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Long Term Study of Results of Patients Treated with Open Lumber Discectomy for Prolapse Intervertebral Disc

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ABSTRACT

Background: Low back pain is thought to occur in almost 80% of adults in some points in their life. Discectomy is a common procedure carried out for treatment of lumbar disc prolapse. In lumbar disc surgery, pain is the most common indication, but neurologic symptoms and signs are also considered, although they are very important indication.

Materials and Methods: This is a retrospective study of 31 patients aged between 20 to70 years. The functional and neurological evaluation were done minimum after 3year of operative procedure using Japanese Orthopaedics association scoring system.

Results: After follow up pre-op JOA score and post-op JOA score calculated and there is good functional and neurological outcome in 75% patients and fair in 19%and 6.4% having poor functional outcome.

Conclusion: The discectomy is an extremely useful and effective surgery for treatment of lumbar disc prolapse. Consistently good to fair results in 94% in our study could be attributed to proper selection of cases and a meticulous surgical protocol.

KEYWORDS Lumber disc herniation,Discectomy,sciatica,JOA Score

INTRODUCTION:

Low back pain is thought to occur in almost 80% of adults in some points in their life. Among chronic conditions, back problems are the most frequent cause of limitations of activity in persons less than 45 years. Discectomy is a common procedure carried out for treatment of lumbar disc prolapse. In lumbar disc surgery, pain is the most common indication, but neurologic symptoms and signs are also considered, although they are very important indication. Perhaps because they appear to be more objective than the pain related signs.

In most reports the post-operative changes in neurological signs and functional recovery from pain has shown striking variations. These variations may be caused by several factors, including differences in patient selection but this is difficult to assess because methodologic details are rarely provided. The reproducibility of neurologic signs is moderate and opinions on the value of neurologic signs are divergent.

MATERIALS AND METHODS:

The study was retrospectively conducted between January 2006 to December 2012 in v.s general hospital and all the patients who fulfilled the below mentioned inclusion criteria were included in the study.

Inclusion Criteria:

1. Patients operated for backache and radicular pain which showed no signs of improvement with conservative management for atleast 2 months.
2. Progressive neurological deficits.
3. Definite neurological deficits.
4. MRI proved significant disc herniation.

Exclusion Criteria:

1. Presence of other associated spine pathology. .
2. Previous history of spine surgery.
3. Evidence of lumbar stenosis.

All the patients were assessed clinically. A detailed history was obtained and they were subjected to a thorough clinical examination as noted in case records. Radiological investigations (plain x-ray and MRI) were carried out to confirm the diagnosis and know the level of the lesion. The patients were also assessed preoperatively and on follow up with with the Japanese Orthopaedic Association score[1].

All patients underwent conventional open discectomy surgery in the prone position. The level and type of disc protrusion was observed intraoperatively. Postoperatively the patients were followed up as per protocol and after 3 year the surgery for study.

The Japanese Orthopaedic Association score[1] was used pre-operatively and after 3 yr to assess the outcome analysis of functional status.

The outcome designation of;

Postoperative improvement in percent = ((postoperative score) – (preoperative score)) / (29 – (preoperative score)) * 100%

- Good: 75 to 100% improvement
- Fair. 50 to 74% improvement.
- Poor. Below 49%

The improvement in pain and neurological deficit were recorded. Peri and postoperative complications if any were noted.

OPERATIVE PROCEDURE:

All patients were operated with standard open discectomy.

RESULTS:

This study consists of 31 cases of lumbar disc prolapse treated by standard open discectomy in 2006-2012. The mean follow up was 3.5 year ranging from 3-9 year.Various variable are studied in this study.

The age of these patients range from 20 to 66 years with

an average of 44.9years. **:** In our study 56% patients are male and 42% female.so Lumber herniated disc is more common in male. Most common symptoms is Radicular pain and followed by low backache followed by sensory and motor involvement. All patients had received a trial of conservative treatment in the form of bed rest and physiotherapy with no significant improvement. .In our study 29%patients are obese and 23% patients are smoker suggesting associated etiology of disc prolapse.

Most common sign observed in all patients is positive SLR and restriction of forward bending and paraspinal muscle spasm. In 13 patients paraesthesia over L4-L5 dermatomal region and 8 patients having L5-S1 dermatomal paresthesia.In 32% patient having weak ankle dorsiflexion and weak toes extension.

At presentation 87% patients having <10 score indicating patients not able to do activities of daily living.

In our study most common level of disc prolapse is L4-L5 disc followed by L5-S1 disc. Multiple level disc prolapse in 13% patients in which L4-L5 and L5-S1 is more common.

Complications:

TABLE NO. 8

Complication	Cases	Per%
Superficial wound infection	2	6.4%
Discitis	1	3.3%
Dural Rupture	1	3.3%

Most common complication is wound infection in our study. Out 2 patients one patient having DM. Both patients' infection controlled within 20 days.

