

Five years Review of Failed Back Surgery Syndrome (FBSS) at Dept of Neurosurgery Unit-I, Lahore General Hospital Lahore

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ABSTRACT:

The surgery for herniated disc is the most common operation at the level of the lumbar spine. Surgery is effective in the majority of cases. The failed surgery rates range between 10% and 40%, conforming what is known as Failed Back Surgery Syndrome (FBSS). Multiple factors can contribute to the onset or development of FBS.

Objective: *To report our data of cases of failed back surgery syndrome (FBSS) and surgical and non surgical etiologies.*

Materials and Methods: *A review of cases of Failed back surgery Syndrome (FBSS), from 2003 to 2008 managed at The Neurosurgery Department Lahore General Hospital Lahore/PGMI, was conducted. The inclusion criterion was Re-admission within one year of their previous lumbar disk surgery at our department or other teaching institutes. 39 patients were found and included in the review. Two groups of patients were created on the basis of whether patient managed conservatively or re-explored. Important Data was recorded, analyzed and is presented.*

Results: *Out of the total 39 patients 15 (38.46%), were managed conservatively and included in group A. Twenty four 61.5% patients who were managed surgically with re-exploration and were grouped as B. 26 patients were male and 13 were female.*

Group A: *In this group 15 (38.46%), were included. These patients did not have a radicular element in their history of recurrent backache, and symptoms were vague. Patient examination was in normal limits except local tenderness in 5 cases. MRI scans did not reveal any identifiable cause and these patients were managed conservatively, with bed rest, physical therapy, analgesics, muscle relaxants anxiolytics. Two patients, out of 15 are still experiencing backache, and using analgesics.*

Group B: *In group B, 24 (61.5%) patients were included. All these patients presented at re-admission with backache and radiculopathy. The time since previous surgery was not more than One year in all these patients. On radiological examination, recurrent disc herniation was found in 22 cases and wrong level exploration in 2 cases i.e. 5.1%. These 24 patients were re-explored and out of 22 cases of recurrent disc herniation, incomplete disc removal was found to be the cause in majority, 18 (46.15%) patients cumulative had incomplete disc removal during previous surgery. In 4 (10.25%) cumulative patients epidural scar / fibrosis was found to be the reason i.e cumulative. Out of these 24 patients who were re-explored, in 2 patients CSF leak from the wound was managed with lumbar drain and positional measures. Twenty patients had excellent outcome and became pain free after the second surgery. 4 patients still have back discomfort and partial sensory deficit. These patients were managed conservatively, with analgesics, antidepressants, and physical measures.*

Conclusion: *The failure of back surgery remains a challenge for the surgeons. There is a constant search for the causes and the pathogenesis of this syndrome and the best method of treatment. Recurrent disc is the commonest cause of failed back syndrome which responded well with reexporative.*

Key Words: *Failed Back Surgery Syndrome, Backache.*

Abbreviations: *F.B.S.S.: Failed back surgery syndrome.*

INTRODUCTION

The surgery for herniated disc is the most common operation at the level of the lumbar spine. Surgery is effective in the majority of cases. Success rates from 76% to 93% have been reported.¹⁻⁸ Patients who have had one operation for lumbar disc herniation have shown to be at 5–12.5% risk for further operations (including discectomy, other type of decompression or fusion) over the follow-ups lasting from 1 to 20 years.^{4,7} 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.⁹

Multiple factors can contribute to the onset or development of FBS. Contributing factors include but are not limited to residual or recurrent disc herniation, persistent post-operative pressure on a spinal nerve, altered joint mobility, joint hypermobility with instability, scar tissue (fibrosis), depression, anxiety, sleeplessness and spinal muscular deconditioning. An individual may be predisposed to the development of FBS due to systemic disorders such as diabetes, autoimmune disease and peripheral blood vessels (vascular) disease. Smoking is a risk for poor recovery from such an operation as is anything that constricts the blood vessels.

Common symptoms associated with FBS include diffuse, dull and aching pain involving the back and/or legs. Abnormal sensibility may include sharp, pricking, and stabbing pain in the extremities. The term “post-laminectomy syndrome” is used by some doctors to indicate the same condition as failed back syndrome.

This so-called 'failed back syndrome' is a complex phenomenon influenced by organic, psychological, economic and social factors. Radiological examination is frequently requested in order to exclude an anatomical basis for the patient's complaints. Re exploration in the presence of significant epidural scarring (fibrosis) from previous surgery may lead to further more severe scarring. Neural compression due to recurrent disc protrusion or canal or lateral recess stenosis may be relieved surgically. Accurate radiological diagnosis of these and other possible abnormalities is therefore of paramount importance, especially in view of the difficulties in performing re-exploration of the lumbar spine.

The Main **Objective** of our study was to report our data of failed back surgery syndrome (FBSS) and evaluation of surgical and non surgical etiologies.

