

CLINICAL DECISIONS

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Management of Sciatica

This interactive feature addresses the approach to a clinical issue. A case vignette is followed by specific options, neither of which can be considered either correct or incorrect. In short essays, experts in the field then argue for each of the options. Readers can participate in forming community opinion by choosing one of the options and, if they like, providing their reasons.

CASE VIGNETTE

A Man with Sciatica Who is Considering Lumbar Disk Surgery

Ramya Ramaswami, M.B., B.S., M.P.H.

Mr. Winston, a 50-year-old bus driver, presented to your office with a 4-week history of pain in his left leg and lower back. He described a combination of severe sharp and dull pain that originated in his left buttock and radiated to the dorsolateral aspect of his left thigh, as well as vague aching over the lower lumbar spine. On examination, passive raising of his left leg off the table to 45 degrees caused severe pain that simulated his main symptom, and the pain was so severe that you could not lift his leg further. There was no leg or foot weakness. His body-mass index (the weight in kilograms divided by the square of the height in meters) was 35, and he had mild chronic obstructive pulmonary disease as a result of smoking one pack of cigarettes every day for 22 years. Mr. Winston had taken a leave of absence from his work because of his symptoms. You prescribed 150 mg of pregabalin per day, which was gradu-

ally increased to 600 mg daily because the symptoms had not abated.

Now, 10 weeks after the initial onset of his symptoms, he returns for an evaluation. The medication has provided minimal alleviation of his sciatic pain. He has to return to work and is concerned about his ability to complete his duties at his job. He undergoes magnetic resonance imaging, which shows a herniated disk on the left side at the L4–L5 root. You discuss options for the next steps in managing his sciatica. He is uncertain about invasive procedures such as lumbar disk surgery but feels limited by his symptoms of pain.

TREATMENT OPTIONS

Which of the following would you recommend for Mr. Winston?

1. Undergo lumbar disk surgery.
2. Receive nonsurgical therapy.

To aid in your decision making, each of these approaches is defended in a short essay by an expert in the field. Given your knowledge of the patient and the points made by the experts, which option would you choose? Make your choice, vote, and offer your comments at NEJM.org.

OPTION 1

Undergo Lumbar Disk Surgery

Zoher Ghogawala, M.D.

Mr. Winston's case represents a common scenario in the management of symptomatic lumbar disk herniation. In this particular case, the patient's symptoms and the physical examination are consistent with nerve-root compression and in-

flammation directly from an L4–L5 herniated disk on his left side. The patient does not have weakness but has ongoing pain and has been unable to work for the past 10 weeks despite receiving pregabalin. Two questions emerge: first, does lumbar disk surgery (microdiscectomy) provide outcomes that are superior to those with continued nonoperative therapy in patients with more than 6 weeks of symptoms; and second, does lumbar microdiscectomy improve the like-

likelihood of return to work in patients with these symptoms?

The highest quality data on the topic come from the Spine Patient Outcomes Research Trial (SPORT).¹ The results of the randomized, controlled trial are difficult to interpret because adherence to the assigned treatment strategy was suboptimal. Only half the patients who were randomly assigned to the surgery group actually underwent surgery within 3 months after enrollment, and 30% of the patients assigned to nonoperative treatment chose to cross over to the surgical group.² In this study, the patients who underwent surgery had greater improvements in validated patient-reported outcomes. The treatment effect of microdiscectomy was superior to that of nonoperative treatment at 3 months, 1 year, and 2 years. Moreover, in an as-treated analysis, the outcomes among patients who underwent surgery were superior to those among patients who received nonoperative therapy. Overall, the results of SPORT support the use of microdiscectomy in this case.

