

The Failed Back Surgery Syndrome

Deborah Pate, DC, DACBR

Recently I examined a patient with a history of chemonucleolysis to a lumbar disc. The patient stated that the level at which the chemonucleolysis was performed was L4/5. Symptoms involved the S1 dermatome; therefore, it was my initial impression that this was another level of possible discal herniation and not an exacerbation of the previous discal lesion at the L4/5 level. Luckily we were able to obtain the surgical report from the neurosurgeon who performed the chemonucleolysis. This report stated that the chemonucleolysis was performed at the L5/S1 level, two years previously. This drastically changed my diagnosis, treatment plan, and prognosis. Case in point: Make sure you are well informed as to the exact procedure and exact level or levels of involvement when treating patients with a previous history of back surgery.

Some 200,000 patients undergo lumbar spine surgery every year. Unfortunately, 20-40 percent of patients will fail to gain the desired outcome. In fact, 10 percent of patients will be worse after the initial surgery. The chiropractor who chooses to treat the patient who has the failed back surgery syndrome (FBSS) generally faces an even more formidable task than the initial physician. When accepting the task of treating a patient with FBSS, the many possible causes for FBSS must be considered. The following are a list of the general causes for symptoms following low back surgery: structural and mechanical problems with the spine itself, related or unrelated to the initial surgery, poor body mechanics and deconditioning, alternative diagnoses which were the actual cause of the initial back pain or a contributing cause which was not diagnosed initially, iatrogenic causes due to the surgery or surgical procedure, psychological variables, and medication problems. In short, there are multiple factors that can contribute to FBSS.

Initially, the more unlikely causes for FBSS should be ruled out first. The possibility of an incorrect diagnosis is slight but can occur. Neoplasms, infections, and visceral causes should be ruled out, since these problems can lead to even more serious complications.

Most patients with FBSS have a peripheral, mechanical, structural lesion that is the source of the symptoms. Therefore, these patients generally respond well to chiropractic care. One should, however, make certain the source of the symptoms is specifically identified. Because of the iatrogenic changes associated with surgical intervention, identifying the source of the pain is difficult. A systematic approach is necessary to evaluate the various factors in both central and peripheral nervous systems that contribute to the patient's experience of pain. The most common spinal lesions associated with FBSS are listed as follows:

Instability

Stenosis

Recurrent disc herniation

Missed lesions

Intraneural fibrosis -- epidural fibrosis

Arachnoiditis

Reflex sympathetic dystrophy

Soft tissue dysfunction

Facet syndrome

Internal disc disruption
Pseudoarthrosis
Metallic implants

Instability: Segmental instability is loss of the normal stiffness of a motion segment, such that application of force to that motion segment results in greater displacement than would occur in a normal structure. Frequently, an unstable motion segment is the cause of, or at least is associated with, disc deterioration and herniation. Operating on this diseased segment without fusion weakens it further, and although neural compression may be alleviated, segmental instability is expected to be increased by removal of some of the bony and ligamentous stabilizers. This increases instability, resulting in failure of the surgery.

A typical scenario: A patient with radicular pain obtains relief after surgery but develops disabling low back pain, a symptom indicating instability. With the presence of scar tissue causing relative fixation of neural elements, this level is generally less tolerant of instability than it was preoperatively. Also, it should be noted that levels adjacent to fusions are frequently found to be unstable radiographically and clinically, as a result of both the multisegmental nature of the degenerative disease and the increased stresses applied to the last mobile segment.

Generally these patients will respond well to chiropractic care and rehabilitative exercises designed to strengthen the low back. It should be noted that these patients generally will respond adversely to rotatory type adjustments (lumbar roll).

Stenosis: Stenosis can cause surgery to fail both early and late in the postoperative period. Early in the postoperative period, stenosis in the lateral recess can go unrecognized and cause persistent pain. When the stenosis is lateral it can be visualized well during surgery and the size of the canal must be gauged blindly, using probes. A multiplanar CT scan is most sensitive for picking up foraminal and lateral recess narrowing, which can be missed on myelograms or CT scans without lateral reconstructions. When a discectomy is performed, subsequent postoperative settling occurs, resulting in further overriding of facet joints and further subarticular narrowing of the lateral recesses. In the late postoperative period, central and lateral stenosis can occur from progressive degenerative changes, as would be expected after the surgical violation of an already diseased segment. When fusion is performed posteriorly, gradual overgrowth may result in late postoperative central stenosis at the surgical site.

Most patients will not respond well to conservative care and generally need a second surgery to relieve the symptoms.

Recurrent Disc Herniation: Most discectomies entail removal of only a portion of the disc material. The remaining original disc material can exit out of the surgical site and result in a recurrent disc herniation. Since postoperative fibrosis tethers the dura and nerve roots, a small amount of disc material can cause disabling symptoms. For example: when there is a connection with the disc space and the protruding disc fragment, so that loading causes some motion of the herniation against the immobile neural elements, causing symptoms that can be disabling. The patients may respond well to chiropractic care, particularly to the flexion-distraction type techniques (Cox technique).

