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RUPTURED CERVICAL DISC—A NEW METHOD OF DIAGNOSIS AND TREATMENT

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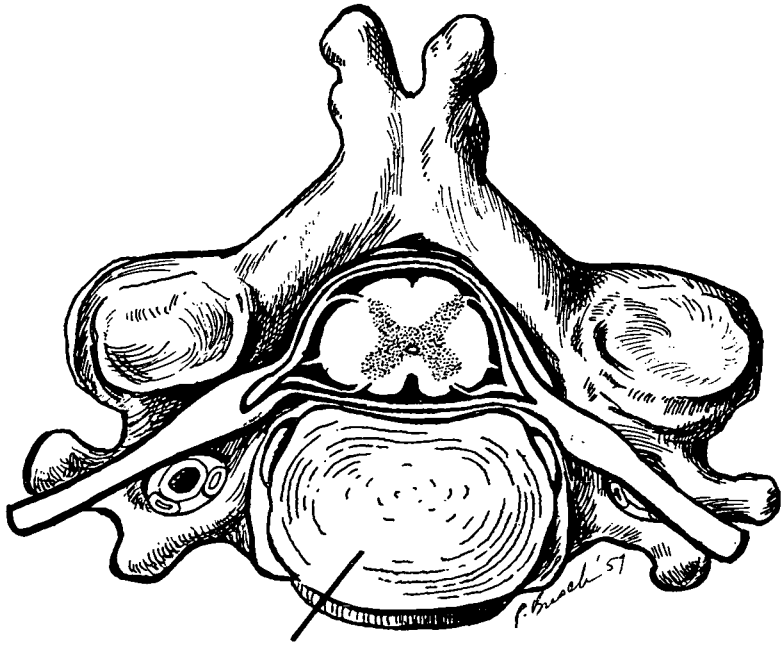
Dr. Stuck received his M.D. degree from Washington University Medical school in 1932. He interned at Royal Victoria Hospital in Montreal, then took postgraduate training at the Montreal Neurological Institute and the University of Michigan Hospital. Since 1938 he has been a practicing neurosurgeon in Denver. Dr. Stuck is a diplomate of the American Board of Neurological Surgery and a Member of the Harvey Cushing Society, the Denver Academy of Surgery and various other local and regional medical societies. From 1945 through 1956 he served as Assistant in Neurosurgery at the University of Colorado School of Medicine. During the past twenty years he has contributed many papers to medical journals and meetings.

The increasing speed of modern transportation has resulted in a marked increase in accidents which shock and damage the human body. Collisions at these increased speeds result in damage to the body structures that are most vulnerable either by their inherent nature or by the situation in which they are placed. Most parts of the body if protected by a crash pad, safety belt, head rest or other proper means of deceleration may escape serious damage. But very few means of transportation provide protection for the cervical spine. As a result, neck injury (whiplash) is rapidly becoming a major problem.

The neck may be damaged in other ways than by automobile accidents. A person may slip and fall, striking his head in such a fashion as to wrench his neck, he may receive a blow that compresses his neck or he may sustain a direct blow to the neck. Injury may also occur to the neck structures from repeated attritions, as in boxing or in work which entails constant jolting.

As a result of such injury, the soft tissues of the neck, the cervical spine itself, and the cervical intervertebral discs may be contused, lacerated, fractured or ruptured. The stress, often applied in a whip-cracking or a shearing-tearing manner, may result in stretching and tearing of ligaments, muscles and other soft tissue structures, stretching, tearing or crushing of nerve structures, fracture and dislocation of bony structures, and crushing, fracturing and dis-



