OPERATIVE RESULTS IN INTERVERTEBRAL DISCS*

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THAT PAIN in the back and along the sciatic nerve, known to our forebears as sciatica, can be caused by rupture of an adjacent intervertebral disc has introduced a tangible factor into the hitherto uncertain etiology of this distressing condition. Furthermore, the removal of the ruptured disc by a simple operative procedure has been widely heralded as the most certain method of relieving this pain. Prior to 1930, a sufferer from low back pain with sciatica remained in bed until his pain disappeared. Heat, elimination of foci of infection, traction on the leg, and injection of the nerve trunk with saline solution, were all used in an attempt to secure relief, but the basis of treatment was rest. The patient was more comfortable in bed and so he stayed there. All of these patients recovered more or less after a longer or shorter rest and were able to be up and about under certain handicaps. They wore braces to protect and support their backs and they changed from one type of work to another which put less strain on the back muscles. In general, they did not do so badly.

The discovery of the ruptured disc and its relation to low back pain and sciatica has introduced surgical removal of the disc as a method of treatment. Many papers have been written on this subject; the diagnostic criteria are now well established, and the operative technique is standardized. However, more emphasis has been laid upon these two points than upon follow-up statistics. A ruptured disc causing low back and sciatic pain may produce more or less intense discomfort to the patient, but the condition never of itself resulted fatally. To advise surgery in a situation of this kind, even when the surgery is as relatively safe and simple as is that demanded in the removal of a ruptured disc, places considerable responsibility on the surgeon. With even the simplest and easiest surgery unfortunate accidents can and have occurred. The decision to operate is, therefore, based on its expediency. Following operative removal, will the patient be relieved of his discomfort so that he can return to work? What are the chances of no relief of pain or of increase of disability following surgery? It is high time that more emphasis be laid upon operative results than upon diagnostic methods and surgical technique.

This paper has to do solely with operative results as indicated by postoperative examination of the patients at periods ranging from five years to six months. But two reports, by Verbrugghen² and Shinners and Hamby¹, have been found which deal solely with the condition of the patient following

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removal of the disc. All the other communications we have found have given methods of diagnosis and operative technique in large groups of patients, but have been noticeably vague about end results. Frankly, we have not been overly enthusiastic about the final consequences of this surgical procedure. Too much has been said about the ease of diagnosis and surgical technique and too little about the state of the patient afterwards. It is interesting to note how closely our figures coincide with Hamby's, while Verbrugghen's statistics draw a very somber note as far as end results are concerned.

Pain produced by a ruptured disc has two components, the pain in the back and the pain in the leg. Back pain is the initial complaint followed by pain radiating down one leg. Leg pain in the sciatic distribution leads to the suspicion or certainty of a ruptured disc. Pain in the back is due to pressure on, or rupture of, the posterior vertebral ligaments. Pain down the leg is caused by the protrusion of the disc against the adjacent lumbar nerve roots. These two pains are different components of the same progressive picture, and both are important in its recognition. Why does the disc rupture? Trauma, a twisting wrench of the lumbar vertebra, is a commonplace finding in many histories. But in other instances, a no more serious injury than rolling out of bed has been noted. Does the disc rupture because of some structural disability of the back and is the low back pain the earliest clinical evidence of such weakness? This point, I believe, is very important, because, while by the removal of the disc the leg pain is almost always relieved, the pain in the back may remain and produce discomfort and disability.

It is necessary to state here that, while we are convinced that these two pain components exist and for different reasons, as outlined, we have had no experience with fusion as a means for relief of the back pain following improvement or relief of the leg pain by removal of the disc. It is hoped that the indications for and results of fusion will be one of the points brought out in the discussion.

One hundred and fifty cases of ruptured intervertebral disc verified at operation form the basis of this report. All of these patients were operated upon prior to December 1, 1943, thus allowing at least a six months' follow-up period. One hundred and twenty-six of these patients were recently seen and examined. In twenty-four instances, what were considered adequate replies were received to a questionnaire. Interest centered in only one group of facts: what was the patient's condition before operation and how was he affected by operative intervention. When first seen, 11 patients were bedridden, 27 were unable to do gainful work of any kind, and 112 were working with disabilities. The average length of time between the first attack of pain and operation was 2½ years. One hundred and twenty-one patients had had two or more attacks of back and leg pain prior to operation.

At present, 78 of these 150 patients are completely cured and are back at work with no disability whatsoever. In this group of 150 cases, 71 patients were employed at what has been termed hard labor: mining, farming, shipbuilding, nursing. Of these 71 patients 34, or 48 per cent, are entirely free