MATERIALS AND METHODS

A review of cases of Failed back surgery Syndrome (FBSS), from 2001 to 2005 managed at The Neurosurgery Department Lahore General Hospital Lahore/PGMI, was conducted. The inclusion criterion was Re-admission within one year of their previous lumbar disk surgery at our dept or other teaching institutes. A total of 39 patients were included in the review. Two groups of patients were created on the basis of whether patient managed conservatively or re-explored. Important Data was recorded, analyzed and is being presented.

RESULTS

Out of the total 39 patients 15 (38.46%), were managed conservatively and included in group A. 24 (61.5%) patients were managed surgically with re-exploration and were grouped as B.

Sex Incidence

Twenty six patients were male and 13 were female.

Group A: in this group 15 (38.46%), were included. These patients did not have a radicular element in their history of **recurrent backache**, and symptoms were vague. Patient examination was within the in normal limits except local tenderness in 5 cases. MRI scans did not reveal any identifiable cause and these patients were managed conservatively, with bed rest, physiotherapy, analgesics, muscle relaxants anxiolytics. Out of 15 cases, 12 patients are still experiencing backache, and take analgesics.

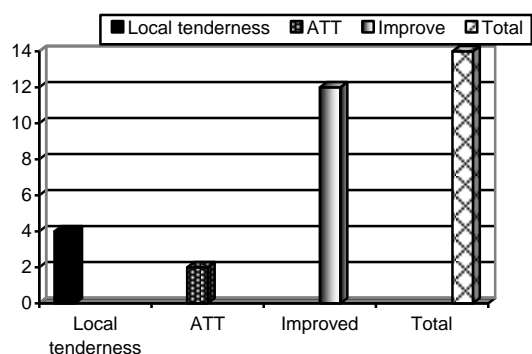


Fig. 1: Group A: Conservative.

Group B: In group B, 24 (61.5%) were included. All these patients presented at re-admission with backache

and radiculopathy. The time since previous surgery was not more than One year in all these patients. The examination revealed restricted SLR in all the cases. Sensory impairment was at the same level or worsened, as compared to the condition before previous surgery. Reflex impairment was noted few of these cases. On radiological examination, recurrent disc herniation was found in 22 cases and wrong level exploration in 2 (5.1%) cases. These 24 patients were re-explored and out of 22 cases of recurrent disc herniation, incomplete disc removal was found to be the cause in majority, 18 (46.15%) patients cumulative, had residual disc treat causing root compression.

In 4 (10.25% cumulative) patients epidural scar / fibrosis was found to be the reason. Out of these 24 patients who were re-explored, in 2 patients CSF leak from the wound was managed with lumbar drain and positional measures. 20 patients had excellent outcome and became pain free after the second surgery. 4 patients still have back discomfort and partial sensory deficit. These patients were managed conservatively, with analgesics, antidepressants, and physiotherapy measures.

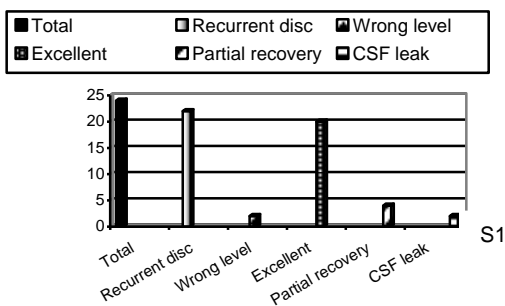


Fig. 2: Group B: Re-exploration.

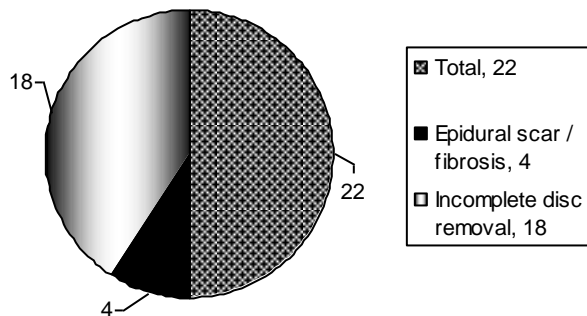


Fig. 3: Recurrent disc 22 cases.

