Spondylolisthesis after multiple bilateral laminectomies and facetectomies for lumbar spondylosis

Follow-up review

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The authors report a further 3-year follow-up review of a series of 59 patients suffering with intractable pain due to lumbar spondylosis and treated by multiple-level bilateral laminectomies and facetectomies. Routine postoperative x-ray examination revealed that six of 59 patients had developed spondylolisthesis. Two of the six were symptomatic and required a secondary fusion procedure. Analysis of the patients who had developed vertebral slippage revealed that 6% of the patients with only two levels (L-4 and L-5) removed developed spondylolisthesis, but in those with three or more levels removed 15% showed slipped vertebrae. After an average follow-up period of 6 years, 87% of patients still had a worthwhile result as contrasted with 91% of the same series who had had a good result after a follow-up period averaging 3 years.

KEY WORDS • spondylolisthesis • lumbar spondylosis • facetectomy • low-back pain • intervertebral disc

IN 1976, we published the results of wide laminectomy including facetectomy in the treatment of lumbar spondylosis. At the time, we did not find slippage in any of our patients, even though bilateral multiple-level facetectomies had been performed. We have followed this series for 3 more years and wish to make a further report, particularly with regard to the production of back instability manifested by postoperative spondylolisthesis.

Summary of Cases

Patient Material

Seventy consecutive patients with lumbar spondylosis operated upon from January 1, 1968, through December 31, 1973, were reported in 1976. They all underwent bilateral laminectomies and facetectomies of at least the L-4 and L-5 levels without disc removal. In the follow-up review of these patients we did not do routine postoperative x-ray examinations of those patients who did well. Postoperative x-ray studies of the patients who had fared poorly failed to disclose evidence of slippage of one vertebral body on another. It was presumed that patients who did well did not have slippage.

Our statement that postoperative spondylolisthesis did not occur after multiple bilateral facetectomies in adults has been questioned in personal communications to us. Thus, when one of our previously reported patients returned 4½ years after surgery (and 2 years after our previous follow-up examination) and proved to have spondylolisthesis, we recognized the need for more critical evaluation of this point. We have made every effort to obtain postoperative films in the entire series of patients previously reported. We succeeded in this effort in 59 instances, but failed to either contact or have films done in seven patients. Four patients had died since our last report.

Results

Of the 59 patients successfully followed, six were found to have slippage (10%). The average age of this group was 56.8 years, somewhat younger than the average of the series as a whole, but not significantly
so. Table 1 gives important data on the individuals who suffered slippage. Four of these patients continued to be well satisfied with their condition despite the slippage (Figs. 1 and 2). They were active for their age and had no more complaints than other patients in the series who did not have evidence of slippage on postoperative examination. Two patients who had reported good results following decompressive laminectomy and facetectomy developed recurrent severe low-back pain after our original report had been published and were found to have developed spondylolisthesis. A summary of the two cases follows:

Case 1. This 69-year-old man had suffered low-back pain recurrently over a period of 30 years, and constantly for 6 months with bilateral sciatica. Myelography demonstrated multiple bilateral defects at all the lumbar interspaces and almost complete obstruction of the Pantopaque column at L3-4. In November, 1971, a laminectomy was performed including removal of the inferior articular processes bilaterally from L-2 through L-5. Although retired, this man was very active and was an avid gardener. He did well until the end of 1975, when his low-back pain recurred and became progressively worse. In March, 1976, a lumbar spine film disclosed a second-degree spondylolisthesis of L-3 on L-4 (Fig. 3). A posterolateral fusion from L-2 to L-5 was performed on April 1, 1976. Despite a postoperative wound infection that lasted 6 months before it was eradicated, he was almost completely free of pain and actively gardening once more when last seen in January, 1978.

Case 2. This 48-year-old farmer had suffered recurrent episodes of low-back pain for 20 years, and in June, 1970, he developed a right sciatica. The L4-5 intervertebral disc was removed elsewhere, and he reported relief of the sciatica but continued back pain. After a fall from a tractor, his back pain increased in severity. He was totally incapacitated for 3 months, after which his myelogram was repeated and revealed in particular an hour-glass deformity at L4-5. An L-4, L-5 laminectomy was performed in May, 1972, including the removal of the inferior articular processes bilaterally. The apophyseal joints were hypertrophic, particularly between L-4 and L-5. No further disc herniation was seen. When examined in May, 1974, he was doing well, although he was restricted in his work. It has been subsequently reported to us that in late

<table>
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<th>Slipped %</th>
<th>Slip Level</th>
<th>Degree</th>
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TABLE 1
Summary of data in cases with slippage

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1976 he again suffered recurrent back pain, and a first-degree spondylolisthesis of L-4 and L-5 was found on x-ray study at another hospital; a fusion was undertaken. We have been unable to obtain any further accurate information on this patient.

Comment. With regard to the overall results of the consecutive series of 70 patients originally reported in 1976, we now can extend the follow-up period an added 3 years, for a total average of 6 years. We have to add the above two patients who regressed in this extended follow-up period, and who now must be classified as poor results along with the six who had done poorly in the initial follow-up period. We failed to follow three patients of the series of 70 in our original report and now four more were unresponsive to our inquiries (three others reported that they were well but failed to have a follow-up x-ray examination). On this basis, 87% of those adequately followed continue to do well, as opposed to the 91% originally reported.

Discussion

Wide laminectomy including facetectomy on a prolonged follow-up survey continues to be an effective method of treatment for patients with intractable pain due to advanced lumbar spondylosis. However, it now must be added that there is a 10% chance for postoperative spondylolisthesis to occur in patients who have bilateral, multiple-level procedures. If only two levels (L-4 and L-5) are removed, the chance for slippage is only 6%, but if three or more levels are removed, the chance of slippage is markedly enhanced, to 15%.

We cannot definitely pick out factors other than the extent of the surgery (more than two levels) leading to increased chances for slippage. However, we have the impression that those patients who did suffer slippage were perhaps more active than others in the series. None of the patients more than 70 years of age were in the group who suffered slippage. With this information now available, our present practice is to add a posterolateral fusion to the wide laminectomy and facetectomy procedure when done at more than two levels, and in patients who are younger than 65 years of age, and whose general condition indicates that they could easily tolerate the added surgery and would likely be especially active if relieved of their original incapacitating pain.

Reference


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