

Diagnosis and Treatment Report of Parkinson's Disease Complicated by Cerebrovascular Disease, Mood Disorder, and Gastrointestinal Dysfunction

Haowen Zhang*

Laixi People's Hospital, Qingdao 266600, Shandong, China

**Author to whom correspondence should be addressed.*

Copyright: © 2026 Author(s). This is an open-access article distributed under the terms of the Creative Commons Attribution License (CC BY 4.0), permitting distribution and reproduction in any medium, provided the original work is cited.

Abstract: Parkinson's disease is a degenerative disease of the central nervous system with a high incidence in middle-aged and elderly people. In addition to typical motor impairment, non-motor symptoms can occur throughout the entire disease course, and mood disorders and gastrointestinal autonomic dysfunction are the most common comorbid manifestations. Clinically, Parkinson's motor symptoms, anxiety and depression, and gastrointestinal somatic symptoms interact with each other, forming a vicious cycle and increasing the difficulty of diagnosis and treatment. This article reports a 63-year-old male patient, Guo Zunbo, who successively underwent cataract intraocular lens implantation in the ophthalmology department of the hospital, visited the gastroenterology outpatient clinic multiple times for gastroesophageal reflux, and was diagnosed in the neurology department with primary Parkinson's disease, ischemic cerebrovascular disease, and comorbid anxiety and depression. After adding Madopar combined with pramipexole, the overall condition improved. This case suggests that when clinically encountering patients with Parkinson's disease, attention should not be limited to motor manifestations such as tremor and rigidity; clinicians should also actively identify mood and gastrointestinal autonomic impairment, while taking into account comorbidities in geriatric ophthalmology, break the interaction chain among multisystem symptoms, and improve the overall diagnosis and treatment effect in elderly patients with multiple coexisting diseases.

Keywords: Parkinson's disease; Autonomic dysfunction; Anxiety and depression; Gastroesophageal reflux; Intraocular lens implantation

Online publication: October 19, 2026

1. Disease overview

Parkinson's disease (PD) is a common chronic progressive degenerative disease of the central nervous system in neurology, mostly seen in middle-aged and elderly people. Traditional understanding focuses on the four

core motor symptoms: bradykinesia, resting tremor, rigidity, and postural instability. Recent clinical studies have confirmed that Parkinson's disease extensively involves the limbic system and autonomic nerve centers of the brain, and non-motor symptoms may appear earlier than motor symptoms and persist throughout the entire disease course ^[1]. Among various non-motor symptoms, mood disorders and gastrointestinal dysfunction have the highest comorbidity rate. Elderly patients often have multiple systemic diseases such as cataracts and cardiovascular and cerebrovascular diseases, and multimorbidity further increases the difficulty of clinical assessment and medication management ^[2].

2. Case summary

The patient, Guo Zunbo, is a 63-year-old male farmer currently residing in Laixi City. Chief complaints: dizziness, slow response, and bradykinesia for 11 months, with recurrent intermittent pharyngeal foreign body sensation. The disease began 11 months ago without clear inducement, with dizziness accompanied by slow response and limb bradykinesia, aggravated after activity, without limb hemiplegia, and with a chronic progressive course. He had an anxious tendency, and emotional fluctuations could induce pharyngeal foreign body sensation. He had been diagnosed with gastroesophageal reflux and treated symptomatically. Parkinson's disease was diagnosed in the neurology department, and symptoms improved significantly after treatment with Madopar combined with pramipexole; occasional palpitations and arrhythmia improved after drug intervention. In April 2026, he underwent bilateral intraocular lens implantation for senile cataract, and postoperative visual acuity recovered to 1.0. He had a history of anxiety and had taken flupentixol, melitracen, and flunarizine. He had a long history of alcohol consumption, now abstinent, and his daily hobby is table tennis. Previous examinations showed emphysema, right pulmonary bullae, small bilateral pulmonary nodules, and aortic and coronary artery calcification; atrophic gastritis with pyloric ostium inflammation and bile reflux. No history of drug allergy. Physical examination: clear consciousness, poor mental state, masked facies, normal muscle strength in the limbs, and increased muscle tone. No abnormalities in the heart, lungs, or abdomen. Bilateral intraocular lenses in place, visual acuity 1.0, and normal intraocular pressure. Auxiliary examinations: electrocardiogram showed sinus arrhythmia and ST-T changes; chest CT and gastroscopy findings were the same as before; upper abdominal CT showed no obvious abnormalities.

