Original Article

Prolapsed Lumbar Intervertebral Disc (PLID) Surgery and Our Experiences

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Abstract

Background: *Herniated lumbar disc is the most common specific cause of low back pain. Surgery results in better outcome for cases with exclusive severe radicular pain and health-related quality of life improves after lumbar disc herniation (LDH) surgery.* ***Objective:*** *To determine the outcome of lumbar disc herniation surgery and to assess the effect of factors that could predict the outcome of surgery.* ***Materials and method:*** *This observational study was done in Delta Medical College & Hospital, Mirpur, Dhaka, during March 2016 to January 2019. We evaluated 54 patients who had undergone operations for lumbar disc herniation using three different surgical techniques (laminectomy, fenestration and discectomy, and spinous process osteotomy) for low back pain and radicular pain.* ***Results:*** *Forty six (85.19%) patients were male and 8(14.81%) were female. Age range was 18-60 years. Forty nine (90.74%) were new patient and 5(9.26%) had recurrent disc prolapse. Diagnosis was confirmed by MRI. Fifty (92.59%) patients had no pain after surgery and only 2(3.70%) patients needed reoperation and 2(3.70%) had occasional pain.* ***Conclusion:*** *Surgery for lumbar disc herniation is effective in reducing radicular pain. All three surgical approaches resulted in significant decrease in preoperative radicular pain and low back pain, but 100% good outcome was not achieved.*

Keywords: *Disc prolapse; Lumbosacral spine; Back pain.*

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Introduction

Between each of the bones in spine (the vertebrae) is a disc. These discs act as shock absorbers and help cushion of bones. A herniated disc is one that extends beyond the capsule containing it and pushes into the spinal canal. Anyone can have a herniated disc anywhere along spine, even in neck, but it's most likely to occur in the lower back (lumbar vertebrae). Anyone might develop a herniated disc from lifting something the wrong way or from suddenly twisting his spine. Other causes include being overweight and experiencing degeneration due to disease or aging. A herniated disc doesn't always cause pain or discomfort, but if it pushes against a nerve in lower back, may produce pain in the back or legs (sciatica). Back pain has been described in the Bible and the writing of Hippocrates and continues to be a major health problem.[1] The international prevalence

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of low back pain varies, but estimations for lifetime prevalence of this condition have been reported between 49 and 80%.[2,3] Considering these rates, low back pain is a prevalent condition that has many direct and indirect costs in terms of pain and disability as well as the economic burden in terms of lost work days, health care interventions, and lost productivity time.[3-7] Herniated lumbar disc is the most common specific cause of low back pain.[8] Young and middle-aged individuals are the most frequent sufferers of this condition.[9] Except for cases that require immediate surgical intervention, the first-line treatment involves medical choices. Ninety percent of attacks of sciatica respond to conservative management.[10] Indications for surgical intervention include cauda equina syndrome (absolute emergency), morphine-resistant hyperalgesia sciatica, paralyzing sciatica, grade less than 3 for muscle power as indicated by the Medical Research Council (other than toe muscles, where isolated palsy is not an indication for surgery), and residual disabling pain despite 6 to 8 weeks of full medical treatment.[11] Surgery results in better outcome for cases with exclusive severe radicular pain in comparison with patients who suffer from moderate low back and leg pain.[12] Health-related quality of life improves after lumbar disc herniation (LDH) surgery.[13] The cost-effectiveness of LDH surgery is another area of debate. Although surgery has its own financial burden, 2-year health outcomes for operated cases were better than outcomes among conservatively managed.

Materials and method

This observational study was done in Delta Medical College & Hospital, Mirpur, Dhaka, Bangladesh, during March 2016 to January 2019. We operated on 2(1.85%) patients by laminectomy, 48(88.89%) patients by fenestration & discectomy, and 5(9.26%) patients by spinous process osteotomy procedure. Among them 46(85.19%) were male and 8(14.81%) were female patients. Age range of the patients was 18-60 years. They presented with acute back pain and sciatica, Among them 5 patients came with recurrence along with back pain and sciatica. We examined them clinically. Two patients had incontinence of urine and perianal hypoaesthesia. On examination, there was no muscle wasting in any of our patients, 33 patients had hypoaesthesia on the lateral aspect of the foot and 17 patients had hypoaesthesia on the medial aspect. Twenty nine patients had weakness of extensor hallucis longus muscles of the affected limb. Radiography of lumbosacral spine in antero-posterior and lateral views showed loss of normal lordotic curvature.

