PROTRUDED LUMBAR INTERVERTEBRAL DISCS

RESULTS FOLLOWING SURGICAL AND NON-SURGICAL THERAPY*

B. M. SHINNERS, M.D., AND W. B. HAMBY, M.D.
Department of Neurology and Neurological Surgery, Buffalo General Hospital, and The University of Buffalo, School of Medicine and Dentistry, Buffalo, New York

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Since the original disclosure in 1934 by Mixter and Barr of the high incidence of protrusions of the lumbar intervertebral disc as a cause of low back pain and sciatica, many patients have been relieved of their complaints but new problems have arisen to perplex those dealing with these people. The growing population of persons who have been subjected to disc surgery has confronted practitioners and insurance adjustors with an increasing number of patients who have obtained unsatisfactory results. These focus unfavorable attention upon a group whose relative size, in proportion to the favorable group, is all too frequently ignored or misunderstood. It is helpful occasionally to demonstrate statistically the shifting proportions of these groups and several such reports have been published.1,2,3,4,5,6,7,8

Fifteen years is too short a time in which to expect answers to all questions concerning a new clinical entity and its treatment, but evaluations of results obtained by various therapies is the means by which such answers can be developed.

Increasing attention is being given to the problem of the proper place or indication for spinal fusions after the removal of disc protrusions. At present, opinions range from that of Barr,1 who feels that practically all backs should be fused after disc surgery, to that of Caldwell and Sheppard3 who concluded that "there is no indication for spinal fusion" in patients having operations for disc protrusion.

We have attempted to find the answers to some of these questions in our own experience. It was not possible to re-examine personally a sufficiently large number of our patients, so we have conducted a second questionnaire survey of the patients we have treated surgically for this malady. A similar study was reported in 19448 of 140 patients who had been operated upon. In the present study, identical questionnaires were sent to 359 patients upon whom one of us (W.B.H.) had operated, including the original 140 reported previously. The data were collected and analyzed by one of us (B.M.S.), a neurologist.

THE MATERIAL

In dealing statistically with human material, the variables are so numerous that no criteria are entirely comparable in seemingly parallel series. Apparently similar disc protrusions compressing the same nerve roots do

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not produce uniform symptoms and signs nor are the same results obtained after removing the root-compressing protrusions. Results vary also with the type of work patients did before disability and to which they must return after operation. Varying compensation laws in different states may reward or actually place a financial penalty upon returning to a type of work that is optimal for the patient after operation. The age groups and the sex of patients vary in different series and alter the percentage results of surgery.

Sex. Of the 359 patients operated upon for back and leg pain, 113 were women and 246 were men.

Age. There were 46 (12.8 per cent) of our patients in the third decade (21–30 years) of life, 144 (40 per cent) in the fourth, 132 (36.8 per cent) in the fifth and 37 (10.3 per cent) in the sixth (51–60 years) decade. We have heard private expressions of opinion that patients older than 50 years do not develop disc protrusion; 10.3 per cent of our patients were in that age group.

Compensation. Of the 359 patients in this series, 237 (66 per cent) were "private" cases, who received no legal compensation for their injuries and 122 (34 per cent) were "compensation" cases.

Discs Involved. Of the 359 patients, 290 (81 per cent) had disc protrusions proved at a single level; 46 had multiple protrusions; in 23 patients re-operation was necessary because of recurrence of disc protrusion, 21 at the same level and 2 at a new level. We thus have found 392 instances of disc protrusion at various levels in the lumbar spinal canal.

Levels of Disc Protrusions. Fourteen disc protrusions not included in these statistics were found located at the C3 level in 1 case, at C4 in 1 case, C5 in 4 cases, C6 in 4 cases, C7 in 1 case, D8 in 1 case and D10 in 2 cases. The lumbar disc protrusions were found at L3 in 14 cases (4 on the left side, 3 midline and 7 on the right), L4 in 155 cases (93 left, 8 midline, and 54 right) and at L5 in 223 cases (107 left, 17 midline and 99 right). The 392 lumbar disc protrusions were found on the left side in 204 cases, midline in 28 and on the right in 160 cases. There did not seem to be any pertinent correlation with the dominant "handedness" of the patients.

Follow-up Period. The longest follow-up period after operation was 11 years; the shortest, 1 year and the average was 4.3 years. The average follow-up period for patients with spinal fusion was 3.0 years.

RESULTS FOLLOWING SURGERY

Questionnaires (Table 1) were sent to 359 patients who had been operated upon: 300 patients responded promptly and over the course of a year; with the assistance of interested referring physicians and insurance adjusters, 355 (98.7 per cent) responses were obtained.

The Operations. In 289 (81.5 per cent) cases, the operation had consisted of removal of the disc protrusion by approach between the laminas in the vast majority of cases, by hemilaminectomy in a few of the early cases and by laminectomy in a very few of the complicated cases. The protrusion itself was treated by as simple removal as possible, but the sinus leading