after 3 weeks of hospitalization, the patient showed an acceptable improvement in physical and mental symptoms and had no specific drug side effects.

The patient has been followed up for more than 2 years. During this period, the patient's symptoms had episodes of relapse and subsidence, which were related to mental stress and the discontinuation of medications. The patient is visited monthly by a psychiatrist, although he

does not cooperate during psychotherapy. Thus far, he has not required readmission to the hospital.

## Discussion

In this case, the patient showed motor and sensory symptoms resulting from psychological problems, which disappeared following psychiatric treatments.

The patient's medical and psychiatric history and its alignment with neurological findings and clinical observations, the pattern of recurrent remission and relapses in symptoms and complaints, along with the association with psychiatric symptoms, suggests the basis of functional issues in patients with movement disorders. FMD is characterized by the main presentation of tremors, dystonia, gait disturbance, or other forms of aberrant movement. Individuals diagnosed with FMD experience neurological symptoms that do not align with recognized neurological conditions yet are authentic, resulting in discomfort and psychosocial impairment [1]. Functional neurological disorders have an incidence of 4 to 12 per 100,000 population per year (4 to 5 per 100,000 population per year for FMD) and a prevalence of 50 per 100,000 population based on a community registry [7]. The frequency of psychogenic Parkinsonism among patients with psychogenic movement disorders is variable in different series, but is usually less than 10% [8].

Women are more frequently affected, although specific presentations such as functional myoclonus or Parkinsonism appear to have similar or greater frequency in men [7]. Given the diagnostic challenges, there is concern about misdiagnosis. Diagnosis by DSM-5 no longer requires identifying precipitating stressors, because these are not always found despite recent and historical stressors being more common in FNDs. Furthermore, the specificity and sensitivity of positive signs, which are essential in supporting a phenotype-based diagnosis, may be biased by several factors, including lack of gold standards against which to compare them, inappropriate patient cooperation, coexistence of other neurological diseases, and unblinded assessments in most studies [7].

The tremor in Parkinson's disease is referred to as a "resting tremor" since it presents primarily at rest. It goes away with movement but often returns when the limb, usually a hand or fingers, is held in one position. In contrast, tremors persist equally in resting and action states in FMDs. Functional tremor exhibits several distinct indicators, such as prominent features of distractibility (improvement with distraction), variability (changing pattern over time), effect of holding weight (tremor may be increase in amplitude or transmitted to other body segments), and entrainability, distinguishing it from Parkinson's illness. Additionally, suggestibility, motor inconsistency and enhancement with attention

favor functional disorders [9]. Entrainment can be demonstrated by asking the patient to copy a rhythmic movement with an unaffected limb, such as finger tapping. In functional tremor, tremor will either improve or change to match the frequency of the voluntary movement or the patient will have trouble copying the movement [8].

In our patient, tremor complaints were accompanied by fluctuations, diminished with distraction and exacerbated with attention, and temporarily arrested when the patient was asked to perform a ballistic contralateral movement (entrainability) and increased amplitude with a weight load, favoring functional tremor.

Other signs or symptoms that raised suspicion of Parkinson's disease in this patient were bradykinesia and rigidity. Short-lived rigidity in the muscles of the left upper limb without cogwheeling was obtained, which is insufficient for a definitive diagnosis of true Parkinsonism but has led to persistent diagnostic uncertainties, numerous evaluations, and unsuccessful therapeutic efforts. Functional bradykinetic movements are slow and effortful but lack the typical decrement in speed or amplitude observed with successive movements in true bradykinesia (slowing without decrement). Moreover, a functional increase in muscle tone is the result of gegenhalten or paratonia rather than true rigidity (involuntary resistance to passive movement), and cogwheeling is absent. Additionally, unlike Parkinson's disease, reinforcement maneuvers in psychogenic Parkinsonism reduce rigidity [4, 8, 10]. Atypical gait abnormalities and postural instability are often present in functional Parkinsonism. Postural stability testing (pull test) may reveal positive signs, such as arm-flailing and reeling backward without falling [10].

In our patient, bradykinetic movements were slow and laborious without typical reductions in speed or amplitude, simple movements appeared difficult (huffing and puffing sign), and rigidity was also without cogwheel and as involuntary resistance to passive movement (paratonia), suggesting functional impairment. Additionally, inconsistent deficit in gait and stance with normal period of walking was observed; pull test revealed arm-flailing and reeling backward without falling.

In addition to the above, abrupt onset of disease, history of precipitating event, fast progression to maximum symptom severity and disability, incongruity of symptom with a known neurological disease, waxing and waning symptoms over time, and functional disability out of proportion to examination findings in our patient was in favor of functional disorders.

In addition to the atypical and perplexing manifestations of FNDs, recent years have brought about other challenges, such as poor insight and acceptance, denial, obsessive doubts, excessive internet searches, and

illness-related anxiety, affecting the patient's psychological adjustment to these issues. This has left the patient and their family fatigued, hopeless, and trapped in a vicious circle. Ultimately, it has led to poor medication compliance and rendered treatment efforts less effective, with an increased frequency of hospitalizations marked by manifestations of mood and behavioral disturbances. Although clinical and laboratory findings, along with further follow-up over time, will evaluate this hypothesis. Here, the importance of early diagnosis of functional disorders and proper differentiation from medical conditions becomes prominent. Early intervention and psychiatric support, coupled with cognitive-behavioral therapy (CBT) in tandem with the treatment of comorbid psychiatric disorders, such as mood disorders, anxiety, and obsessive-compulsive disorders, along with education for the patient and their family, can significantly mitigate the exacerbation of symptoms in the future. A careful diagnosis is important in order to avoid unnecessary and invasive therapies such as harmful escalation of anti-parkinsonian medication, surgical ablative therapies, and deep brain stimulation. Moreover, this approach can also prevent unnecessary costs imposed on the patient and the healthcare system, improving the disease's prognosis.

## Conclusion

FMD is not a diagnosis of exclusion; it is a "rule-in" diagnosis that requires the presence of characteristic clinical features and the demonstration of positive signs. Investigations should be done as appropriate to rule out comorbid neurologic diseases. This case study illuminates FND complexities, emphasizing the need for a holistic diagnostic approach. Timely interventions, including psychological support, can alleviate symptoms, reduce healthcare costs, and improve the overall prognosis. The report contributes to evolving FND understanding in psychiatry and neurology. The report underscores early recognition, advocating for comprehensive interventions involving psychiatric support, cognitive-behavioral therapy, and patient psychoeducation.

## Acknowledgements

The authors would like to express their gratitude to the Deputy of Research and Technology of Kurdistan University of Medical Sciences for the technical and editorial assistance.

## Author contributions

Sara Goudarz Zadeh and Shayan Shekarabi drafted the manuscript and participated in collecting and interpreting the clinical data. Mahnaz Abdi revised the manuscript and collected and interpreted the clinical data. All authors read and approved the final manuscript.

## Funding

No source of funding.

## Availability of data and materials

Data supporting our findings were taken from the patient's folders.

## Declarations

### Ethics approval and consent to participate

This study was approved by the ethics committee of the Kurdistan University of Medical Sciences (code: IR.MUK.REC.1403.011).

### Consent for publication

Written informed consent was obtained from the patient for publication of this case report and any accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal.

### Competing interests

The authors declare that they have no competing interests.

Received: 11 May 2024 Accepted: 21 August 2024

Published online: 01 October 2024

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