3. Diagnosis and differential diagnosis

3.1. Clinical diagnosis

- (1) Parkinson's disease
- (2) Ischemic cerebrovascular disease
- (3) Anxiety and depression (Parkinson's disease-related mood disorder with gastrointestinal somatization symptoms)
- (4) Chronic atrophic gastritis with bile reflux and gastroesophageal reflux
- (5) Postoperative intraocular lens implantation (both eyes)
- (6) Emphysema, right pulmonary bullae; small bilateral pulmonary nodules
- (7) Aortic and coronary artery calcification

3.2. Diagnostic evidence

3.2.1. Core motor impairment of Parkinson's disease

The patient had an 11-month chronic progressive course, with dizziness, slow response, and bradykinesia; physical examination showed masked facies and increased muscle tone in the limbs. After adding Madopar combined with pramipexole for anti-Parkinsonian treatment in the neurology department, motor symptoms improved significantly, consistent with the clinical features of primary Parkinson's disease.

3.2.2. Evidence of multisystem non-motor symptoms

- (1) Mood disorder: Parkinson's disease causes disturbances in brain dopamine and 5-hydroxytryptamine neurotransmitters, directly inducing anxiety and depression; emotional agitation can induce pharyngeal foreign body sensation, suggesting that emotion participates in the regulation of somatic symptoms.
- (2) Gastrointestinal autonomic nerve injury: Damage to the autonomic nerve centers in Parkinson's disease slows gastrointestinal peristalsis and decreases coordination of the esophageal sphincter, inducing gastroesophageal reflux and atrophic gastritis, and causing pharyngeal foreign body sensation. Gastrointestinal discomfort, as a somatization stimulus, further aggravates anxiety; increased anxiety then amplifies Parkinson's motor symptoms, and the three types of symptoms interact with each other.

3.2.3. Ophthalmic comorbidity

The patient had senile cataract and underwent bilateral intraocular lens implantation successively. Postoperative ophthalmology re-examinations showed normal intraocular lens position and good recovery of visual acuity in both eyes.

3.2.4. Exclusionary evidence

The patient had no acute limb paralysis, imaging showed no lesion consistent with acute stroke, and motor symptoms improved after drug adjustment, so secondary Parkinson's syndrome was not supported at present.

3.3. Differential diagnosis

3.3.1. Vascular parkinsonism

This patient had comorbid ischemic cerebrovascular disease, so differentiation is needed. Most patients with vascular parkinsonism have a history of recurrent stroke, and the clinical manifestations are mainly gait disturbance of both lower limbs, with poor response to levodopa drugs^[3]. This case had bradykinesia and rigidity as the core manifestations, combined with multisystem involvement of mood, autonomic nerves, and the gastrointestinal tract, and responded well to Madopar and pramipexole, which is more consistent with the multisystem damage characteristics of primary Parkinson's disease. Head MRI should be further performed to evaluate lacunar infarction in the basal ganglia region for further differentiation.

3.3.2. Drug-induced parkinsonism

The patient had previously taken flunarizine for a long time. This drug is a calcium channel blocker, and long-term use carries the risk of inducing reversible parkinsonian extrapyramidal symptoms^[4]. Flunarizine has been discontinued clinically, and symptoms should be dynamically followed up. Flupentixol and melitracen were used to improve anxiety and relieve somatic discomfort induced by the gastrointestinal tract. During diagnosis and treatment, adverse drug reactions should be continuously distinguished from symptoms

caused by the disease itself.

3.3.3. Functional globus pharyngeus (pharyngeal paresthesia)

The patient had a sensation of a foreign body in swallowing, and gastroscopy found no esophageal space-occupying lesion, only suggesting atrophic gastritis with bile reflux. Simple globus is mostly caused by anxiety somatization, whereas in this patient, pharyngeal foreign body sensation was superimposed on esophageal motility abnormality caused by Parkinson's autonomic dysfunction, so it cannot be simply classified as a purely functional disease.

3.3.4. Essential tremor

The core manifestations of this disease are postural and action tremor, without bradykinesia or rigidity, which is inconsistent with the clinical features of this patient and can be excluded.

4. Treatment plan and medication analysis

Following the comprehensive treatment idea of “starting with a low dose, individualized administration, simultaneously addressing motor symptoms, mood disorders, and autonomic gastrointestinal symptoms, and taking into account the postoperative ophthalmic condition,” this approach is consistent with the stepwise management concept of domestic guidelines for the diagnosis and treatment of Parkinson's disease.

