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FUNCTIONAL OUTCOME OF OPERATIVE INTERVENTION IN LOW BACK PAIN PATIENT HAVING PROLAPSE INTERVERTEBRAL DISC (PIVD).

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ABSTRACT **Introduction:** Low back pain is the most frequent cause of limitation of activity in person Less than 45 years of age.[1] Intervertebral disc prolapse (PIVD) and herniation accounts for majority cases of low back and is a contributor of functionality disability. Discectomy is a common procedure which is carried out for treatment of lumbar disc prolapse.[2] **Method:** This is a retrospective study of 25 patients Operated through discectomy. Preoperatively all patients were assessed clinically and also underwear radiological investigations like plain X ray anteroposterior, lateral flexion and extension view along with MRI to confirm the diagnosis and know the level of lesion. Post operatively patients follow up data were taken at one, two week, one month, six months and at the end of one year. **Results:** After surgery none of the patient head ODI score of above 30, with the vast majority having score below 20. Overall, 80% of patient's back-pain and symptoms improved through discectomy. **Conclusion:** Discectomy can effectively improve single segment herniation. Open discectomy provides excellent direct vision and a wide range of exploration in spinal canal so it can avoid damage to dura mater during surgery.

KEYWORDS : PIVD, Discectomy, Dura mater, ODI Score

INTRODUCTION

Disc herniation is one of the common cause of lower back pain. Non operative treatment gives good results in majority of the cases [3]. Operative treatments have better results mostly in short term pain relief and can provide relief if neural decompression is done.

In lumbar disc surgery pain is the most important indication, but neurological symptoms and signs are also considered.[4]

It has been recognized that discectomy can give excellent early results in majority of patients with symptomatic relief with satisfactory rate of over 95%.[5]

Aim

1) To study the extent of functional recovery following discectomy in patients with lumbar intervertebral disc prolapse
2) To assess the complications following discectomy in patients with lumbar intervertebral disc prolapse

Methods

This study is retrospectively conducted study of 25 patients diagnosed with PIVD and operated for discectomy in Orthopaedic department , Shardaben general hospital, Ahmedabad. After clinical evaluation of patients with low back pain, which may be associated with radicular pain or neurological impairment or both. MRI was done to confirm diagnosis.

Inclusion Criteria

- Single level lumbar disc prolapse
- Age 20-60 years
- MRI proved significant disc herniation, extrusion or sequestration.

Exclusion Criteria

- Presence of other associated spine pathology like tumour and infection
- Previous history of spine surgery
- Presence of instability
- Acute traumatic spinal injury

This study includes 25 patients, with all underwent open discectomy. All patients had followed up at an interval of 1 week , 2 week, 1 month , 6 months and 12 months. Patients were assessed pre operatively and also post operatively with the ODI(Oswestry Disability Index) score in every follow up.

Pre Operative Evaluation

After routine physical examination for confirmation of physical and neurological signs, radiographs of lumbosacral spine which includes anteroposterior, flexion and extension stress lateral views and MRI scan were done as a standard protocol. After treating pre-existing co-morbidities and optimisation of patient , patients were posted for elective surgery.

Operative Procedure

The patient was positioned on radiolucent table in prone position with bolsters below chest and the iliac crest keeping the abdomen free and pressure points well-padded. General anaesthesia given. Spinous process palpation locates interspinous space for incision. Image intensifier was recommended at this step. Midline 4-5 cm incision was made from one spinous process to the other. Laminectomy was done and then facetectomy done. A spinal needle was inserted to confirm disc and space with IITV. The herniated fragment and posterior annulus were visualized once the nerve root was retracted medially. Then a cruciate cut is given to disc and disc removal was done. After checking haemostasis and CSF leak , wash given and closure done in layers.

Post Operative Protocol and Follow ups

The patient was given dual intravenous antibiotics for 2 days and shifted to oral. Postoperatively all patients were mobilized as soon as the pain subsided and were discharged in 3-4 days post surgery. Patients were encouraged to walk till pain tolerance for 3 weeks. Bending forward and lifting heavy weights were restricted till 3 months postoperatively. A gradual back muscle strengthening was started after 6 weeks. The patients were followed up at intervals of 1 week , 2 week , 1 month , 6 months and 12 months and were evaluated by ODI questionnaire.