DISCUSSION

Failed back surgery causes enormous costs to patients and society. The etiology of failed back surgery can be poor patient selection, incorrect diagnosis, suboptimal selection of surgery, poor technique, failure to achieve surgical goals, and recurrence.¹⁰ It is long-lasting, disabling, relatively frequent (5%-10%) complication of lumbosacral spine surgery. Epidural fibrosis or adhesions is the most common cause. Repeated surgery for fibrosis has only a 30% success rate, whereas 15% to 20% of patients report worsening of their symptoms.¹¹ Segmental instability is another factor after lumbar microdiscectomy. Patients in their 40s are prone to postoperative narrowing of the intervertebral disc space and intervertebral instability. Narrowing of the intervertebral space of more than 30% represents a clear radiological sign of segmental instability.¹¹ Management has been tried with different conservative and surgical modes. Lidocaine pretreatment is safe for prevention of chronic pain for back surgical procedures if given by intramuscular injection, topically onto spinal nerves and the dorsal spinal surface during surgical procedures.¹³ Spinal cord stimulation in chronic back and leg pain/failed back surgery syndrome remains "moderate."¹⁴ but less expensive and more effective than reoperation in selected failed back-surgery syndrome patients.¹⁵ In cases of severe epidural fibrosis gabapentin helps in functional status and pain was significantly diminished.¹¹ Epiduroscopy is new diagnostic and therapeutic technique.¹⁶ Epiduroscopic adhesiolysis is an effective therapy for FBSS patients,¹⁷ sagittal imbalance are treated with a combined anterior and posterior arthrodesis.¹⁸ or anterior lumbar interbody fusion.^{19,20}

Most discectomies entail removal of only a portion of the disc material. The remaining original disc material may exit out the annulotomy site and result in a recurrent disc herniation. This is one of the more common correctable lesions in failed spine surgery in our experience. In our review, 24 (61.5%) patients were re-explored and 18 (46.15%) patients had recurrent/incomplete disc. Frymoyer and colleagues found that recurrent disc herniations were the most frequent cause of failed disc surgery in a series of 268 failed spine surgery cases.²¹ In their series 43% of the patients had recurrent disc herniations at the operated level and 22% had them at a different level; thus, 65% of all surgical failures appeared to be due to recurrent disc herniations.

In a study of 2504 operations, Spangfort²² reported that the improvement in disc herniation after surgery was inversely proportional to the degree of extrusion; Morgan-Hough et al²² reported a revision rate of 7.9% over a period of 16 years in a study of 531 patients and concluded that a contained disc protrusion was almost three times more likely to need revision surgery compared with extruded or sequestered discs. In contrast, in the study of Carragee et al,²³ patients in the fragment-defect group, who had extruded fragments and massive posterior annular loss, had higher rates of reherniation and reoperation than those in other groups (fragment-fissure group, fragment-contained group, and no fragment-contained group). In this study, the recurrence rate after open discectomy was significantly higher in the protruded type than in the other types. This may be because the removal of herniated disc might not be complete in the protruded type, though Cinotti et al²⁴ found no difference in the rate of recurrence associated with partial or complete discectomy. The above observations indicate surgeons must be prudent in surgical decision-making and use meticulous operative techniques to ensure disc fragments are not missed in patients with protruded discs.

Epidural fibrosis is unavoidable to some extent and usually is not a source of disabling pain. Since postoperative fibrosis tethers the dura and nerve roots, a small amount of disc material can cause disabling symptoms. This is especially true 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. In 10.25% of our patients we found fibrosis to be the cause. The factors that seem to make it symptomatic in some patients are obscure. In many cases, it seems to be the source of a peripheral stimulus which is greatly amplified because of a deranged pain perception mechanism. Since this lesion is always present to some extent, it remains somewhat of a “wastebasket” diagnosis when no other lesion can be identified.

Similarly, intraneural fibrosis is a diagnosis that is usually made when the EMG is abnormal and there is no lesion to account for pain other than fibrosis about the nerve root on CT scan / MRI. Postoperative positive EMG findings and even neurologic abnormalities are frequently present without pain. The reason some patients with intraneural fibrosis develop disabling symptoms and others do not is again presumably that the patients' pain perception mechanisms differ, as do specific anatomic locations and extents of nerve damage.²⁴

Our Group-A patients 15 i.e. 38.46%, who were managed conservatively and no anatomically identifiable cause was found on their radiological examinations did well after re-admission and supportive measures are attributed to a poorly defined, but apparently common, cause of persistent postoperative disability and symptoms is what can be referred to as soft-tissue dysfunction. Patients who have splinted their lumbar motion prior to surgery continue to do so after surgical healing has occurred. They developed pain in the buttock and lumbosacral region, with associated areas of tenderness. The pain was 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 were relieved by changing positions. Most patients responded to a gradual stretching program. Presumably, in these patients 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 immobilize. Other symptom complexes presumably resulting from soft-tissue abnormalities are often placed under this category, but are difficult to classify and treat. Many of these appear to be associated with a great degree of central nervous system augmentation.²⁵

Many patients with failed spine surgery have a “peripheral” mechanical structural lesion as a source of nociception. Because of the iatrogenic changes associated with surgical intervention, identifying the source of symptoms is difficult. Occult lesions are expected to be more frequent in these patients than in those not previously operated on, and may explain the failure of surgery. 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.^{26,27}

CONCLUSION

The failure of back surgery remains a challenge for the surgeons. There is a constant search for the causes and the pathogenesis of this syndrome and the best method of treatment. In our study commonest causes of failed back syndrome included recurrent disc which responded well with reexploration surgery.

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