NORMAL DISC *Plate I*

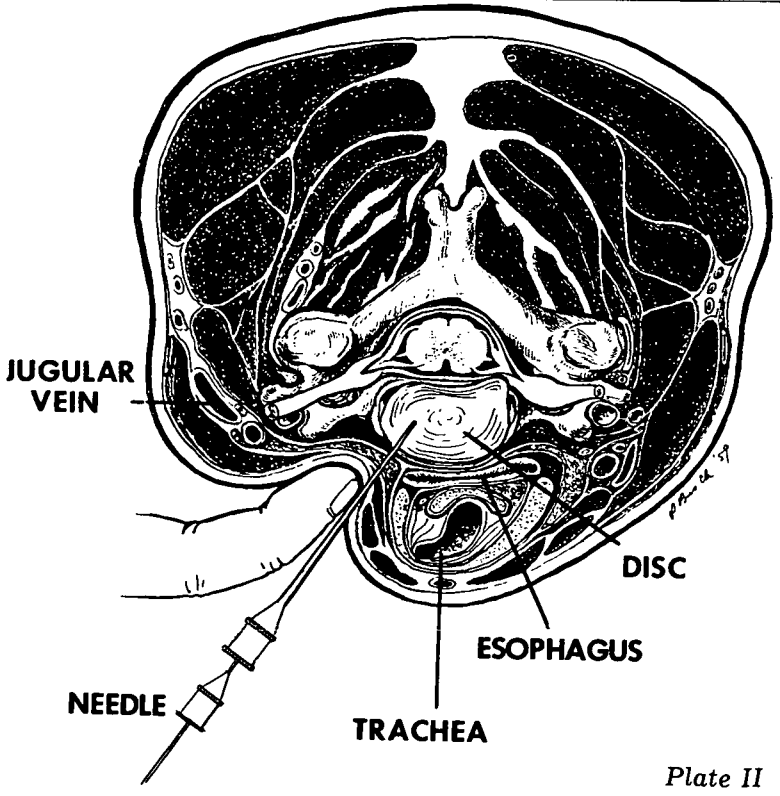


Plate II

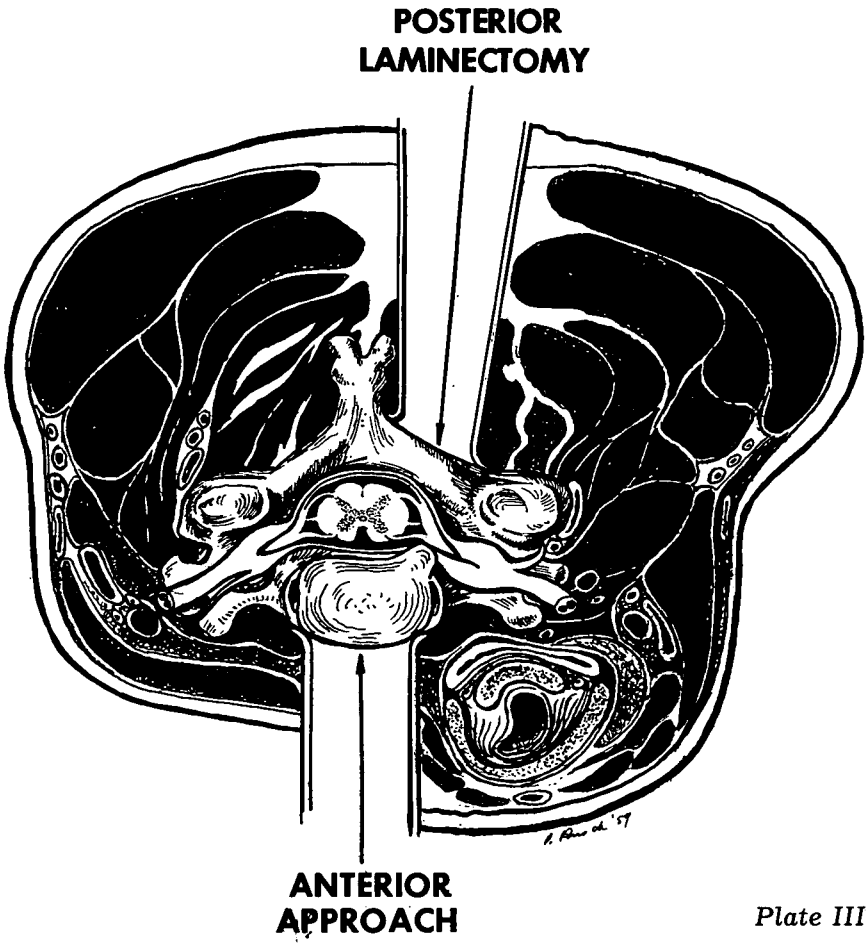


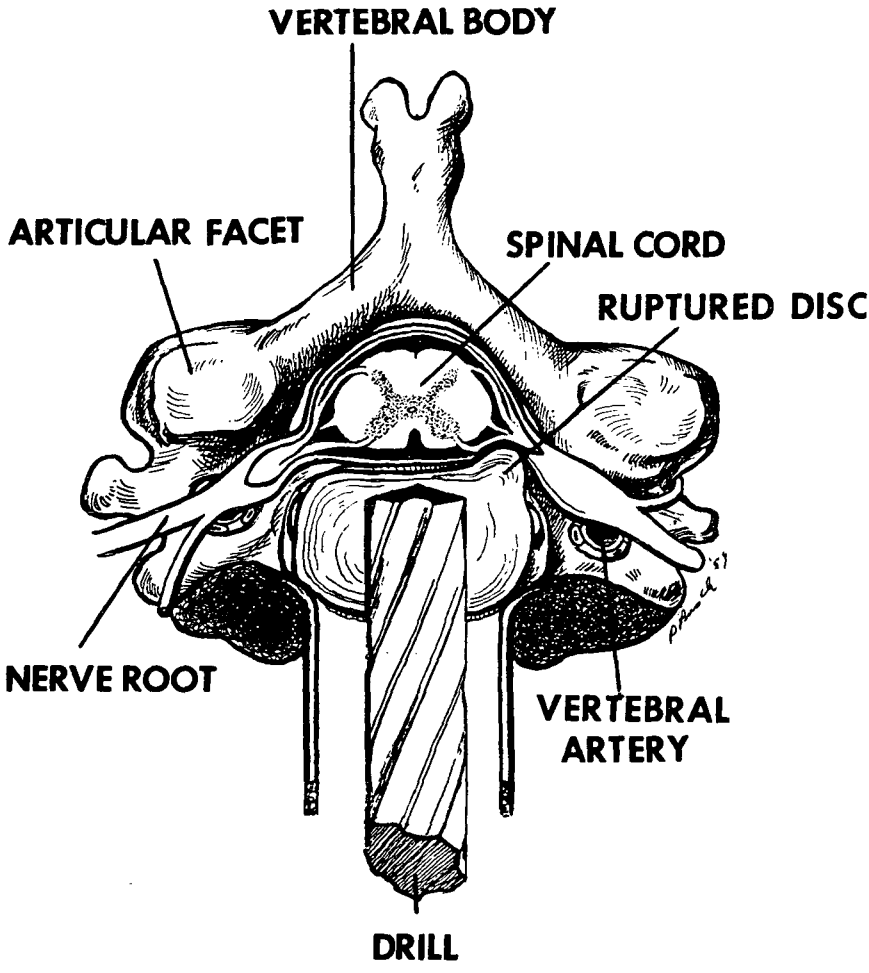
Plate III

location of disc structures. Injury to the disc structures with resultant nerve damage is the problem with which we are here concerned.

Plate I shows a normal disc, looking from the top down at the cervical structure. A comparison of this with Plate IV will show how a ruptured disc may press on nerve roots, resulting in nerve damage. Plate V is a side view of the neck, and shows the relation of the discs to the seven vertebrae.

Experience with cases of neck injury has led me to conclude that the cervical discs are damaged much more often than has been believed in the past and that many patients with neck injury and diagnosis of neck sprain actually have one or more ruptured cervical discs requiring removal.

The symptoms include headache, shoulder pain, chest pain, and pain throughout the arm and hand; numbness and tingling in the arm and hand; weakness and wasting in the muscles of the shoulder girdle, the arm, forearm and hand; and sensory changes in the upper



FRONT OF NECK

Plate IV

extremities. When these symptoms are found in proper relation, they will suggest that a cervical disc has been ruptured. X-ray studies of the neck are then valuable in establishing a diagnosis.

The discogram (Plate II) is a relatively new X-ray procedure which will confirm a diagnosis of damaged cervical discs. The technique consists of injecting the suspected disc or discs with a dye which can be seen in the X-ray. Resulting pain may indicate injury, and the extent of the damage can be estimated and the disc involved accurately determined.

A patient with an injured neck should be treated conservatively for a period of three months. At the end of this time, if his symptoms are still disabling, I believe a discogram should be performed.

