THE RESULTS OF SURGICAL REMOVAL OF PROTRUDED LUMBAR INTERVERTEBRAL DISCS

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(Received for publication January 31, 1944)

SINCE 1934, when Mixter and Barr\(^6\) elaborated the clinical syndrome of protruded intervertebral discs, low back pain and sciatica, the advances in all phases of the problem have been phenomenal. Varying opinions have been expressed as to the results obtained by treatment and these have ranged in tone from unduly optimistic to needlessly pessimistic. Claim adjustors of at least one insurance company are known to discourage compensation patients disabled by this lesion from seeking surgical relief.

In reporting the first 40 cases operated upon for this lesion, Barr\(^1\) found the percentage of relief striking. Twenty-nine patients were relieved of pain. Of these 8 were able to resume all usual activities without residual difficulty; 9 were restricted by residual discomfort to lighter work, but otherwise were well.

In 1941 several opinions were recorded concerning the results of treatment. Barr and Mixter\(^2\) had found that patients were more improved if spinal fusion was done at the time of laminectomy. Of 94 patients with proved ruptured intervertebral discs, who had been followed for at least a year, 77 per cent were relieved completely of sciatic pain. In an additional 18 per cent, only minor pain persisted in the leg. Two patients had proved recurrences. Relief from back pain was not as complete as from sciatic pain. After laminectomy 52 per cent, and after laminectomy and fusion 73 per cent were relieved of back complaints. The rest had complaints of back pain or weakness of varying severity. In 20 proved cases in which compensation was involved, 9 (45 per cent) considered themselves fully recovered, 6 were doing lighter work, and 5 were still receiving compensation. In the same year, Dandy\(^3\) reported that he had seen no recurrences in his patients. Echols\(^4\) followed up 40 of 50 patients: 29 were classified as having had successful results, 8 improved and 8 unimproved.

In 1943, VerBruggen\(^7\) reported the results of 66 patients followed up in a group of 75. They were classified as excellent (15 per cent), good (68 per cent), fair (11 per cent), and poor (6 per cent).

In the same year, Love and Walsh\(^5\) wrote concerning the results in 750 cases. The mortality rate was less than 0.25 per cent and the rate of recurrence approximately 2 per cent in the lumbar region. They stated that complete relief of symptoms should occur in 80 per cent of cases. A "small group" of patients continue to have backache, although relieved of their sciatic pain.

We have made an attempt to determine the symptomatic relief provided patients by removal of protruded intervertebral discs in the period
between 1937 and July 1943. The shortest period following operation was six months.

MATERIAL

The material consists of all cases explored surgically for a protruded intervertebral disc from 1937 to July 1943, in all stages of the development of our knowledge of this lesion. There were 140 patients explored, and 160 operations were performed, 20 patients having two operations. There have been no fatalities and one mild wound infection. In 116 patients protruded discs were found at the first operation. In 8 patients recurrences were subsequently found at the same level. In 3 patients second disc protrusions were found at a new level. These total 127 examples of disc protrusion. Twenty-four of the 140 patients (17 per cent) were explored without discovery of disc protrusions.

Of the 116 patients with disc protrusions, 85 were men and 31 women.

The ages of the patients, grouped in decades, were: 11-20 yrs. 3, 21-30 yrs. 19, 31-40 yrs. 49, 41-50 yrs. 34, 51-60 yrs. 11.

Two of the discs were in the cervical, 3 in the dorsal, and 111 in the lumbar region. The lumbar levels were: L-1 1, L-III 2, L-IV 34, L-V 74.

TYPES OF OPERATIONS USED

The first 9 patients were subjected to more or less complete laminectomy. Thereafter (July 24, 1939 to Jan. 18, 1940) hemilaminectomy was employed. On Jan. 18, 1940 our first interlaminal approach was made and this operation has been employed since, except in a few cases where local bone configuration necessitated a larger exposure. In September 1939 we began implanting a silver hemostatic clip as deeply as possible into the disc sinus in the hope that recurrences would be signalled by a change in the position of the clip. This proved true on two occasions. This procedure was suggested in 1937 by Barr. Since September 1943 a small amount of tantalum powder has been placed in the disc sinus in 12 selected cases for the roentgenographic visualization of the extent of the disc defect. This will be commented upon in a later report. At Dr. Dandy's suggestion the disc sinus has been curetted routinely since June of 1942.

Spinal Fusions. It has been the general impression that sciatic pain is relieved by removal of a disc protrusion in a greater percentage of cases than is back pain. This has led to the question of the advisability of and the criteria for spinal fusions upon these patients. Some surgeons suggest a routine fusion of some type in all such explorations, while others find no occasion for fusion. On our service the orthopedists see the majority of the patients and if the back is frankly unstable, a fusion is done by the orthopedist at the initial operation. Otherwise it is done only when the simpler operation has proved ineffective.

Of 140 patients whose backs have been explored, 18 have been fused. Thirteen of these fusions were done in the group of 116 patients from whom disc protrusions were removed, and 5 in the 24 patients explored without