SCAR TENDERNESS:
15 patients were having mild to moderate scar tenderness .And 16 patient were having no complain over scar.

FOLLOW UP XRAY AFTER 3YEARS:
Out of 31 patient 24 patient having reduced disc height at operated level.

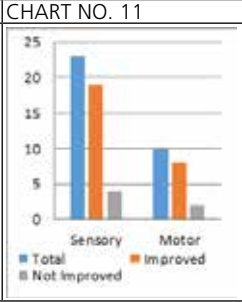
DISTRIBUTION OF OUTCOME:
After 3 yr follow up pre-op JOA score and post-op JOA score calculated and there is good functional and neurological outcome in 75% patients and 6.4% having poor functional outcome.

NEUROLOGICAL IMPROVEMENT:

TABLE NO. 11

Neurology	Cases	Improved	Not Improved	Per%
Sensory	21	17	6	81%
Motor	10	8	2	80%

CHART NO. 11



Pre-op neurological status is considered as mention in the records.

In our study 80 %patients motor improvement and only 2 patient having ankle and toe extension weakness and 81% patient have sensory improvement.

CASE 1:
35 yr male.L5-S1 DISC PROLAPSE.RT SIDE RADICULOPATHY
PRE-OP JOA SCORE:4
PRE-OP MRI:

3YR FOLLOW UP:
JOA SCORE :29
OUTCOME: EXCELLENT.

Discussion:
Lowback disorders have become the most common musculo skeletal disorder, with a major impact on the costs of health care and are a major source of disability[2].

However the results of good outcome after lumbar disc excision varies in literature from 51 to 89%[3,4,5,6]. There are a considerable number of failed back surgeries too which may require revision surgery. The recurrence rate for lumbar disc excision varies from 6% to 11% in various studies[5,6]

This implies that there are many factors which influence the outcome of lumbar disc surgery. Therefore emphasis should be laid on proper patient selection. . In evaluating disc disease, the natural history should be taken into account which reveals that surgery plays only a palliative role in its management[7]. Lumbar

disc herniation shows a favourable response to conservative treatment even in the presence of some neurological deficit.[8]

Hence any surgical intervention without appropriate conservative therapy leads to unnecessary surgery and also to poor outcome. However a protracted conservative regimen in the presence of severe radicular symptoms should be avoided since this increases morbidity and reduces the chances of a successful outcome. A longer preoperative interval in patients with chronic sciatica was associated with a less predictable outcome[3].

In our study we used the Japanese Orthopaedic Association low backache score to evaluate our results. This score was used as it is simple which assess the patient's outcome both subjectively and objectively.

In our study 58% of the cases were males and 42% female which suggest that lumber disc prolapse having increasing incidence in female as compared to other study

Males were affected more commonly than females which were in accordance with studies by Pappas[9] and Richard Davis[10] who also had male preponderance.

Richard Davis had a mean age of 42 years range from 16 to 77 years. Pappas et al had a mean age of 42 years range of 15 to 83 years.In our study mean age group is 47 year which is comparable to other study.

The event or precipitating factor that accounted for most of the cases was inappropriate lifting of weight (39%). And 10% had a history of fall. In Pappas et al study, lifting weight was the event in 31.4% of cases followed by falls (10%) , sports injuries(10%) and automobile accidents(6.1%).

The L_{4-5} and $L_{5-}S_1$ was the most commonly involved level in our study.

In our study we achieved 74% good outcomes and 20% fair outcomes. We had 6% of poor outcome as compared to Pappas et al and R.Davis who had 6.4% and 3.3% poor results respective.

CONCLUSION:

Several conclusions can be drawn from our study . The discectomy is an extremely useful and effective surgery for treatment of lumbar disc prolapse. Consistently good to fair results in 94% in our study could be attributed to proper selection of cases and a meticulous surgical protocol. The results of lumbar discectomy are good when there is agreement between clinical presentation and imaging studies as was seen in our study. All our patients had radicular pain at presentation.

The Japanese Orthopaedic Association low backache score appears to be an useful tool for evaluation of disc surgery. Widespread use of this score will allow different studies and procedures to be compared more objectively to improve the outcome of disc surgery. In addition to the postoperative score, change of the postoperative score as compared to the preoperative score is also a useful indicator of outcome. The only limitation of this study was a small sample size.

In our study we achieved results comparable to that achieved with micro discectomy. Microsurgical techniques may have some advantages in terms of a less invasive approach; shorter hospital stay etc., but one must understand the demands, requirements, and limitations of this technique. It also has a long learning curve and is technically a more demanding procedure in terms of surgical skills of the surgeon and equipment required and thus is available only in multispeciality hospitals. Also open discectomy is more cost effective than microdiscectomy so very useful for lower socio economic class who are labourer and heavy weight lifters in which lumber disc herniation is more common.

Therefore for the Indian scenario open discectomy is still the "Gold standard" in operative treatment of lumbar disc prolapse.

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