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Surgery may enhance pain relief initially, but no evidence supports a long-term benefit over conservative management.

Q/ Does surgery relieve the pain of a herniated disc?

EVIDENCE-BASED ANSWER

A/ YES, in the short term. Patients with an acute episode of low back pain, radicular symptoms, and evidence of a herniated disc on imaging may experience short-term pain relief from discectomy if their symptoms haven't improved after initial conservative therapy (strength

of recommendation [SOR]: **A**, multiple randomized, controlled trials [RCTs]).

Although surgery may enhance pain relief initially, no evidence supports a long-term benefit for surgery over conservative management (SOR: **A**, multiple RCTs).

Evidence summary

Disc herniation is defined as any protrusion of the disc nucleus, cartilage, or other associated tissues from the normal disc space. Lumbar disc herniations (LDHs) are most likely to occur in the L4 to L5 and L5 to S1 levels, causing low back pain and sciatica. Many LDHs occur without symptoms, however, so it's important to correlate level and side of herniation before assuming causality. Expert opinion recommends early surgical intervention for patients with cauda equina syndrome or progressive neurologic deficits.¹

Surgery provides short-term gains

A search identified 4 RCTs that compared surgical intervention with conservative management. The first, published in 1983, evaluated 126 patients with radicular pain and confirmed LDH who did not improve after 2 weeks of conservative therapy. The study assigned patients to either open discectomy or back school.² Patients rated their results as good, fair, poor, or bad; a good or fair rating was considered a positive outcome.

At 1 year, significantly more patients in the surgery group reported positive results ($P < .001$), based on working capacity, neuro-

logical deficits, pain, and lumbar spine mobility. At 4 years, no significant difference was found between the groups.

The study showed significant crossover, with 26% of conservatively managed patients receiving surgery within the first year. Evaluators weren't blinded, and outcome measurements weren't based on standardized evaluation tools.

Crossover complicates comparison of relative treatment effects

The Spine Patient Outcomes Research Trial (SPORT), published in 2006, compared 501 patients with confirmed LDH and persistent symptoms after 6 weeks.³ Patients were randomized to open discectomy or nonoperative "usual care." Both groups showed improvement in pain scores and no significant differences in standardized pain scales at 3 months, 1 year, or 2 years.

Crossover for the study was high: 40% of the surgical group didn't have surgery, and 45% of the nonoperative group underwent surgery. Although the pattern of care in the SPORT study resembles common clinical situations,⁴ the high degree of crossover makes it difficult to draw inferences about relative treatment effects.⁵

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Greater patient satisfaction with surgery

Another RCT followed 56 patients with confirmed LDH and symptoms for 6 to 12 weeks.⁶ Patients were randomized to receive microdiscectomy within 2 weeks of randomization or nonoperative care. Outcomes were based on standardized pain scales for leg and back pain. The surgical group had significantly better leg pain relief ($P<.01$) at the 6-week evaluation. At 12 weeks, neither back pain nor leg pain differed between the groups.

Although pain didn't differ significantly, patients in the surgical group were more satisfied with their care, and physicians were more likely to believe that surgery would improve outcomes. Crossover from the nonoperative group was high, with 39% of that group undergoing surgery.

Surgery improves leg pain, not disability, more than conservative therapy

Another RCT also directly compared microdiscectomy to conservative treatment in 283 patients with confirmed LDH and symptoms lasting 6 to 12 weeks.⁷ The surgical group underwent microdiscectomy within 2 weeks of randomization. Pain and disability measurements, based on standardized scales, showed significant improvement in leg pain ($P<.001$) for the surgical group, but no significant difference in disability.

Patient perception of recovery on a Likert-type scale showed a median recovery time of 4 weeks for the surgical group and 12 weeks for

the conservative therapy group. No significant differences in perceived degree of recovery were noted between the groups at 1 year; 95% of participants had a satisfactory recovery.

Again, significant crossover occurred: 11% of patients allocated to surgery recovered before surgery, and 39% of the conservative therapy group experienced worsening symptoms or intractable pain that led them to undergo microdiscectomy.

Open discectomy, microdiscectomy produce similar results

A Cochrane review of interventions for LDH included only the Weber² and SPORT³ RCTs. The review also included 3 RCTs that compared open discectomy and microdiscectomy. These studies found no difference in pain relief or complications between the 2 interventions.⁸

Recommendations

The Institute for Clinical Systems Improvement guidelines for adult low back pain list cauda equina, progressive neurologic deficits, or uncontrolled pain as reasons for direct referral to a spine specialist.¹ Patients can be treated conservatively for 6 weeks without imaging, unless other symptoms or concerns are present.

The guidelines recommend that patients with chronic sciatica (lasting >6 weeks) receive further imaging or referral to a specialist if the patient is a potential candidate for surgery. **JFP**

> Lumbar disc herniations don't always cause symptoms; correlate level and side of herniation before attributing low back pain and sciatica to LDH.

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