

Case Report

Woman aged 42 years with Parkinson's disease: a case study

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ABSTRACT

Parkinson's disease is also known as shaking palsy. It is a chronic, progressive neurodegenerative disease characterized by both motor and non-motor features. The prevalence of Parkinson disease is reported to be approximately 1% in people 60 years of age and older increases to 1% to 3% in the 80 plus age groups. Risk factors included oxidative stress, the formation of free radicals and environmental toxins. The most frequently reported symptoms in Parkinson disease are tremors in one hand, other symptoms showing slowness in movement, stiffness and loss of balance. Various diagnostic test performed to rule out Parkinson's disease that is brain imaging, dopamine active transporter (DaT) scan, skin biopsy etc. Parkinson's disease can be managed by combination of drugs like levodopa and monoamine oxidase (MAO)-B inhibitors.

Keywords: Parkinson disease, Dopamine active transport, Free radicals, Levodopa, Motor features

INTRODUCTION

Parkinson's disease was first described by Dr. James Parkinson in 1817.¹ Parkinson's disease (PD) is most prevalent disease condition and it is characterized by bradykinesia, stiffness, resting tremor, and postural instability.²

Lewy bodies and Lewy neurites, along with cell loss in the substantia nigra and other brain regions, are pathological hallmarks of Parkinson's disease. Age is the most significant risk factors of developing Parkinson's disease. Other factors included hereditary and a number of behavioral and potentially modifiable environmental factors—such as pesticides, water pollutants, and nicotine and coffee use—as well as physical activities and head trauma—have majorly impact on developing Parkinson's disease in various populations.³

The substantia nigra region of the brain contains dopamine-producing neurons, which are degenerating and the cause of Parkinson's disease. Dopamine is a neurotransmitter that controls movement, and its levels are reduced as a result of this deterioration. The buildup of

alphasynuclein protein in the brain, oxidative stress, and inflammation are among the other pathogenic characteristics of Parkinson's disease that researchers have discovered.⁴

Types of Parkinson's and Parkinsonism

The different types of Parkinson's and Parkinsonism is illustrated in Figure 1.⁵

Early signs of Parkinson's disease

Early signs of Parkinson's disease are loss of smell, sleep disorders, depression, dizziness, rigid muscles, unintelligible speech and tremors.⁶

Various diagnostic test is performed to check the progression of disease that is (single-photon emission computed tomography (SPECT), DAT scan, alpha-synuclein protein test and modified Hoehn and Yahr scale.

A modified Hoehn and Yahr scale is often used to assess disease progression. The scale includes six stages - 0: no visible disease, 1: unilateral/asymmetric involvement;

main symptoms: possible tremor of one limb, muscle stiffness, 2: bilateral involvement, balance intact, possible facial masking, 3: bilateral involvement, slowed body movement, mild to moderate postural instability, and gait difficulty; independent ability to complete activities of daily living remains intact, 4: bilateral involvement, severe

postural instability, rigidity, and bradykinesia; requires assistance with activities of daily living, and 5: bilateral involvement with inability to walk, confinement to wheelchair, cachexia present; requires complete assistance with activities of daily living.⁷

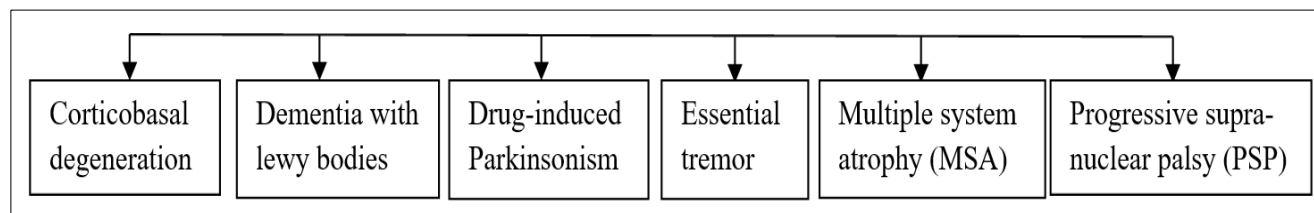


Figure 1: Types of Parkinson's and Parkinsonism.

Management of Parkinson's disease

Pharmacological management

Levodopa: The most widely prescribed medication for Parkinson's disease is levodopa, which is also the most effective at this time. Dopamine is replenished by levodopa.

MAO inhibitors: Drugs that work by inhibiting the brain's early dopamine breakdown, such as selegiline and rasagiline.

Dopamine agonists: These activate the brain's dopamine receptors to maximize brain function include ropinirole, pramipexole, and apomorphine.

COMT inhibitors: These prolong the effects of levodopa, such as entacapone and tolcapone, when used together.

Surgical management

Deep brain stimulation: The most popular surgical procedure is deep brain stimulation (DBS). A brain pacemaker, a medical device that delivers electrical impulses to particular regions of the brain, is implanted during the procedure. DBS is advised for PD patients with motor fluctuations and tremor that are not well controlled by medication or for those who are intolerant to it, provided they do not have serious neuropsychiatric issues.

