

Evaluation the Result of Conservative Management in Fail Back Surgery Syndrome

Md Fahad Goni^{1*} Shoumen Acharjee² Mohammad Ilias³

ABSTRACT

Background: Failed back surgery syndrome is defined as persistent chronic low-back pain and/or leg pain lasting more than 1 year, despite of one or more surgical procedures. Instrumented spinal fusion has been offered by surgeons as a potential treatment to recover from pain and functional disability. Good outcome of instrumented spinal fusion cannot be ensured by treating surgeon. Thus, patient don't want to go for second surgery conservative management may be the only hope here. This study here to evaluate the recovery and functional status of patients after conservative management of failed back surgery syndrome. Evaluate the neurological and functional outcome of conservative treatment of failed back surgery syndrome. Establish the conservative management as a treatment protocol so that patient can avoid economical and psychological trauma of a second surgery.

Materials and methods: After proper consent from patient and attendant this prospective interventional study was carried out in the Department of Orthopaedics and Spine Surgery Unit, Bangabandhu Memorial Hospital (BBMH) Chattogram for last 1 years. Within this period total 10 failed back surgery syndrome patients were treated in OPD. Patient underwent surgery in other hospital in the city. All are treated by conservative management in the form of rest, analgesic and some exercise. All patients evaluated before and after treatment clinically with the help of using Visual Analog Score (VAS) of back pain, Modified Macnab criteria, Oswestry Disability Index (ODI) by Oswestry Low Back Pain Disability Questionnaire.

Results : Total 20 patient were taken with FBSS among them 80% were female. After conservative management there is significant recovery of neurological (Sensory) symptoms in early follow-up. Functional outcome measuring pre & post treatment VAS & ODI, Waddel index showed significant improvement in patient after treatment. Overall functional outcome most of the case 14(70%) had excellent, 4 (20%) case had poor for whom second surgery may recommended.

Conclusion: Failure of back surgery has remained a challenging condition to treat for any surgeon. During primary surgery surgeons should be more careful regarding case selection. Second surgery is always more cumbersome, conservative management can play a satisfactory role here.

Key words: FBSS (Fail Back Surgery Syndrome); ODI (Oswestry Disability Index); VAS (Visual Analog Score).

Introducton

Back pain is a widespread public health problem, affecting a staggering 80% of people at some point in their life¹. Each year, an estimated one out of every 14 people will seek medical care for back or neck pain, amounting

to almost 14 million visits annually. Back and/or neck pain is cited as the second most common reason for physician visits, and it is estimated that 25% of all work injuries in the U.S are related to low back pain². Most back pain is acute or sub acute, with 90% of patients recovering within three to four months. However, others suggested that less than 30% of patients are completely improved within 3-months of treatment³. These more chronic sufferers of back pain endure a cycle of pain that is detrimental to their physical and psychological health, lifestyle and productivity. In United States back surgery (Laminectomy) accounting for the most common procedure among the patient. Surgeons perform an estimated 300,000 to 400,000 back surgeries every year. Annually, neurosurgeons perform at least 100,000 operations for lumbar disc disease alone and orthopedic surgeons perform a similar number⁴. It is estimated that between 20% and 40% of these operations are unsuccessful and result in FBSS.

1. Assistant Professor of Orthopedics
Institute of Applied Health Sciences (IAHS) Chattogram.
2. Medical Officer
Institute of Applied Health Sciences (IAHS) Chattogram.
3. Associate Professor of Physical Medicine
Institute of Applied Health Sciences (IAHS) Chattogram.

