Case Report

Migration of a Lumbar Rod to Posterior Sacral Region: An Extremely Unusual Complication of Spinal Instrumentation

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Summary

Posterior transpedicular instrumentation is commonly used for the treatment of spondylolisthesis. Migration of the lumbar rod to posterior sacral region is extremely unusual. In this report, a 73-year-old-female patient with the migration of lumbar rod to posterior sacral region is presented. She had been placed a posterior trans-pedicular screw-rod instrumentation system for L4-L5 spondylolisthesis four years ago. The anteroposterior and lateral lumbosacral roentgenograms revealed that left-sided rod released completely from the fixation points and migrated down caudally to the sacral area. This case report emphasizes the importance of careful surgical technique and long-term follow up for the cases that have undergone spinal instrumentation surgery.

Key words: Complication, Migration, Rod, Spinal instrumentation

INTRODUCTION

Posterior transpedicular screw fixation remains the basic principle for the treatment of all spondylolisthesis patients. Although rare, migration of implants from the spine to distant sites is always a possibility and may conclude in severe complications(1,2,5). Failure of these implants can occur at various sites and in various forms(4). This may be at the site of attachment to the spine (a dislodged hook, loose screw or broken wire) or at the junction of implant components (a rod sliding off pedicle screw or fracture along the middle portion of plate or rod)(8). The present report describes a case that
presented with persistent mild to moderate low back pain, which was diagnosed as migrated rod from the spine after 4 years of spinal fixation.

**CASE PRESENTATION**

A 73-year-old-female patient with the diagnosis of L4-L5 spondylolisthesis has been operated in another hospital and a posterior trans-pedicular screw-rod instrumentation system was placed four years ago. Additionally, she was being treated for her myasthenia gravis in the neurology clinic and was consulted to the neurosurgery clinic because of a persistent mild to moderate low-back pain. Her neurological exam was unremarkable with no motor or sensory deficits in the lower extremities. However, antero-posterior and lateral lumbosacral roentgenograms revealed that the left-sided rod has been released completely from the fixation points and migrated down caudally to the posterior sacral area (Figure 1). Upon this surprising finding, we advised surgery to the patient in order to eliminate the risk of skin damage by the tip of the migrated rod, as described in a previous case report(6). However, she refused surgery and chose conservative treatment and the rod was left in the sacral area.

![Figure 1: Antero-posterior (left) and lateral (right) lumbosacral roentgenograms show that left-sided rod was released completely from the fixation points and migrated down caudally to the posterior sacral area.](image)

**DISCUSSION**

Distant rod migration after instrumentation failure is not a common complication and could result in potentially highly morbid or even fatal outcomes(9). Partial migration within the spinal canal and rotation of the Harrington rods are known long-term complications of spinal fixation techniques(5). Rod fractures have been reported in 2%-11% of cases and loosening of fixation joints has been reported in 7% of cases(4). Migration of the rod usually results in minimal proximal or distal displacement along the spinal column(3,7). Commonly most of the migrated rods remain asymptomatic(10). However, severe complications have also been reported due to migrated rods(2,3,7).

To our knowledge, this is the first case reported to have posterior sacral migration of a rod following posterior stabilization surgery. Recently, Dhatt et al. reported a
case with the migration of anterior spinal rod from the dorsolumbar spine to the knee and authors corrected this extremely unusual complication surgically(4). Banit et al. reported a sacral fixation rod migration into the acetabulum due to loosening of the iliac bolt fixation(2). Fitchett et al. reported a Harrington rod migration in a 40 year-old paraplegic patient after ten years of her scoliosis correction. They reported that the rod had migrated into the abdomen to cause sharp aching pain in the right iliac fossa with a palpable mass(5).

There are few reasons of rod migration following lumbar fixation surgery. It may result from inadequate surgical technique or implant-related factors may cause this complication. It is difficult to explain the mechanism of the broken rods or wires. Repeated micro trauma or cycling loading may contribute to breakage of the rod and this may result in the rod's caudal migration (6). In our patient, the unilateral displacement and the migration of the rod led us to consider either the implant-related factors or the inadequate surgical technique. We considered that the set screws has worked loose or have not been torque-tightened completely during the surgery.

We believe that a detailed clinical history and clinical examination is mandatory in order to diagnose such an underlying problem as in our case. We believe that necessary attention should always be given while tightening the screws during the stabilization procedures. One must keep in mind the rare possibility of posterior sacral migration of rods following posterior stabilization surgery. The patients who underwent lumbar fixation surgery should be followed up in periods since rod migration can be a serious problem years after surgery. Radiological evaluation should be done in all symptomatic cases with spinal instrumentation systems during follow-up in order not to miss any migrated or broken implant materials.

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