RESULTS

All 25 patients in this study underwent open discectomy. Age of patient's ranges from 20 to 60 years with average of 42.23 years. (Table No.1)

Table No.1 Age Distribution

AGE	CASES	PERCENTAGE
21-30	4	16%
31-40	5	20%
41-50	6	24%
51-60	10	40%
TOTAL	25	100%

In this study 18 (72%) patients were male and 7(28%) were female.

In this study, 10 patients (40%) out of 25 turned out to be labourers. This bodes well with the incidence of lumbar disc prolapse in heavy weight lifters. Other occupations includes housewife(20%) , drivers(20%), businessman (12%) and nurses(8%).

In our study , 32% patients were obese and 28% patients were smokers suggesting associated ethology of disc prolapse.

Most common symptoms are radicular pain and backache followed by sensory and motor involvement. All patients received a trial of conservative treatment in form of bed rest and physiotherapy for minimum of 6 weeks with no significant improvement. Post operatively there was a vast improvement in all indices with back pain and radiculopathy decreased by almost 72% and 84% respectively.

In our study most common level of disc prolapse was L4-L5 disc followed by L5-S1 disc (Table No.2)

Table No.2 Disc Level

DISC LEVEL	CASES	PERCENTAGE
L3-L4	5	20%
L4-L5	14	56%
L5-S1	6	24%

In our study, 92% patients had forward bending upto toes in the post operative period.

One patient had developed superficial infection was having diabetes. He was managed conservatively with regular dressing and antibiotics with control of diabetes. His wound was healed in 3 weeks without further sequalae. One patient with recurrent disc herniation was explained for revision surgery, however he refused and managed conservatively with pregabalin and analgesics. His pain was improved over a period of three months with physiotherapy and medication.

Table No 3: ODI Score

	PRE OP ODI SCORE		POST OP ODI SCORE	
ODI SCORE	NO. OF CASES	PER%	NO.OF CASES	PER%
0-10	0	0%	15	60%
11-20	0	0%	9	36%
21-30	4	16%	1	4%
31-40	12	48%	0	0%
41-50	9	36%	0	0%

Initially, of the admitted patients, 36% had an ODI score of more than 40, with another 48% had ODI score between 31-40. After surgery none of the patient had an ODI above 30, with vast majority had score below 10.

DISCUSSION

Low back pain frequently leads to disability in active people such an extent that it doesn't allow them to carry routine daily activity. Out of these patients, PIVD is very common cause.[6] After Mixter and Barr in 1934 described disc protrusions and showed the effectiveness of surgery in its management , there has been an increasing enthusiasm to solve sciatica problem through surgically. Better investigative modalities have led to more accurate diagnosis of disc lesions.[7]

A proper surgical technique should lead to satisfactory outcomes, minimal morbidity and good cosmesis[8]. It should be cost effective and able to adjust to patient factors like obesity, ethnicity etc. Open discectomy remains the current gold standard of surgical treatment.[9] In our study the mean age of patients was 42.23 years. Mean age of patients in study performed by B Garg et al[10] was 38 years. In our study discectomy was performed more in males (sex ration 2.5:1). In our study mean follow up period was 23.13 months while in study performed by B Garg et al mean follow up was 27 months.

In our study no dural punctures were noted, while there 2% cases dural puncture in study performed by B Garg et al.[10] In our study mean operative time was 44.56minutes. Of total 25 patients operated L4-L5 was most commonly involved. Mean time in which patient discharged from hospital was 4.2 days in our study.

In our study there were 2 patients with complications. There was one case of superficial infection (4%) which was treated by antibiotics and dressing. One case of recurrence of radiculopathy(4%) which was treated with pregabalin and analgesics.

In open discectomy learning curve is short, no specialized equipment needed[11]. It provides direct vision and a wide range of exploration in spinal canal[12]. However, open discectomy can cause massive bleeding during operation. Open discectomy can cause hyperplasia and adhesion of scar tissue[13]. During open discectomy the para spinal muscle adjacent to lamina are extensively dissected. Long term results of Open discectomy are very good.[14]

CONCLUSION

Discectomy leads to massive improvement in back pain and radicular pain. Discectomy is the method of choice for treating single level disc prolapse. Open discectomy has distinct advantages like it provides direct vision and wide range of exploration so less chances to damage to dura and nerve roots.

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