4.1. Treatment of core motor symptoms of Parkinson's disease

Madopar (Levodopa and Benserazide Hydrochloride Tablets): individualized oral dosage. As a levodopa preparation, it directly supplements the dopamine precursor in the brain and improves bradykinesia, masked facies, and increased limb muscle tone. Pramipexole Hydrochloride Tablets (Qishuning) 0.25 mg × 30: 0.125 mg each time, three times daily, orally. This product is a non-ergot dopamine receptor agonist, and combined with Madopar, it synergistically improves bradykinesia and increased limb muscle tone. Treatment should be gradually titrated from a small dose, with close monitoring for adverse reactions such as dizziness, nausea, and lower limb edema. In addition to improving motor function, this class of drugs has a mild improving effect on depression associated with Parkinson's disease, simultaneously addressing both motor and emotional problems^[5]. Treatment effect: After adding the Madopar combined with pramipexole regimen, symptoms such as bradykinesia and slow response improved significantly.

4.2. Symptomatic treatment of ischemic cerebrovascular disease and dizziness

Ginkgo and Armillaria Oral Solution: 10 mL each time, three times daily, orally. It improves cerebral microcirculation and is used for dizziness and discomfort caused by ischemic cerebrovascular disease.

4.3. Combined intervention for mood disorder and gastrointestinal somatic symptoms

Flupentixol and Melitracen Tablets (self-provided). Shugan Jieyu Capsules: 2 capsules each time, twice daily, orally. Esomeprazole Magnesium Enteric-coated Dry Suspension 40 mg: 40 mg each time, once daily, orally. Simethicone Emulsion: 10 mL each time, temporarily taken orally before and after gastroscopy to ensure smooth completion of endoscopic examination. Treatment rationale: Control gastrointestinal inflammation and gastroesophageal reflux, reduce sources of somatic discomfort stimulation, and lower

triggers of anxiety attacks; after emotional improvement, reduce the patient's sensory hypersensitivity to the pharynx and gastrointestinal tract, while also reducing fluctuations in Parkinson's motor symptoms; as the central neurotransmitter disturbance in Parkinson's disease improves, autonomic nerve function subsequently improves, and the probability of gastrointestinal symptom recurrence decreases, thereby interrupting the vicious cycle among the three ^[6]. The patient's condition was stable after bilateral intraocular lens implantation, and intraocular pressure should be monitored during medication to avoid drug effects on the ocular state.

4.4. Rehabilitation and nursing plan

4.4.1. Rehabilitation training

Carry out gait correction, balance function training, and facial expression training to improve masked facies and bradykinesia. Continue to adhere to table tennis. The patient enjoys table tennis; rhythmic physical exercise not only improves Parkinson's motor function but also regulates brain neurotransmitters, relieves anxiety, and promotes gastrointestinal peristalsis, achieving multi-target benefits for nerves, emotion, and the gastrointestinal tract ^[7].

4.4.2. Safety protection

The patient has bradykinesia and increased muscle tone, with a relatively high risk of falls. Family members and table tennis friends should strengthen daily companionship, and the home environment should be made anti-slip. After bilateral intraocular lens implantation, the patient should pay attention to eye rest, avoid strong light stimulation, and have regular ophthalmology follow-up visits.

4.4.3. Diet and lifestyle management

A low-salt, low-fat, high-fiber diet, ensuring adequate water intake, and maintaining smooth bowel movements. Strictly abstain from alcohol and avoid spicy and irritating foods. The timing of anti-Parkinsonian drug administration should be separated from high-protein diets, choosing to take them 1 hour before meals or 2 hours after meals; self-discontinuation of drugs is strictly prohibited, as abrupt withdrawal of Madopar and pramipexole carries the risk of inducing malignant withdrawal syndrome (Table 1).

Table 1. Brief table of the comprehensive intervention plan for this patient

Intervention dimension	Specific measures	Key points
Motor symptom drugs	Levodopa and Benserazide Hydrochloride Tablets (Madopar) + Pramipexole Hydrochloride Tablets 0.125 mg tid orally	Small-dose titration, monitor dizziness, edema, nausea; do not stop abruptly
Cerebrovascular symptomatic treatment	Ginkgo and Armillaria Oral Solution 10 mL tid orally	Improve cerebral circulation
Emotional regulation	Shugan Jieyu Capsules 2 capsules bid orally; flupentixol and melitracen self-provided	Reduce anxiety somatization and reduce episodes of pharyngeal foreign body sensation
Gastrointestinal treatment	Esomeprazole Magnesium Enteric-coated Dry Suspension 40 mg qd; simethicone as needed	Acid suppression, control bile reflux, relieve globus sensation
Ophthalmology follow-up	Regular ophthalmology re-examination after intraocular lens implantation	Monitor visual acuity and intraocular pressure; use eyes reasonably

