Failed back surgery syndrome

Definition

Failure to satisfactorily improve low back pain or radiculopathy following back surgery. These patients often require analgesics and are unable to return to work. The failure rate for lumbar discectomy to provide satisfactory long-term pain relief is \approx 8–25%. ¹⁾. Pending legal or worker's compensation claims were the most frequent deterrents to a good outcome ²⁾.

(also called FBSS, or failed back syndrome) is a misnomer, as it is not actually a syndrome - it is a very generalized term that is often used to describe the condition of patients who have not had a successful result with spine surgery and have experienced continued pain after surgery. There is no equivalent term for failed back surgery syndrome in any other type of surgery (e.g. there is no failed cardiac surgery syndrome, failed knee surgery syndrome, etc.).

Chronic neuropathic pain has been recognized as contributing to a significant proportion of chronic pain globally. Among these, spinal pain is of significance with failed back surgery syndrome (FBSS), generating considerable expense for the health care systems with increasing prevalence and health impact.

Epidemiology

Following lumbosacral spine surgery, between 5 and 50% of patients suffer from failed back surgery syndrome $^{3)}$ ⁴⁾.

Etiology

Dural fibrosis and epidural adhesion after laminectomy are developed from adjacent dense scar tissue, which is a natural wound healing process ^{5) 6) 7) 8)}., and ranked as the major contributor for postoperative pain recurrence after laminectomy or discectomy, and has been implicated as an important cause of failed back surgery syndrome.

Lumbar disc herniation

The surgery for herniated disc is the most common operation at the level of the lumbar spine. The failed surgery rates range between 10% and 40%, conforming what is known as Failed Back Surgery Syndrome (FBSS). Return to work after surgery occurs in 70-85% of the cases.

One out of three patients operated of herniated lumbar disc in our area presented failed disc surgery and the return to work occurred in 2 out of three patients active before the operation. The failed surgery patient suffers from pain, that interferes and limits the labour and home activities. Furthermore, the patient presents frequent sensation of fatigue and exhaustion and also emotional problems that contribute to interfere with work and activities of the daily life⁹⁾.

There are many reasons that a back surgery may or may not work, and even with the best surgeon and for the best indications, spine surgery is no more than 95% predictive of a successful result.

Reasons for Failed Back Surgery and Pain after Surgery Spine surgery is basically able to accomplish only two things:

Decompress a nerve root that is pinched, or Stabilize a painful joint. Unfortunately, back surgery or spine surgery cannot literally cut out a patient's pain. It is only able to change anatomy, and an anatomical lesion (injury) that is a probable cause of back pain must be identified prior to rather than after back surgery or spine surgery.

Differential diagnosis

The preoperative identification of lumbar foraminal stenosis (LSFS) is important because a lack of recognition of this clinical entity is often associated with failed back surgery syndrome. Although magnetic resonance imaging (MRI) is widely used, and is considered by many as an appropriate tool for studying spine pathologies, there is limited data to suggest that MRI examinations are sufficiently sensitive or specific for the diagnosis of LSFS ¹⁰.

Treatment

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Case series

Seventy-three patients (mean age, 61 years; 43 males and 30 females) who underwent single-level partial lumbar hemilaminectomy without postoperative complications or other level spinal abnormalities between January 2010 and December 2018 were enrolled. Two musculoskeletal radiologists evaluated transiting nerve rootlet abnormalities (thickening, signal alteration, distinction, and displacement), epidural fibrosis, and intrathecal arachnoiditis on MRI obtained one year after the operations. A spine surgeon blinded to the radiologic findings evaluated each patient for persistent postoperative pain (PPP). Univariable and multivariable analyses were used to evaluate the association between the MRI findings and PPP.

The presence of transiting nerve rootlet thickening, signal alteration, and ill-distinction was significantly different between the patients with PPP and those without, for both readers ($p \le 0.020$). Conversely, the presence of transiting nerve rootlet displacement, epidural fibrosis, and intrathecal arachnoiditis was not significantly different between the two groups ($p \ge 0.128$). Among the above radiologic findings, transiting nerve rootlet thickening and signal alteration were the most significant findings in the multivariable analyses ($p \le 0.009$).

On MRI, persistent postoperative pain (PPP) was associated with transiting nerve rootlet abnormalities, including thickening, signal alterations, and ill-distinction, but was not associated with epidural fibrosis or intrathecal arachnoiditis. The most relevant findings were the nerve rootlet thickening and signal alteration¹¹.

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