POSTOPERATIVE INFLAMMATORY DISEASE
OF LUMBAR DISCS*

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The surgical treatment in certain cases of sciatica by removal of the protruding portion of a lumbar disc has become a fairly uniform procedure. Criteria for operation, the technical procedure, and the functional end-results are much the same from one medical center to another. In contrast to the banal appearance of this group as a whole, I will describe 3 patients whose courses deviated a long way from the beaten track. These are instances of presumed infection that developed within the disc after operation. They are described as presumed infection because culture of the causative organism was not obtained in any of them, although a psoas abscess was drained in one, and purulent fluid drained from the disc of another. The 3 cases are dissimilar in several ways, but parallel in respect to their long morbidity, their evidence of severe toxemia, and their end-result.

It is necessary to relate that in my experience with the surgery of lumbar discs (about 300 operations) there has been no instance of major postoperative infection arising in the soft tissues. I have not enjoyed the same immunity from gross soft-tissue infections in cases in which a combined disc and fusion operation was performed. But I am speaking of cases in which the disc alone was disturbed, and in these, healing of the wound has been the rule.

Acute infection of intervertebral discs is usually classified with osteomyelitis of the vertebrae. In 1940, Ghormley, Bickel and Dickson4 of the Mayo Clinic reported 20 cases in which a diagnosis of infectious spondylitis had been made. They were focussing attention on a special group of cases in which there was very little osteomyelitis of vertebral bodies, but evidence of severe infection within a disc. Three of their patients showed clinical evidence of irritation of the central nervous system—a point in common with my cases. None was related to operation.‡

Certain anatomical and pathological features of intervertebral discs influence the course of infection. Within the normal disc after the third dec-

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Submission for publication was postponed in expectation of a more illuminating discussion from some neurosurgeon of greater experience with disc surgery. This tardy appearance may stimulate such a report.
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‡ Since writing this paper brief references to postoperative infections have been noted in two publications by Armstrong.1,2

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ade, there are no blood vessels or lymphatics. This situation is altered following injury. When there has been a rupture through the posterior margin of a disc the process of healing involves an intrusion of blood vessels into the disc along with the invading fibrous tissue. If the rupture has been very gross the protruding lump of fibrocartilage may have to be pulled out at operation. Then there will be even greater vascularization of the interior of the disc. In either case, a blood-borne infection might find a satisfactory locale for activity. In the patient who has had operation an adjacent extradural infection would find an easy path of entry. The poorly healed hole in the posterior spinal ligament and fibrous cover of the disc is like a weak trap door.

With these pathological postulates in mind, I will describe briefly the clinical stories of 3 middle-aged British Columbians—a Finn, a Swede, and a Czecho-Slovak. They are all grateful for surgical relief from severe sciatica, but badly shaken by the morbid events that followed.

Case 1. G.H., Finnish workman, aged 46.

In July 1947 the patient presented a typical clinical syndrome of protruded intervertebral disc with sciatica, which had been initiated by injury. The signs were characteristic of involvement of the left 1st sacral root. Myelogram disclosed a rather indefinite defect on the left side at L5-S1. Disc interspaces were normal.

Operation. A small, firm protrusion was found at L5-S1 and pulled out as one chunk. The interior of the disc was not curetted.

Course. His initial postoperative progress was uneventful. Temperature was normal by the 3rd day. On this day a sore throat and cough developed, which continued for a week. He was out of bed on the 10th day and left hospital 3 weeks after operation.

Three weeks later he returned, looking miserable and complaining of severe headache with vomiting, which had troubled him for about 3 days. He was re-admitted to hospital. His neck was very stiff and he had bilateral Kernig sign. Cisternal puncture was done; the CSF contained 525 WBC, 44 per cent polymorphs, 56 per cent lymphocytes, and 115 mg. protein per cc.

He was started on large doses of penicillin. CSF obtained by lumbar puncture 3 days after admission showed 1150 WBC, 28 per cent polymorphs, 72 per cent lymphocytes, and 200 mg. protein. Successive lumbar punctures disclosed a gradual improvement in the CSF which coincided with a gradual clearing up of his meningitic signs and symptoms. His temperature had remained normal and his pulse rate in the 60's from the beginning. Two months after admission the CSF cell count was 33, with 90 per cent lymphocytes, and 105 mg. protein.

As the headache cleared up increasingly severe low backache developed, with pain radiating to both legs. He was discharged from hospital after 3 months, still complaining of pain in his lower back.

A month later he looked very miserable, so shaky that he had to lie down to take off his low-back belt, depressed and unnerved. He returned to his home in a small town up the B.C. coast. Up there, under the direction of a physiotherapist he made a slow, but excellent recovery. He returned to his regular work, about 1 year after the original operation.

Two years later he was still working steadily with only occasional stiffness in his back after a hard day. There was moderate limitation of flexion of the lower