*Correspondence : **Dr. Md Fahad Goni**
Cell : +88 01716 72 52 74
Email : dr.goni_fahad@yahoo.com

Date of Submission : 23rd May 2021
Date of Acceptance : 19th June 2021

Many of these patients undergo additional surgeries in order to correct the situation. However, success rates decrease significantly with each subsequent surgery. After unsuccessful surgery, patients present to chronic pain centres with a much more complicated diagnostic picture. Health care providers treat these patients at chronic pain centres with various medical procedures, counselling, physical therapy, medication, and psychiatric care as needed. However, questions remain about how to help those who have experienced poor surgical outcomes and how they respond to various modalities of inter disciplinary treatment. For example, injection therapies are an increasingly popular mode of treatment for chronic back pain sufferers. There are, though, little empirical data available to health care providers about how those with a history of unsuccessful surgery respond to injections, particularly within an inter disciplinary treatment program⁵. Furthermore, there are few studies addressing the efficacy of psychotherapy and physical therapy within an inter disciplinary program for patients who have undergone failed back surgeries. Most common cause of back surgery is prolapsed intervertebral disc. These operations include discectomy, microdiscectomy, laminectomy, and fusion. The purpose of this surgery may not be served due to foraminal stenosis, symptomatic degenerative discs, pseudoarthrosis, neuropathic pain, recurrent disc herniation, mechanical pain, and psychosocial factors. About 300,000 operations done in treating patients with back and leg pain were performed in the United States in 1994, and this number rose to nearly 400,000 by 2000⁶. Although it is estimated that 60% or more of these initial surgeries are successful, many are not⁷. Pain from FBSS is often debilitating and recalcitrant to treatment. The reoperation rate is between 10% and 19%, and approximately 25,000 to 50,000 new cases of FBSS occur per year, according to a 1985 study⁸. A 2008 study places the yearly incidence as high as 80,000⁹. Re-operation rates differ somewhat by the type of back surgery performed. Reoperation rates for discectomy range from 2% to 19%, for decompressive laminectomy from 9% to 17%, and for fusion from 6% to 36%. Bolger and colleagues reviewed 32 studies to determine the rate of satisfactory outcome in reoperations. Overall, 60% of re-operated patients have a satisfactory outcome. However, satisfaction rates ranged between 25% and 82%. Patient characteristics associated with a good re-operation outcome are the following: presence of a symptom-free period of more than 6 months since previous surgery, only one previous surgery, the absence of psychological issues; lack of economic secondary gain and presence of leg pain. Other studies suggest lower satisfaction rates. North and colleagues found that only 32% of patients who had repeat spine surgery reported a successful outcome¹⁰.

In Bangladesh, there is limited or no study has been done regarding FBSS till now. So this study will be undertaken as guideline for conservative management in failed back surgery syndrome. This study will help to interpret the cause of the FBSS and outcome of management of FBSS by conservative measures.

Materials and methods

Due to patients constrain only 10 patients were selected for this prospective interventional study on the basis of definite inclusion criteria like FBSS with back and leg pain, neurological findings like positive SLR, motor sensory finding, MRI finding up to extruded disc, exclusion criteria-quadra equine syndrome and sequestrated disc on MRI. The study took place in Bangabandhu Memorial Hospital (BBMH) Chattogram for one year from 2018-2019.

All the patient undergone back surgery for single or multiple time in recent years considering demographic variable like age, sex, occupation, obesity, every patient gone through MRI and treated conservatively in the form of rest, back muscle strengthening exercise, medication like NSAID (Naproxen) muscle relaxants, gabapentin, epidural steroid, counselling and physiotherapy for 4-6 weeks. Repeated follow-up ensured by OPD visit and phone call.

Functional outcome evaluated after 6 weeks by pain status – degree of pain by VAS score^{11,12}. Work status – functional status by Oswestry Disability Index (ODI) Low Back Pain Disability Questionnaire and Modified Macnab criteria. Straight Leg Raising test (SLR) Muscle power Sensory status.

