SURGICAL OUTCOME OF RECURRENT LUMBAR DISC HERNIATION: EXPERIENCE WITH 30 PATIENTS

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ABSTRACT

Objectives: *To study the outcome of recurrent lumbar disc herniation managed surgically.*

Materials and Methods: *This retrospective study was conducted in Neurosurgery Department of Lady Reading Hospital and Hayatabad Medical Complex, Peshawar from Mar, 2005 to Feb, 2008 with 06 month follow-up. This study included patients who underwent re-do surgery for re-herniation of lumbar disc herniation at previous operated level of L4-5 and L5-S1. Data was collected on a proforma containing name, age and sex of patients along with findings of previous surgery, clinical outcome of previous surgery, present neurological status with signs and symptoms, investigations, complications and follow-up findings.*

Results: *Thirty patients including 22 (73.33%) male and 08 (26.66%) female were operated upon for recurrent lumbar disc herniation. Twenty two (73.3%) patients were pain free after surgery. Improvement in SLR was 80% (n=24/30) complications after 01 month. Overall complication rate was 40%. Five (16.66%) patients had dural in which 02 (6.66%) postop CSF leak, 01 (3.33%) had superficial wound infection, 01 (3.33%) had discitis, 01 (3.33%) had foot drop and 02 (6.66%) had urinary retention. Patients with foot drop did not showed any improvement postoperatively after 06 month of follow-up.*

Conclusion: *Surgery for recurrent lumbar disc herniation appears to be effective procedure in which better overall outcome and improvement in pain can be achieved.*

Key words: *Recurrent Lumbar Disc Herniation, Discectomy, Laminectomy, Dural tear.*

INTRODUCTION

Mixter and Barr first discovered the link between sciatica and the lumbar disc herniation in 1934. Since then different surgical procedures for lumbar disc prolapse has been are in practice. Primary discectomy gives good results but re-operation carries higher rate of complications and lower rate of success.[2]

Recurrent lumbar disc herniation means re-herniation of disc on the same site and at the same level where a previous discectomy had been performed. Careful patient selection is of paramount importance in determining a candidate for re-operation. Second surgery needs more extensive tissue dissection to add exposure. The increase morbidity associated with repeated surgery is related to operating in an area without smooth tissue plans and with distorted anatomy.

The main factor responsible for recurrent lumbar disc herniation is incorrect indication for surgery. The ideal method of preventing failure of the second operation is preventing initial failure.

Risk of unfavourable outcome like obesity, diabetes, vibration works, drivers and psychological factors should be taken in consideration before surgery for the first instance which increases the incidence of recurrence.[3]

Diagnosis of the cause of recurrent sciatica after surgery for disc herniation is still difficult. Many causes of recurrence have been recorded, recurrent disc herniation and postoperative fibrosis are the two major ones.[4] It is important to distinguish these two entities since disc herniation may require re-operation, whereas postoperative fibrosis does not.

MR imaging appeared to be the

LEVEL OF DISC PROLAPSE

Level	Number of patients (n=30)	Percentage
L_{4-5}	14	46.66
L_5S_1	16	53.33

Table 1

examination of choice in the investigations of spine and disc diseases specially in recurrent disc prolapse.[5]

Treatment options of first-time disc herniation include observation combined with aggressive medical management (Pharmacological and physical therapies), chymopapain, intradiscal electrothermal coagulation therapy, laser-assisted decompression, laminectomy, laminectomy and discectomy, minimally invasive microdisecetomy and endoscopic discectomy and laproscopic discectomy. Surgical choices for disc recurrent herniations are limited by multiple factors, require longer operative time, and are associated with higher rate of complications.[6,7]

This study was conducted to study the outcome of recurrent lumbar disc herniation managed surgically at neurosurgery department of Lady Reading hospital and Hayatabad Medical Complex Peshawar.

MATERIAL AND METHODS

We present a review of 30 cases that underwent re-do surgery for re-herniation of lumbar disc herniation at previous operated level of L_{4-5} and L_5-S_1. This study was conducted in the Neurosurgery Department of Lady Reading hospital and Hayatabad Medical Complex Peshawar from Mar, 2005 to Feb, 2008 with 06 month follow-up.

Following patients were excluded from the study:

- with recurrent disc prolapse at levels other then L_4 to S_1,
- those with cauda equine syndromes,
- patients with spondyolesthesis or
- reoperation in the early postoperative period for infections

Patients of all ages and both gender who did not respond to conservative measures were included in the study. These patients were operated previously by different surgeons in different Govt. and private hospitals.

These patients were thoroughly examined with documentation of neurological status. Plane radiographs and MRI lumbar spine were performed in all patients. MRI with contrast was performed in few patients with suspected fibrosis. CT scans were performed in some patients for gaining additional information. Patients were admitted, all necessary investigations for surgery were performed. After explanation of prognosis, consents were taken.

Discectomies were performed in all patients. Five (16.7%) patients had full laminectomies during second surgery for relieving associated stenosis and for gaining access to the ruptured fragments of disc while remaining 25 (83.3%) patients had fenestration disecectomy. They remained admitted for 4 to 5 days postoperatively. After discharge they were followed at 1, 3, 6 months.

Operative procedure

Surgery was performed after induction of general anesthesia with the patient placed in prone postion and the spine flexed. Skin incision was given over the previous operative site after full preparation. After muscle dissection soft tissue was cleaned from facet in a lateromedial direction. The medial edge of facet defined with curate and the plane between the dura and the medial facet was appreciated and enlarged. Medial facectetomy was completed. The nerve root identified after removing the remaining ligamentum flavum. Nerve root was retracted and the discectomy completed.

