

## LUMBAR SPINAL STENOSIS FUSION SURGERY IN PARKINSON'S DISEASE: A CASE REPORT

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### ÖZET

Parkinson hastalığı progresif olarak hareketi etkileyen ve bozan sinir sistemi rahatsızlığıdır. Omurga deformiteleri ve motor hareket bozukluklarına bağlı olarak bu hastalarda spinal stenoz daha sık görülmektedir. Ayrıca Parkinson hastalığında osteoporoz topluma göre daha sık görülmektedir. Lomber dekompresyon ve füzyon cerrahisi, lomber dejeneratif omurga hastalarında sık kullanılan cerrahi tekniktir. Bu olguda Parkinson hastalığında spinal füzyon cerrahisi sonrası osteoporoz ve parkinsona bağlı postür gibi nedenlerle erken gelişen spinal instabilitenin sunulması amaçlanmıştır.

**Anahtar kelimeler:** Parkinson, lomber stenoz, osteoporoz, lomber instabilite

### ABSTRACT

*Parkinson's disease is a nervous system disorder that progressively affects and impairs movement. Spinal stenosis is more common in these patients due to spinal deformities and motor movement disorders. In addition, osteoporosis is more common in Parkinson's disease than in the general population. Lumbar decompression and fusion surgery is a frequently used surgical technique in lumbar degenerative spine diseases. In this case, it is aimed to present early spinal instability due to osteoporosis and posture after spinal fusion surgery in Parkinson's disease.*

**Keywords:** Parkinson's disease, lumbar stenosis, osteoporosis, lumbar instability

## **INTRODUCTION**

Parkinson's disease is a neurodegenerative disorder whose prevalence increases with age. It is a disease characterized by motor symptoms such as resting tremor, rigidity, bradykinesia, and postural dysfunction (kyphosis) (1,2). Lumbar spinal stenosis is a clinical condition caused by the narrowing of the central, subarticular and intervertebral canals of the lumbar spine for various reasons (3). 90% of the patients have low back pain followed by unilateral or bilateral leg pain (4). In patients at an advanced stage of Parkinson's disease, turns are slowed down, and walking is short, multi-step, and block-shaped. This might be a risk factor for falling (5). Management of spinal conditions in patients with PD is complex because of poor muscular supporting capability, diminished bone mineral density, motor control dysfunction in addition to the increased risk of surgical complications and the presence of comorbidities. (Spinal Surgery in Patients with Parkinson's Disease: Unsatisfactory Results, Failure and Disappointment).

## **CASE REPORT**

A 53-year-old female patient was admitted to our clinic with complaints of left leg pain and gait limitation for 1 month. In the patient's examination, left TA (tibialis anterior) muscle strength was found to be 3/5. The patient had neurogenic claudication. Lumbar Magnetic resonance imaging showed revealed bilateral foraminal stenosis at lumbar 3-4 and lumbar 4-5 levels. The patient underwent L3–L4 laminectomy with bilateral foraminotomies, and L2-3-4-5 posterior pedicle screw fusion. Postoperative pain resolved and the patient mobilized, discharged on the 4th postoperative day. On the 44th postoperative day, the patient presented with severe left leg pain. In the patient's examination, left TA (tibialis anterior) muscle strength was found to be 1/5. Lumbar MRI and CT examination showed that L5 pedicle screws broke the bilateral pedicle. According to the patient's trauma history, it was learned that she had fallen from her own height the day before. The patient was taken to surgery. L5 pedicle screws were removed bilaterally and S1 bilateral pedicle screws were placed. instrumentation was modified using bone cement against osteoporosis. Postoperative pain resolved and the patient was mobilized, discharged on the 5th postoperative day. The Patient presented with severe low back pain and inability to walk on the 17th postoperative day of the second surgery. In the CT examination of the patient, pedicle fracture of bilateral S1 screws was detected. At this admission, the patient had no history of trauma. The patient was recommended iliac wing screw surgery. The patient voluntarily refused the treatment and was discharged.

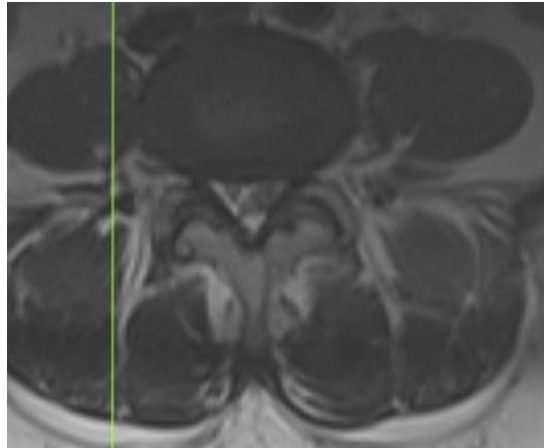


Figure 1. Foraminal stenosis image in preop MR



Figure 2. CT image of bilateral L5 pedicle fracture in postoperative control



Figure 3. CT image of bilateral S1 pedicle fracture seen at follow-up after the second surgery

## DISCUSSION

Parkinson's disease is a progressive neurodegenerative disease caused by the degeneration of dopamine-producing cells in the substantia nigra. The main symptoms in Parkinson's disease are bradykinesia, resting tremor, rigidity and postural instability (6). The classical deformity described in a PD patient is stooped posturing characterized by flexion of hips and knees (7). This posture can be considered as a factor of early instability after lumbar spinal stenosis fusion surgery. It has been determined that dopaminergic neurons are associated with vitamin D receptors. It also regulates factors such as neurotrophic factor of 1,25 (OH)<sub>2</sub> D<sub>3</sub>, which provide dopaminergic neuron development and function, and neurotrophic factor of glial origin. Vitamin D deficiency may play a role in the etiopathogenesis of Parkinson's disease (8). Osteoporosis is more common in patients with Parkinson's disease. And Lumbar spinal stenosis fusion surgery should be considered for early instability in PD patients. The most severe complication of gait disturbance in Parkinson's patients is falls and indicates the progression of the disease. Inability to maintain balance and falls as a result of impaired postural reflexes may cause severe injuries to patients (9). The risk of postoperative fall should be considered in terms of early instability in lumbar spinal stenosis fusion surgery. Lumbar spinal stenosis is more common in Parkinson's disease (10).

Patients with clinical signs or neurological deficits require surgery. The risk of developing early instability complications should be considered in Parkinson's patients who underwent lumbar fusion surgery.

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