Results of clinical trials are based on a comparison of treatment options in study populations and may or may not apply to individual patients. SPORT did not specify what type of nonoperative therapy was to be used. Physical therapy was used in 73% of the patients, epidural injections in 50%, and medical therapies (e.g., nonsteroidal antiinflammatory drugs) in more than 50%. In the case of Mr. Winston, pregabalin has been tried, but physical therapy and epidural glucocorticoid injections have not been attempted. Despite widespread use of physical therapy for the treatment of lumbar disk herniation, the evidence supporting its effectiveness is inconclusive, according to published guidelines of the North American Spine Society.³ On the other hand, there is evidence that transforaminal epidural glucocorticoid injection provides short-term relief (30 days) in patients with nerve-root symptoms directly related to a herniated disk.⁴ Overall, there is evidence, from SPORT and from a randomized trial from the Netherlands published in the *Journal*,⁵ that early surgery between 6 and 12 weeks after the onset of symptoms provides greater alleviation of leg pain and better overall pain relief than prolonged conservative therapy.

The ability to return to work has not been formally studied in comparisons of operative with nonoperative treatments for lumbar disk

herniation. Registry data from the NeuroPoint-SD study showed that more than 80% of the patients who were working before disk herniation returned to work after surgery.⁶ The ability to return to work may be dependent on the type of vocation, since patients who are manual laborers may need more time to recover to reduce the risk of reherniation.

It is well recognized that many patients who have a symptomatic lumbar disk herniation will have improvement spontaneously over several months. Surgery can alleviate symptoms more quickly by immediately removing the offending disk herniation from the affected nerve root. The risk–benefit equation will vary among individual patients. In the case of Mr. Winston, obesity and mild pulmonary disease might increase the risk of complications from surgery, although in SPORT, 95% of surgical patients did not have any operative or postoperative complication. For Mr. Winston, a patient with pain that has persisted for more than 6 weeks, microdiscectomy is a rational option that is supported by high-quality evidence.

Disclosure forms provided by the author are available at NEJM.org.

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OPTION 2

Receive Nonsurgical Therapy

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This case involves a common presentation of low back pain radiating to the buttock and posterolateral thigh that might represent either referred mechanical pain or radiculopathy. Classic radiculopathy resulting from compression of a lower lumbar nerve root (L4, L5, or S1) results in pain that radiates distal to the knee and is often accompanied by weakness or numbness in the respective myotome or dermatome.⁷ In this case, the pain is proximal to the knee and is not associated with weakness or numbness. In SPORT, surgery resulted in faster recovery and a greater degree of improvement than nonoperative treatment in patients with pain that radiated distal to the knee and was accompanied by neurologic signs or symptoms.⁸ However, since Mr. Winston would not have met the inclusion criteria for

SPORT, the results of discectomy in this case would be somewhat unpredictable. He does not have radiculopathy that radiates below the knee, and he does not have weakness or numbness; nonoperative treatment should be exhausted before any consideration of a surgical procedure that in most cases has not been shown to be effective in patients with this type of presentation. In this issue of the *Journal*, Mathieson and colleagues report the results of a randomized, controlled trial that showed that pregabalin did not significantly alleviate pain related to sciatica.⁹ Mr. Winston has been treated only with pregabalin; therefore, other conservative options should be explored.

Saal and Saal reported that more than 80% of patients with radiculopathy associated with a lumbar disk herniation had improvement in a matter of months with exercise-based physical therapy.¹⁰ In the nonoperative SPORT cohort, patients had significant improvement from baseline, and approximately 60% of those with classic radiculopathy who initially received nonoperative treatment avoided surgery.⁸ Mr. Winston has had minimal treatment and has had symptoms for only 10 weeks. He should undergo a course of exercise-based physical therapy and a trial of a nonsteroidal antiinflammatory medication and may consider a lumbar epidural glucocorticoid injection. Although there is little evidence of the effectiveness of these nonoperative options alone,¹¹ the combination of these treatments and the benign natural history of the patient's condition could result in alleviation or resolution of symptoms. If these interventions — and time — do not resolve his symptoms, surgery could be considered as a final option, but it may not have long-term effectiveness and could in and of itself cause the possibility of more harm than good. Mr. Winston has risk factors, such as obesity and a history of smoking, that have been shown to contribute to poor surgical outcomes of certain spinal procedures.¹²

Mr. Winston has symptoms of back pain that interfere with his quality of life. He would need to understand, through shared decision making, that a nonsurgical approach is likely to be more effective than surgery over time.¹³

Disclosure forms provided by the author are available with the full text of this article at NEJM.org.

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