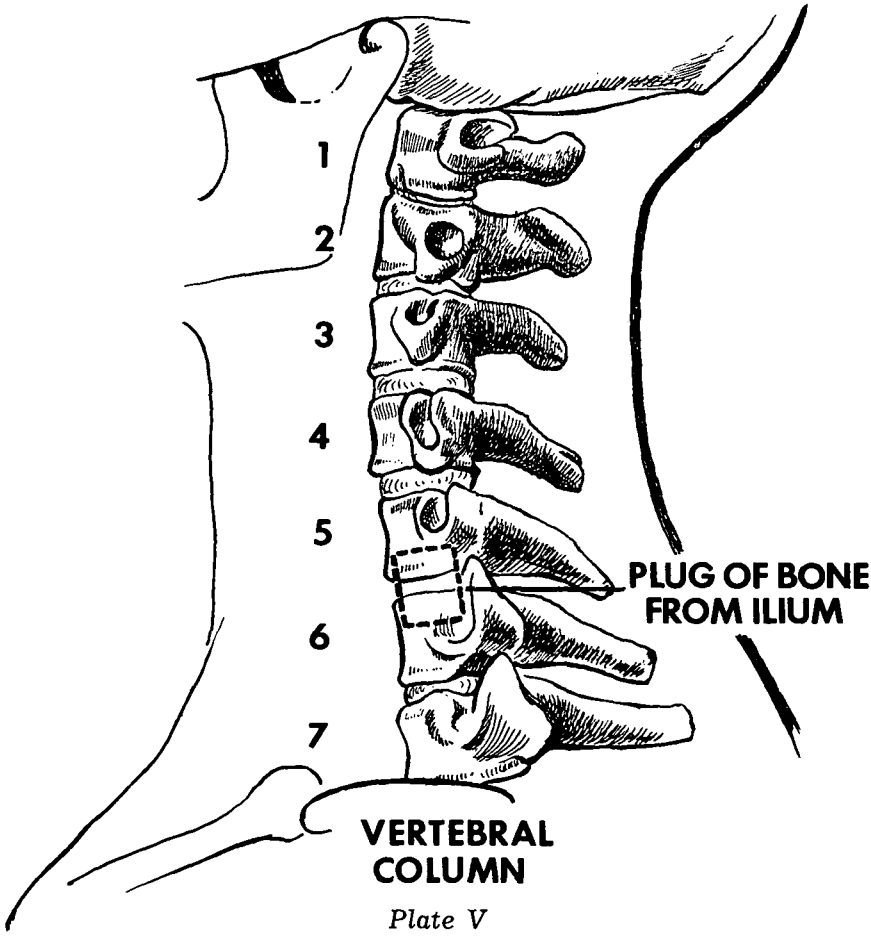


Plate V

If the discogram reveals disc injury and his symptoms are aggravated during the test, he should be operated upon.

Until recently almost all cervical disc surgery was performed from the back. Posterior laminectomy (Plate III) is technically difficult and in many instances is hazardous. Consequently most surgeons who have done posterior cervical laminectomies continue to search for a better method.

About ten years ago, interest was first shown in an anterior surgical approach to the cervical disc problem, but no definite procedural plan was developed. Then in 1955 Robinson and Smith reported that an anterior approach had achieved quite favorable results.

In November of 1958, Cloward, of Honolulu, reported remarkable success with another anterior approach to the cervical disc and vertebra (Plate III). His operation is carried out in the front of the neck, and the important structures in the neck are moved aside to expose the vertebral column. The ruptured intervertebral disc is

removed directly, and the spinal cord and nerve roots are thus freed of pressure (Plate IV). Finally, a plug of bone is cut from the ilium and inserted between the vertebrae in order to fuse the two (Plate V). It is his operation that I have been using.

Cloward says, and my experience has confirmed his findings, that it is possible by this method to remove all of the disc and the bony parts of the vertebra that are pressing on nerve roots or the spinal cord, much more completely than was possible with the posterior approach. Furthermore, the dangers of injury to the spinal cord and nerve roots in the posterior operation are largely eliminated by this method.

An amazing number of persons who have suffered intermittent disabling neck complaints for years as a result of "whiplash" or other accidents are found by the new method of diagnosis to have a ruptured cervical disc instead of a commonly diagnosed psychoneurosis.

By the new improved anterior surgical treatment of ruptured cervical discs, many of these patients are being relieved.

This combination of diagnosis of ruptured cervical discs by the use of the discogram and surgical treatment by the anterior approach, as developed by Cloward, holds for victims of current accidents a promise of avoiding prolonged suffering.