Intervention dimension	Specific measures	Key points
Rehabilitation exercise	Gait, balance, and facial training + table tennis	Persist long-term; improve motor function and mood; promote gastrointestinal peristalsis
Lifestyle management	Low-salt, low-fat, high-fiber diet; avoid high-protein diet when taking medication; abstain from alcohol; prohibit abrupt drug withdrawal	Family collaborative supervision, home anti-slip, regular ophthalmology follow-up

5. Prognosis and follow-up recommendations

There is currently no cure for Parkinson's disease, and the course is chronic and progressive. This patient's condition is complex: Parkinson's motor impairment, anxiety, and gastroesophageal reflux interact with each other, and poor control of any one link will aggravate the other two groups of symptoms; the patient also has comorbid ischemic cerebrovascular disease, postoperative cataract intraocular lens implantation, pulmonary nodules, coronary calcification, and other geriatric comorbidities. Through standardized drug treatment, after adding the Madopar combined with pramipexole regimen, the patient's motor symptoms improved. Combined with long-term rehabilitation training and simultaneous management of neurological, emotional, gastrointestinal, and ophthalmic symptoms, the vicious cycle can be effectively interrupted, clinical symptoms relieved, disease progression delayed, and a relatively good quality of life maintained ^[8].

Follow-up recommendations:

- (1) Monthly regular follow-up in the neurology outpatient clinic to dynamically assess UPDRS motor scores and mood scales; simultaneously follow up in gastroenterology for gastritis and gastroesophageal reflux, and evaluate changes in pharyngeal foreign body sensation.
- (2) Regularly recheck liver and kidney function, blood routine, and electrocardiogram, and monitor aortic and coronary calcification; regularly follow up chest CT for pulmonary nodules and bullae.
- (3) Ophthalmology outpatient re-examination every 3 months to monitor bilateral intraocular lenses, visual acuity, and intraocular pressure.
- (4) Immediate medical attention is required if there is sudden worsening of symptoms, severe adverse drug reactions, frequent falls or hallucinations and agitation, or persistently aggravated swallowing foreign body sensation, hematemesis, or melena.
- (5) In the later stage, if drug efficacy declines and motor complications occur, the indication for DBS surgery can be evaluated.

Disclosure statement

The author declares no conflict of interest.

References

- [1] Chinese Society of Parkinson's Disease and Movement Disorders, Chinese Medical Association, 2020, Chinese Guidelines for the Treatment of Parkinson's Disease (4th edition). Chinese Journal of Neurology, 53(12): 973–986.
- [2] Chen B, Li SH, 2021, Recognition and Management of Non-motor Symptoms in Parkinson's Disease. Chinese Journal of Neurology, 54(6): 622–627.

- [3] Wang XD, 2017, Diagnosis and Differential Diagnosis of Vascular Parkinsonism. Chinese Journal of Geriatric Heart Brain and Vessel Diseases, 19(5): 449–451.
- [4] Zhang Y, Wu ZG, 2022, Clinical Research Progress of Drug-Induced Parkinsonism. Chinese Journal of Pharmacovigilance, 24(3): 289–294.
- [5] Liu ZG, Gan J, 2019, Rational Use of Dopamine Receptor agonists in Parkinson's Disease. Chinese Journal of Nervous and Mental Diseases, 45(8): 497–500.
- [6] Yang MH, Li SD, 2023, Expert Consensus on Integrated Traditional Chinese and Western Medicine Intervention for Parkinson's Disease Complicated with Depression and Anxiety. Chinese Journal of Integrated Traditional and Western Medicine, 43(2): 145–152.
- [7] Parkinson's Disease Rehabilitation Professional Committee of Chinese Association of Rehabilitation Medicine, 2018, Chinese Expert Consensus on Rehabilitation of Parkinson's Disease. Chinese Journal of Rehabilitation Theory and Practice, 24(7): 745–752.
- [8] Chinese Society of Gastroenterology, Chinese Medical Association, 2022, Chinese Guidelines for the Diagnosis and Treatment of Gastroesophageal Reflux Disease (2022, Xi'an). Chinese Journal of Digestion, 42(10): 649–665.

Publisher's note

Bio-Byword Scientific Publishing remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.