Other treatment

Repetitive transcranial magnetic stimulation: It temporarily improves levodopa-induced dyskinesias.

Newer drugs for treatment of Parkinson disease

Fipamezole

It should be taken along with dopamine drug because it reduces the risk of dyskinesia.

Cogane/PYM50028

It helps in restoration of dopamine system in the brain.⁸

CASE REPORT

Here we present a case of Parkinson's disease. A 42 years old female, housewife visited to MMMC and H, Solan, H.P. with the chief complaints of progressive and worsening of tremors, generalized weakness and gradual weight loss.

She was experiencing these symptoms from last one month. Patient also complains of burning micturition and increased frequency.

Past medical history

The patient had a significant history of Parkinson's disease from last 17 years. First she consulted from Manta Hospital, Mandi then she referred to IGMCM Shimla. From there she has taken treatment from last 17 years. Medications has given like dopaminergics.

The patient had a significant history of fall in ground and strain on the foot from last 21 years.

Past surgical history

Not significant history of any surgery in the past.

General examination

It included weight: 45 kg, height: 160 cm, body mass index (BMI): 17.6 kg/m², and physical activity: having difficulty in performing daily routine activities due to tremors and unable to stand.

Physical examination

On physical examination her blood pressure was 124/70 mm Hg, heart rate was 74 b/min., respiratory rate was 18 breaths per minute, temperature was 97.8 °F.

Hairs: unequal distribution of hairs, face: mask like appearance on face, speech: micrographia present, gait: shuffling gait, musculoskeletal system: muscle stiffness and cogwheel rigidity was present, and others included pill rolling tremors.

Investigations

Laboratory data on admission included hemoglobin 11 g/dl was decreased, red blood cell (RBC) count 3.52 million/cumm (decreased), packed cell volume (PCV) 34% (decreased), ESR was 37 mm at 1st hr (increased). 25 (OH) vitamin D was decreased (16.87 ng/ml). During urinalysis pus cells was found.

MRI findings

MRI findings indicates: grade 1 Fazeka changes, mild prominence of corticoculcal spaces is noted in bilateral fronto-parietal lobes, few discrete punctate T2 FLAIR hyperintense foci are noted in deep white matter in bilateral frontal lobes.

Treatment

Treatment included tab. propranolol 20 mg OD, tab. levodopa and carbidopa 100 mg BD, tab. escitalopram 10 mg BD, tab. clonazepam 0.5 mg BD, tab. citicoline+ piracetam 500 mg BD, and tab. trihexyphenyl 2 mg BD.

Health education

Rehabilitation

It included regular physical exercise which is beneficial for maintaining the mobility, flexibility, strength, gait and quality of life, speech therapy, and deep diaphragmatic breathing exercises.

Diet

Muscles and nerves that supplies for digestive system is being affected in Parkinson's disease that causes constipation and gastroparesis. Nutritional assessment is recommended to check the body weight loss or gain and to rule out any gastro-intestinal function. Avoid to take levodopa and protein together because it reduces the effect of drug.

Outcome

After taking the treatment and patient condition was better. With the physiotherapy and exercise tremors was reduced at some extent.

Patient was advised to take all the medications on time.

Patient was advised to visit hospital after 15 days for follow up.

DISCUSSION

In our study we found that patient experiencing worsening tremors, generalized weakness, gradual weight loss, micrographia and mask like appearance were present from last 10 years. During diagnostic investigation, MRI finding revealed that patient had grade 1 Fazeka changes, mild prominence of corticoculcal spaces is noted in bilateral fronto-parietal lobes, few discrete punctate T2 FLAIR hyperintense foci are noted in deep white matter in bilateral frontal lobes. Patient was on levodopa and carbidopa 100 mg. Being after taking the treatment patient condition was better at some extent.

Similar study has been carried out by Hasan et al on Parkinson's disease results showed that patient experienced tremors, stiffness and difficulty with balance and coordination from last 5 years.⁹

The study conducted by Frei et al on case studies in the advancement of Parkinson's disease. Research study finding concluded that patient had taken levodopa/carbidopa infusion and being after the treatment taken patient experienced improvement in dyskinesia.¹⁰

CONCLUSION

Parkinson's disease diagnosis comes with a lot of difficulties. Even when dopaminergic medicine is taken well in the beginning, patients may still exhibit perplexing tremors or acquire symptoms not typically associated with Parkinson's disease. Additionally, early PD treatment is crucial. The last ten years have seen a major advancement in our understanding of Parkinson's disease and the treatment management choices available. As we've discovered, Parkinson's disease can include problems that are not related to movement. In order to enhance treatment, cautious physicians must comprehend certain subtle and perhaps perplexing signs, as demonstrated by these cases.

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Ethical approval: Not required

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