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A Clinical Case Report on Progressive Parkinson's Disease with Motor and Non-Motor Manifestations

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Case Report

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ABSTRACT

Parkinson's disease (PD) is a chronic, progressive neurodegenerative disorder primarily affecting motor function due to degeneration of dopaminergic neurons in the substantia nigra. It is characterized by hallmark clinical features such as tremor, rigidity, bradykinesia, and postural instability, along with a spectrum of non-motor symptoms. This case report describes a 68-year-old male patient presenting with classical motor symptoms accompanied by cognitive and autonomic disturbances. Clinical diagnosis was established based on neurological examination and response to dopaminergic therapy. The patient was managed with pharmacological treatment and supportive therapies, demonstrating partial symptomatic improvement. This report highlights the importance of early recognition, multidisciplinary management, and the impact of non-motor symptoms on quality of life. Parkinson's disease remains incurable, but timely intervention can significantly improve patient outcomes.

Keywords

Parkinson's disease, bradykinesia, tremor, dopamine deficiency, neurodegenerative disorder, clinical case report

INTRODUCTION

Parkinson's disease is a progressive neurological disorder affecting movement and coordination. It results from degeneration of dopamine-producing neurons in the brain, particularly in the substantia nigra . The reduction in dopamine disrupts normal motor control, leading to characteristic symptoms such as tremor, rigidity, and slowed movements .

The disease typically manifests in individuals over the age of 60 and progresses gradually over time. Although the exact etiology remains unclear, genetic predisposition and environmental factors are believed to contribute to disease onset . In addition to motor symptoms, patients often develop non-motor features including depression, cognitive decline, and autonomic dysfunction, significantly affecting quality of life .

This case report presents a typical clinical scenario of Parkinson's disease, emphasizing diagnostic challenges and management strategies.

Case Presentation

A 68-year-old male presented to the neurology outpatient department with complaints of tremors in the right hand for the past 18 months. The tremor was initially mild and intermittent but gradually became persistent. It was more prominent at rest and decreased during voluntary movements.

The patient also reported progressive slowness in daily activities, difficulty in initiating movement, and stiffness in the limbs. Over the past six months, he experienced difficulty in maintaining balance and reported two episodes of falls. Family members noted reduced facial expressions and soft, monotonous speech.

Non-motor symptoms included constipation, disturbed sleep, and mild depressive symptoms. There was no significant family history of neurological disorders. The patient had no history of exposure to toxins or head injury.

Clinical Findings

On physical examination, the patient appeared alert but exhibited masked facies (reduced facial expression).

Neurological examination revealed:

Resting tremor in the right hand ("pill-rolling" type)

Increased muscle tone (rigidity) in both upper limbs

Bradykinesia with slow voluntary movements

Stooped posture with reduced arm swing

Impaired postural reflexes

Cognitive assessment showed mild impairment in executive functions. Reflexes were normal, and no sensory deficits were noted.

Diagnostic Assessment

The diagnosis of Parkinson's disease is primarily clinical, based on characteristic motor symptoms. In this case, the presence of resting tremor, bradykinesia, and rigidity strongly suggested PD.

Laboratory investigations were within normal limits, excluding metabolic causes. Brain imaging (MRI) showed no structural abnormalities, supporting the diagnosis of idiopathic Parkinson's disease.

The patient showed significant improvement after initiation of levodopa therapy, which further confirmed the diagnosis, as levodopa remains the most effective treatment for PD .

Pathophysiology

Parkinson's disease results from progressive loss of dopaminergic neurons in the substantia nigra, leading to decreased dopamine levels in the brain . Dopamine plays a critical role in regulating motor function, and its deficiency leads to impaired coordination and movement abnormalities.

Additionally, abnormal accumulation of alpha-synuclein protein forms Lewy bodies, which contribute to neuronal degeneration . Mitochondrial dysfunction, oxidative stress, and neuroinflammation also play important roles in disease progression.

Management

Pharmacological Treatment

The patient was started on:

Levodopa-carbidopa combination therapy

Dopamine agonists

Anticholinergic agents for tremor control

Levodopa is considered the gold standard for managing motor symptoms, as it replenishes dopamine levels in the brain.

Non-Pharmacological Management

Physiotherapy to improve mobility and balance

Occupational therapy for daily activities

Speech therapy for voice modulation

Psychological counseling for depression

Rehabilitation plays a significant role in improving functional independence and quality of life.

Follow-Up and Outcome

After three months of treatment, the patient showed noticeable improvement in motor symptoms, particularly reduced tremor and improved mobility. However, mild bradykinesia and rigidity persisted.

Non-motor symptoms such as constipation and sleep disturbances were managed with supportive care. The patient was advised regular follow-up to monitor disease progression and medication response.

DISCUSSION

Parkinson's disease is a common neurodegenerative disorder characterized by progressive motor impairment. The classical triad includes tremor, rigidity, and bradykinesia. These symptoms arise due to dopamine deficiency caused by neuronal degeneration.

Early diagnosis is crucial for effective management. However, diagnosis can be challenging in early stages due to subtle symptoms.

Clinical evaluation remains the cornerstone of diagnosis, as no definitive laboratory test exists.

Non-motor symptoms are increasingly recognized as significant contributors to disease burden. These include depression, sleep disorders, autonomic dysfunction, and cognitive impairment. Addressing these symptoms is essential for comprehensive care.

Pharmacological therapy primarily focuses on dopamine replacement. Levodopa remains the most effective drug, although long-term use may lead to complications such as dyskinesia. Advanced therapies, including deep brain stimulation, may be considered in selected patients.

Despite advances in treatment, Parkinson's disease remains incurable. Management aims to control symptoms and improve quality of life.

CONCLUSION

This case report highlights the classical presentation and management of Parkinson's disease. Early recognition of symptoms, accurate clinical diagnosis, and a multidisciplinary approach are essential for optimal patient care. While pharmacological therapy provides symptomatic relief, addressing non-motor symptoms and providing supportive care are equally important. Continued research is needed to develop disease-modifying therapies.

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