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Fusion for low back pain and sciatica

Guest Editorial

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In this issue, professor Eivind Thomasen reviews his experience with intercorporal lumbar spondylodesis performed in 312 patients during his active years as head of the University of Aarhus Orthopaedic Department. In Scandinavia, spine surgeons are usually rather conservative, and Professor Thomasen's series is thus probably the largest collected by one surgeon.

Which patients to fuse and by what method have been controversial topics in orthopaedic surgery for the last 50 years. It has been well established that results differ extensively, with some authors obtaining only 10% and others claiming nearly 100% good results. The wide variation in clinical results is also seen in healing as judged by X-ray. Another real problem is that in many series there is no correlation between the clinical results and bony healing. Professor Thomasen avoids this controversy and is satisfied by obtaining a solid fusion in over 80% of his patients, as judged from the radiographic evidence of bone trabeculae from the graft to the vertebral bodies.

Whether to fuse from the front or the back has also been discussed. Obviously, in the hands of an experienced surgeon, the anterior route gives fairly low postoperative morbidity, and especially with screw fixation early mobilisation is possible. Others have, however, reported considerably more troubles, including sexual dysfunction in males. Harmon's (1961) operative technique has therefore not had many followers, not even in USA. Posterior lumbar interbody fusion, the PLIF operation originally described and recently updated by Cloward (1985), is currently more popular in USA, but extensive retraction of the neural structures is required.

The overall results in this series were satisfactory in the spondylolisthesis group but less satisfactory in the group with previously failed posterior surgery. This is not at all surprising considering the many reports of gloomy results of repeat surgery of previous failed back operations.

There is a striking similarity between the results of this report and those of Flynn & Hoque (1979), who also achieved approximately 80% good results in their spondylolisthesis group, but when they used the same operation for patients with "degenerative disc disease" had only 50% good results.

Professor Thomasen is to be complemented for analysing his data in an attempt to determine the causes of the bad results.

To me, this paper confirms that if the surgeon can make an unstable motion segment stable, notably in spondylolisthesis, his results are acceptable; in several series the success rate ranges from 75 to 90 per cent, even with fairly long follow-up. My own experience with a posterior bilateral fusion technique with added anterior fusion when the slip exceeds 50 per cent, certainly mirrors the results obtained by Professor Thomasen.

For the misnomers "degenerative discs" or "failed backs", however, this report confirms that the solution for these patients does not lie in a fusion operation, front or back. In order to improve our results, something we really must do in this field, we certainly need more objective diagnostic means to demonstrate instability as well as nerve root compromise. Fortunately such methods are forthcoming. Secondly, we need better follow-up with more stringent criteria for both solid fusion and clinical end-results. Thirdly, we definitely need prospective randomized trials for the "degenerative disc disease" group. Controlled therapeutic studies are long overdue in the fusion field, whatever method is proposed.

With regard to technique, anterior fusion is probably indicated only for spondylolisthesis or particular salvage procedures, while posterior approaches combining bilateral lateral fusion techniques with some type of improved internal fixation seem to offer the best chance for stable healing, particularly in middle-aged and older patients. Future studies, both biomechanical and clinical, will tell us which method to use and when. It is to be hoped that we can soon abandon empirical methods and use more scientific ones. Until such time, however, future errors will be added to 50 years of trial in this field!

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