Missed Lesions: Missed lesions at the initial surgery are not uncommon. If the patient still demonstrates the same symptoms without temporary relief, this is a hallmark sign of a failed spinal surgery. The most common causes of a missed lesion are migration of disc fragments into the intervertebral foramen or disc material dissecting posterior to the longitudinal ligament and even surgery performed at the inappropriate spinal segment.

Intraneural Fibrosis -- Epidural Fibrosis: Epidural fibrosis is unavoidable to some extent and usually is not a source of disabling pain. The factors that seem to make it symptomatic in some patients are yet unknown. The diagnosis of epidural fibrosis is generally used when no other lesion can be identified, since a certain amount of epidural fibrosis is present in all postoperative cases. These cases are generally very difficult to manage no matter what approach is utilized.

Similarly, intraneural fibrosis is a diagnosis that is usually made when the EMG is abnormal and there is no lesion to account for the pain other than fibrosis about the nerve root on the CT scan. Again, these cases are very difficult to manage.

Arachnoiditis: Postoperative and postpantopaque myelography arachnoiditis is a devastating problem that responds relatively poorly to treatment. It is characterized by intrathecal fibrosis, causing rootlets to adhere to each other and to the inner wall of the thecal sac.

Reflex Sympathetic Dystrophy: Reflex sympathetic dystrophy is a rare occurrence in the postoperative patient. It is associated with nerve root irritation or damage; however, the exact etiology of this disorder is unknown. It seems to be a secondary response to the somatic pain of a root lesion, causing great escalation in its intensity. Temperature changes, sweating, and burning of the lower extremities suggests this diagnosis. The symptoms may eventually resolve; however, the present treatment for this disorder is a sympathetic block.

Soft Tissue Dysfunction: This is a poorly defined diagnosis, but is apparently commonly a cause of persistent postoperative disability and symptoms. The theory is that patients who have splinted their lumbar motion prior to surgery continue to do so after surgical healing has occurred. They develop pain in the buttock and lumbosacral region, with associated areas of tenderness. The pain is worsened by holding static positions such as sitting, standing, or lying for a prolonged period. The range of motion is limited by back tightness and discomfort. Symptoms are relieved by changing positions. Presumably, scar tissue and shortened spinal ligaments are being stretched when static positions allow continuous unidirectional forces to stretch these tightened structures. The associated discomfort alarms the patient and causes him to splint; and immobilized, the process of tightening of soft tissue structures continues.

Most of these patients respond well to chiropractic care and adjunctive stretching techniques and exercise.

Facet Syndrome: As mentioned above, surgery may cause increased segmental instability at the level and adjacent to a fusion or at the surgical level. This often results in facet arthropathy. For example, disc settling after discectomy or chemonucleolysis causes rapid facet subluxation and articular approximation (facet imbrication) which can result in arthropathy.

Generally, again these patients respond well to chiropractic care, depending on the degree of associated lateral or foraminal stenosis due to the degenerative changes of the articular facets.

Internal Disc Disruption: Internal disc disruption is typically characterized by severe pain associated with any loading of the disc in a young adult with a history of trauma. Myelograms and CT scans are normal. Diagnosis is confirmed by a discogram and disc saline acceptance test. These lesions are due to circumferential and radial tears of the annulus. The annulus is exquisitely painful although there is no frank herniation. This entity should be kept in mind, especially when the usual diagnostic tests appear normal.

These patients may respond to chiropractic care, exercises to strengthen the spine, and time. The more resistant cases have responded to anterior lumbar interbody fusion.

Pseudoarthrosis: It has been stated that pseudoarthrosis in and of itself is not a source of pain. But, in the presence of hardware, scar tissue, stenosis, and/or tethered neural elements, the associated instability may definitely cause pain. Localizing the pseudoarthroses can be difficult when the motion is minimal; however, the general responsible treatment is fusion of the region.

Metallic Implants: Internal fixation devices such as Knodt rods and Harrington rods can cause neural irritation at the hook sites. Pseudomeningoceles resulting from direct pressure of hooks gradually eroding the thecal sac are not an uncommon occurrence. Fracture at the hook site is also not uncommon. Two of the more common causes of painful symptoms due to internal fixation devices are: 1) stenotic syndromes caused by bunching of the ligamentum flavum at the site of the upper hooks in Knodt and Harrington rods; and 2) loss of the lumbar lordosis caused by the distraction rods causing a compensatory hyperlordosis at the first mobile segment resulting in arthrosis at that level. In these types of cases, the exact cause of the symptoms should be determined before any chiropractic adjustment is performed.

In conclusion, the failed back surgery syndrome is a difficult problem and a thorough evaluation of the patient and patient's previous history and previous surgery should be performed before treatment is attempted. Fortunately, most of the FBSS cases will respond well to chiropractic care.

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