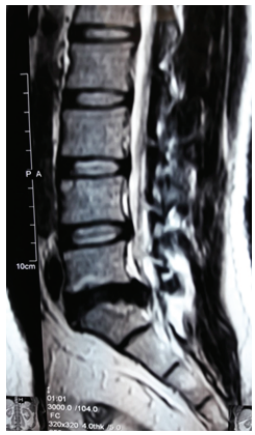

Fig. 1: MRI of lumbar spine shows disc prolapse in longitudinal section

Fig. 2: MRI of lumbar spine shows disc prolapse in axial section

All the patients were given adequate conservative treatment. We treated them by nonsteroid anti-inflammatory drugs (NSAIDs), complete bed rest and physiotherapy for 3 weeks. Magnetic resonance imaging (MRI) of lumbosacral spine was done of those patients who did not improve with 3 weeks of conservative treatment. MRI confirmed single level disc prolapse in 48 patients and double level prolapse in 5 patients and triple level in one patient. Thirty five (64.81%) patients had left-sided disc prolapsed, in 17(31.48%)

cases it was right-sided and in 2(3.70%) cases it was bilateral. Fifty patients were operated under general anaesthesia and four patients under subarachnoid block by classical procedure. Required investigations were done for anaesthesia fitness. All patients were operated in prone position, keeping sand bolster under the chest. All were operated by posterior midline incision and classical fenestration was done by removing the ligamentum flavum and part of the upper lamina as much as required. After retraction of the dural sac and nerve root medially, the protruded disc material was exenterated by pituitary forceps. After hemostasis the wound was closed layer by layer. Blood transfusion was not required in any case. There was no complication during operation or postoperatively. Patients were discharged from the hospital within 6 to 10 days; stitches were removed after 12 to 14 days. They were taught back extension exercises during hospital stay and advised for exercises at home. They were advised to refrain from lifting heavy weights for at least 3 months.

Results

All patients were observed periodically in outdoor. Total 54 patients were operated. Sixty (94%) cases were completely cured from their back pain and sciatica. In our follow-up time 2 cases with foot drop recovered completely within 6 months. All these 60 patients returned to their previous job. The remaining 4(6%) patients who were a bit older and had more than one level disc prolapse returned to their job, but had periodic back pain without sciatica. They required NSAIDs and physiotherapy.

Table I: Distribution of patients according to gender (N=54)

Gender	Frequency	Percentage
Male	46	85.19
Female	08	14.81

Table II: Distribution of patients according to age (N=54)

Age in years	Frequency	Percentage
18-25	02	03.70
26-30	01	01.85
31-35	21	38.89
36-40	14	25.93
41-45	09	16.67
46-50	04	07.41
51-55	02	03.70
56-60	01	01.85

Table III: Levels of disc prolapse (N=54)

Levels	Frequency	Percentage
L 3/4	01	01.85
L 4/5	26	48.15
L 5/S1	22	40.74
L 4/5, L 5/S1	04	07.41
L 3/4, L 4/5, L 5/S1	01	01.85

Table IV: Distribution of disc prolapse according to side (N=54)

Side	Frequency	Percentage
Right	25	46.30
Left	26	48.15
Bilateral	03	05.55

Table V: Outcome of operation (N=54)

Outcome of operation	Frequency	Percentage
No pain	52	96.30
Occasional back pain	02	03.70

Table VI: Type of operation (N=54)

Type of operation	Frequency	Percentage
Primary disc prolapsed operation	49	90.74
Recurrence disc prolapsed operation	05	09.26

Discussion

In patients with a herniated disc confirmed by imaging and leg symptoms persisting for at least 6 weeks, surgery is superior to non-operative

treatment in relieving symptoms and improving function. If conservative treatment fails, the next consideration is surgical intervention. Both the surgeon and the patient must realize that disc surgery is not a cure, rather it only can provide symptomatic relief. It neither stops the pathological process that allows herniation to occur nor restores the back to a normal state. Patient must practice good posture and body mechanics after surgery. Activities involving repetitive bending, twisting and lifting with the spine in flexion should be curtailed or totally avoided. Modification in the life style of patients is necessary if long lasting reliefis expected. The key to the good result of disc surgery is appropriate patient selection. The optimum patient is one with unilateral leg pain extending below the knee that has been present at least for 6 weeks. The pain should have been decreased by rest and anti-inflammatory medication but should have returned to the initial level after a minimum of 6 weeks of conservative treatment. Physical examination should reveal signs of sciatic irritation and possibly objective evidence of localizing neurological impairment and CT, MRI or myelography should confirm the level of involvement consistent with patient's examination findings.

Nahar et al. showed good to excellent results in 80.42% cases, fair results in 17.2% and poor results in 2.17% cases.[15] Chellarapu, Kadali, and Raman reported in a recent study among 250 patients; excellent in 223(89.2%) cases, good in 21(8.4%) cases, fair in 5(2.0%) cases, and 1(0.4%) case had poor outcome.[16] The good result is seen in only 68.44% as compared to 77.3% in the study by Pappas et al. and 89% in the study by Davies et al.[17] In our study, the overall outcome was very good as we selected the patients methodically, followed standard procedure of operation, postoperative management was good and we discharged the patients with required suggestion. PLID surgery is not a routine surgery. Proper selection of the patient must be done before going to operation. Simple indentation by the disc in MRI or myelogram is not the indication for surgery. Clinical correction must be done before operation for good result. Psychiatric evaluation should also be done before surgery. From our study we can conclude that if the patients are selected properly, operated classically, managed appropriately after operation and discharged with required advice, classical discectomy can give good result.

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