Results

Mean age of the patients was 45.15 years with the range of 35-62 years. Male female ratio was 1:4. 50 % of the patients were housewives who were obese. All patients visited BBMH (Bangabandhu Memorial Hospital) OPD. All patients were followed up to 6 months. The follow-up assessment include clinical improvement in sensory, motor, improvement of pain status by VAS questionnaire, disability status by WDI questionnaire and ODI questionnaire. Overall clinical outcome was graded accordingly Macnab criteria. After the conservative treatment significant improvement noticed in p value of VAS, ODI, WDI index, along with sensory status pre-and post-treatment. But motor improvement was not significant. Clinical outcome revealed 70% excellent, 10% good and 20% have fair outcome and may need surgery again.

Table I Demographic variable

Age	35-62 years	Mean = 45.15 year
Sex	Male	4 (20%)
	Female	16 (80%)
Level of involvement	L3-L4	2 (10%)
	L4-L5	4(20%)
	L5-S1	14(70%)

Table II Clinical variable

Pain	Postoperative	Postconservative	After 6	p value
Back pain	before	Rx after 6 weeks	month Mean	
(VAS) mean	conservative			
	Rx			
	7.3 (6-9)	1.8 (1-3)	1.7(0-3)	<0.001
Leg pain				
(VAS) mean	6.18 (0-8)	1.2 (0-3)	1.0 (0-3)	<0.001
ODI (mean)	71.55 (40-87.1)	13.2 (7-21)	8.73(4-16)	<0.001
WDI (mean)	7.03 (5-9)	2.2(1-3)	2.07 (1-3)	<0.001
Sensory loss	4 (40%)	1 (10%)	1(10%)	<0.001
Motor power				
<3/5(MRC)	3 (30%)	2 (20%)	2(20%)	NS

p value <0.05= significant, p value 0.05=Non significant, MRC=Medical Research Council.

Discussion

FBSS is a clinical problem consisting of numerous surgical and nonsurgical etiologies. There are no systematic studies to guide the physician in its treatment. There are not many studies regarding management of FBSS. In the previous study 56.56 % of the enrolled patient were female. We also found similar story here about 80% were female. In our series we found 50% of the population were obese which support previous study^{13,14}.

Previous studies showed significant improvement after NSAID and Gabapentin, we also found the same here¹⁵.

Some another study found significant 50% reduction of VAS score after treatment. We have also found significant reduction of VAS score <0.001 after conservative treatment¹³.

Our ODI score is also significantly improved after treatment which corresponds with previous study¹⁶, We also had significant improvement in sensory status but no other study encountered this criteria before with FBSS management. Regarding motor status pre and post treatment status was insignificant. No other study before considered the neurological outcome in FBSS treatment. In previous study (64.75%) experienced significant pain relief with conventional pain clinic treatments, 15.57% required surgical treatment whereas in our study 20% patient need second procedure which is acceptable¹³. Other study showed several time epidural injection for functional improvement whether we do not need repeated epidural procedure in our series which reflect our proper counseling, life style modification, patient compliance and strict follow up schedule¹⁷.

Conclusion

Treatment of patients with FBSS can be difficult. This difficulty can be explained by the dissatisfaction from the patients who have undergone an invasive, painful and often debilitating surgical procedure before. This sense of frustration may carry over into other treatment options. Given the high failure rate of surgery, it may be argued that the best treatment for FBSS is prevention, either by strict patient selection or avoidance of surgery all together. The latter option, however, may not be appropriate if patients present with absolute surgical indications such as neurological impairments. As number of lumber surgery is increasing, chance of FBSS will also increase, therefore, it is important for physicians who treat this population to expand their knowledge of FBSS etiologies, appropriate diagnostic imaging modalities, confirmatory diagnostic injections, and proper techniques for interventional procedures. From our study we found conservative management is a good option in the treatment of FBSS surgery syndrome. Its needs a multi disciplinary approach including orthopedics, physical medicine, psychiatry department also. We recommend further study on the topic or development of a definitive protocol.

Limitation

Definitely more large sample with long duration study need to establish a definite protocol for the disease and reduce the error margin. Collaborative study with psychiatry and physical medicine need to develop a treatment guideline.