RESULTS

This study was conducted on 30 patients of recurrent lumbar disc herniation including 22 (73.33%) males and 08 (26.66%) female with male to female ratio 2.75:1. Age ranged from 28 – 65 years with mean age 44 years.

Duration of symptoms ranged from 06 weeks to more then 01 year. The mean interval between primary and redo surgery was 6.25 years and this duration was ranging from 6 months to 12 years.

The outcome of redo surgery for recurrent

COMPLICATIONS

Complication	Number of patients (n=30)	Percentage
Dural Tear	05	16.67
CSF leak	02	6.67
Urinary retention	02	6.67
Superficial wound infection	01	3.33
Discitis	01	3.33
Foot Drop	01	3.33

Table 2

disc herniation depends upon the outcome after initial surgery, underlying factors like obesity and diabetes etc.

Out of 30 patients, 14 (46.66%) patients had disc prolapse at L_{4-5} and 16 (53.33%) had lumbar disc herniation at L_5-S_1 (Table-1).

SLR was restricted below 60^{O} in 27 patients. 03 patients had complete foot drop. 20 patients had impaired sensation in L4-5 and L5S1 dermatome with absent ankle jerks in 12 patients.

Outcome:

Twenty two (73.3%) patients were pain free after surgery. Improvement in SLR was 80% (n=24/30) in first followed after 01 month. Patients with foot drop did not showed any improvement postoperatively after 06 month of follow-up.

Complications:

Complication rate in our study was 40%. During surgery we had dural tear in 05 (16.66%) patients (Table 2). Two (6.66%) had CSF leak postoperatively who were treated conservatively. Two (6.66%) had urinary retention who improved after 03 days. One (3.33%) patients had superficial wound infection. One (3.33%) had developed discitis who were treated conservatively and patient was pain free after 03 months. One (3.33%) patient had postoperative foot drop due to nerve root injury who did not recovered even after follow-up of 06 months.

DISCUSSION

Recurrent lumbar disc herniation occurs in 3% to 19% (in different studies) of patients who had gone for previous lumbar disc surgery.[8] Patients not responding to conservative measures ultimately need re-exploration. For initial surgery patient has lot of choices regarding selection of surgical procedure. But for recurrent disc herniation, choices are limited and most of the patients need open discectomies. In our study open procedure was performed in all patients. Five patients had previous laminectomies at single level for lumbar disc herniation, while rest of them had fenestration for lumbar disc herniation.

In our study the male to female ratio was 2.75:1. Average age was 44 (age ranged from 28 - 65). Study by Anthony Wajsfisz et al, included 13 female and 21 male, mean age at surgery was 45 years, mean time from first disectomy to revision surgery for recurrence was 55 months. The final outcome was satisfactory for 75% of patients[9]. In study conducted by Jonsson et al out of 93 patients 50 were women and 43 men with male to female ratio 1.16:1. The mean interval between preceding and the present operation was 8.5 years (3 months to 42 years)[10]. In our study the mean interval period was 6.25 years. In study conducted by Robert E Isaacs et al the male to female ratio was 1:1 in 10 patients. The age ranged from 24 – 53 years with mean age 38.5 years[11]. The study conducted by Hoang Le et al, there were 17 male and 18 female in 35 patients with male to female ratio 1:1.05.[12]

In our study about 73% of patients were symptoms free. In the study conducted by Hoang Le et al, the overall improvement rate was 90%.[12] In study by Ebeling et al reported a success rate of 81% in their 92 patients who underwent lumbar reoperation. In series of open lumbar reoperation for radicular pain[13], Ozgen et al also reported good overcome of 69%.[14] Other authors have also published similar clinical outcome for open reoperative lumbar discectomies.

In our study overall complication rate was 40% while in study conducted by Morgan Hough CVJ et al the overall complication rate was 19.1%; 16.7% had dural tear while 14.3% had postop CSF leak and free CSF was observed in 02 (6.66%) patients.[15] While in study conducted by Stolke, Sollman et al the incidence of CSF leak was 17.4%.[16] Alexander et al reported overall incidence of 4% of accidental duratomy for all types of lumbar surgery[17] and Wang et al the incidence was 14%.[18]

In our study 01 (3.33%) patients had superficial wound infection while in study conducted by B.M Jolles et al has reported 1%.[19] We had discitis in 01 (3.33%) patients while in study by Anthony Wajsfisz et al 2.94% had discitis. 02 (6.66%) patients had urinary retention who were catheterized for 48 – 72 hours while in study by C.J.M Getty et al 19.35% of patients had urinary retention.[20]

CONCLUSION

Our experience with surgery for recurrent disc herniation has been encouraging and promising. Overall surgery for recurrent lumbar disc herniation is safe and effective. Patient selection is of paramount importance before deciding for surgery. Patient should be treated by aggressive conservative measures before taking decision for re-exploration. In addition preoperative workup in the potential candidate for revision of spinal surgery should must include MRI without or with contrast. Epidural fibrosis and scaring makes revision surgery significantly more difficult resulting in dural tear and nerve root damage. So surgery should be performed by senior surgeon with best possible preoperative investigations support.

Careful patient selection and maticulus surgical technique can decrease the complication rate of revision surgery.

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