Lumbar discectomy for relief of sciatica in patients with intervertebral disc herniation (IDH) is one of the most well-researched and common indications for spine surgery. There is good evidence that lumbar discectomy for carefully selected patients with sciatica as the result of lumbar disc herniation provides faster relief of symptoms than nonoperative treatment [1,2]; however, randomized trials suggest that longer-term outcomes are equivalent between a strategy of early surgery or an extended course of nonoperative treatment followed by surgery as needed in the subset of patients that fail to improve [3–5]. The evidence supports shared-decision making in which patients are informed of the options and can choose between surgery to achieve early symptomatic relief if they are unable to tolerate their symptoms or can safely choose to pursue nonoperative treatment for awhile with a reasonable likelihood of improvement and the option to pursue surgery later on if they do not improve sufficiently [6].

Motor deficits not infrequently accompany sciatica as the result of lumbar disc herniation and their presence can be extremely frightening and distressing to patients [7]. The evidence on the role of surgery in recovery of motor deficits in IDH has been somewhat conflicting. Overall, the prospect for recovery of motor deficits in IDH is good in both surgical and nonoperative series. Postacchini et al. found complete recovery in 76% of surgical patients, Aono et al. in 61%, Lonne et al. in 75%, and Suzuki et al. in 90%; similarly, Suri et al. found 75% complete resolution among patients with IDH [8–12]. Sensory deficits appear less likely to resolve: 43% recovery at long-term follow-up in Weber [13] and 53% in the study by Suri et al. [11].

How should the presence of a stable neurological deficit, particularly a motor deficit, affect the decision about whether to pursue surgery for a lumbar IDH? In a direct observational comparison, Dubourg et al. [14] found no difference in motor recovery between operative and nonoperatively treated groups but confounding by indication with more severe cases undergoing surgery may have affected these results. Furthermore, Postacchini et al. and Aono et al. found that the patient’s duration of weakness before surgery was a predictor of residual deficits [8,10]. If true, this would be a strong case for pursuing earlier surgery in the presence of motor deficits. However, other recent studies did not find this to be true [9,11,12]. The severity of baseline weakness is the one consistent predictor of persistent weakness at late follow-up. To directly address the role of surgery in recovery of IDH-associated motor deficits, a randomized comparison of initial operative and nonoperative strategies among patient with motor deficits from IDH would be most informative.

In this issue of *The Spine Journal*, Overdevest et al. [15] address this question by selecting a subgroup with baseline motor deficits from a larger randomized trial of IDH patients, in which they compared outcomes between early surgery and prolonged conservative treatment with later surgery if needed. Of the total 283 patients enrolled in their randomized trial, 150 (53%) had a baseline motor deficit.
rated moderate or severe. The findings with regard to resolution of motor deficits mimic the overall findings with regard to the other symptoms of sciatica—earlier improvement in the operative group but no difference in outcomes after 1 year between the early surgery group and the prolonged nonoperative treatment group. The outcomes were favorable in both groups with 81% of patients in the early surgery group and 80% of patients in the prolonged nonoperative group having complete recovery at 1 year. This agrees with the findings of the randomized controlled trial by Butterman [16], in which the author compared an initial strategy of epidural steroid injection versus early surgery for IDH. In that study, there was earlier improvement in motor deficits in the surgery group but at 2–3 years the percentages with no motor deficits were similar across treatment groups: 91% in the epidural group, 96% in the surgery group, and 89% in the group with initial epidural who later crossed-over to surgery.

Unpublished data from the Spine Patient Outcomes Research Trial adds additional support to these findings. In a combined analysis of the observational and randomized cohorts from SPORT at 3 months, 84% of patients with baseline motor deficits who had undergone surgery had resolved their deficits versus 70% among nonoperative patients—an advantage in early recovery for the surgical group. At 1 year, 87% of patients with baseline motor deficits who had undergone surgery had resolved their deficits versus 85% of nonoperative patients, demonstrating essentially equivalent long-term outcomes between treatment groups. These recovery rates are remarkably similar to those reported by Overdevest et al. [5].

These findings deserve some caveats as pointed out by the authors. Patients with cauda equina syndrome clearly benefit from early surgical intervention and were not eligible for any of these trials. Similarly, patients with actively progressing neurologic deficits likely deserve prompt surgical intervention since the severity of motor deficits is a consistent predictor of residual deficits postoperatively [11]. However, precise operational definitions of progressive versus stable neurologic deficits can be difficult to create. We should, however, avoid the tempting but oversimplistic view that all motor deficits are progressive if they previously were not present and now are. As pointed out by Overdevest et al., patients may have difficulty identifying and accurately noting the onset of motor deficit, particularly a fairly mild one and probably even more difficulty assessing their severity [5]. Furthermore, some deficits may be maximal at onset and these are clearly not progressive. We are thus left with the somewhat-uncomfortable situation of having to judge whether a deficit is progressive based on a comparison with prior documented specific strength testing knowing full well that this is affected not only by the patient’s course but by the vagaries of who evaluated them when and by the limited reliability of strength testing in clinical practice.

People remain understandably concerned about the appropriate timing of surgery for patients with lumbar IDH. Surgical series typically show worse outcomes in patients with longer duration of symptoms [17,18]. However, this may be the result of selection as nonoperative outcomes also tend to be worse with longer duration of sciatica; the relative effect of surgery appears to be similar for those receiving surgery within 6 months or after 6 months [4,19]. It remains unclear whether waiting more than 1 year for surgery may result in worse treatment effects from surgery as this has not been directly tested in any adequately controlled studies.

The major take-home point from the study by Overdevest et al. appears to be that the appropriateness of the shared-decision making paradigm for patients with lumbar IDH is once again supported. Patients can safely choose between surgery to achieve early symptomatic relief (including a motor deficit if applicable) if they are unable to tolerate their symptoms or can safely choose to pursue nonoperative treatment for awhile with a reasonable likelihood of improvement and the option to pursue surgery later on if they fail to improve sufficiently; the presence of a stable motor deficit should not frighten patients into believing that they “need” surgery if they are otherwise able to tolerate their symptoms.

References