Recommendation

Surgeons should be more selective during primary surgery. Conservative treatment should maintain a strict multidisciplinary team approach. Larger sample size and more longer study will provide more specificity.

Disclosure

All the authors declared no competing interest.

References

1. Lanes, Tom C; Gauron, Eugene F; Spratt, Kevin F. Long term follow-up with chronic back pain treated in multidisciplinary rehabilitation program, Spine.1995; 20(7):801-806.
2. J M Versloot , A Rozeman, A M van Son, P F van Akkerveeken. The cost-effectiveness of a back school program in industry, Spine. 1992;17(1):22-27.
3. Croft, P.R, Joseph, S, Cosgrove, S, et al. Low back pain in the community and hospitals Report to the Clinical Standards Advisory Group of the Department of Health. 1994.

4. Wilkinson HA. *The Failed Back Syndrome*. 2nd ed. New York: Springer-Verlag. 1992.
5. Miller D, Robert J, Gatchel ABPP, Brandy. Candidate, and Leland Lou, M.D. *Failed Back Surgery Syndrome*. 2010. [anascripts/miller-brandy-rjg-fbss.403](#) June 22, 2010.
6. Martin BI, Mirza SK, Comstock BA, Gray DT, Kreuter W, Deyo R. Reoperation rates following lumbar spine surgery and the influence of spinal fusion procedures. *Spine*. 2007;32(3):382-287.
7. Law JD, Lehman RA, Kirsch WM. Reoperation after lumbar intervertebral disc surgery. *J Neurosurg*. 1978; 48(2):259-263.
8. Heithoff KB, Burton CV. CT evaluation of the failed back surgery syndrome. *Orthop Clin North Am*. 1985;16(3):417-444.
9. Ragab A, Deshazo RD. Management of back pain in patients with previous back surgery. *Am J Med*. 2008;121(4):272-278.
10. North R.B, Campbell J.N, James C.S, Donover-Walker M.K et al. Failed Back Surgery Syndrome: 5-year Follow-Up, in 10 Oaklander AL and North RB. Failed back surgery syndrome. In: Loeser, J.D., Butler, S.H., Chapman C.R, Turk, D.C. Editors. *Bonica's Management of Pain*. 3rd ed. Philadelphia. Lippincott, Williams and Wilkins. 2001. 2 Patients Undergoing Repeated Operation, *Neurosurgery*. 1991;28:685-691.
11. Von Korff M, Deyo RA, Cherkin D, Barlow W. Back pain in primary care: Outcomes at one year. 1993;18:855-862.
12. Umile Giuseppe Longo, Mattia Loppini, Luca Denaro, Nicola Maffulli, Vincenzo Denaro 10 January 2010 Rating scales for low back pain *British Medical Bulletin*. 2010;94(1):81-144.
13. Martín Avellanal MD PhD, Gonzalo Diaz-Reganon MD, Alejandro Orts MD, Silvia Soto RN; One-year results of an algorithmic approach to managing failed back surgery syndrome. *Pain Res Manag*. 2014;19(6):313-316.
14. Marquez-Lara A, Nandyala SV, Sankaranarayanan S, Noureldin M, Singh K. Body mass index as a predictor of complications and mortality after lumbar spine surgery. *Spine (Phila Pa 1976)*. 2014;39:798-804.
15. James R, Daniell M, Orso L, Osti T. Failed Back Surgery Syndrome: A Review Article *Asian Spine J*. 2018;12(2):372-379.
16. Behnam Hossieni,1 Payman Dadkhah,1 Siamak Moradi,1 Seyed Masoud Hashemi,1 Farshad Safdari2. The Results of Treating Failed Back Surgery Syndrome by Adhesiolysis: Comparing the One- and Three-Day Protocols, *Anesth Pain Med*. 2017;5:e60271-e60277.
17. Carassiti M, Di Martino A, Centonze A et al. Failed back surgery syndrome: A new strategy by the epidural injection of MESNA. *Musculoskelet Surg*. 2018; 102:179-184.