



Orthopaedics

CONSERVATIVE VS SURGICAL MANAGEMENT RATIO AND AGE CORRELATION IN PATIENTS OF LUMBAR DISC HERNIATION

**Dr Siddharth
Katkade***

ASSI Spine Fellow, Sancheti Institute of Orthopaedic Rehabilitation, Pune, Maharashtra, India. *Corresponding Author

**Dr Rajesh
Ambulgekar**

Professor & HOD, Department of Orthopaedics, Dr Shankarrao Chavan Government, College And Hospital Nanded, Maharashtra, India.

ABSTRACT

BACKGROUND: As per European studies the incidence of a herniated disc is about 5 to 20 cases per 1000 adults annually and is most common in people in their third to the fifth decade of life, with a male to female ratio of 2:1. The estimated prevalence of symptomatic herniated disc of the lumbar spine is about 1-3 percent of patients. It's proved that majority of cases of Lumbar disc herniation recovers with conservative trial but the exact proportion of patients recovering from conservative trial is not clear. **AIM:** To study the patient recovery ratio from conservative to surgical management of lumbar disc herniation and its co relation with age. **MATERIAL AND METHODS:** In this prospective study all the adult (above 18 years) age group presenting with lumbar disc lesion and canal stenosis admitted in orthopaedic department of Tertiary Care Centre satisfying inclusion were taken for study after obtaining their consent. All these patients where started with conservative trial and followed up on OPD basis monthly and according to the clinical recovery decision of continuing conservative trial or operative management was taken after minimum trial of 4-6 months. **RESULTS:** Out of 120 patients only 30 (25%) patients needed operative intervention and rest 90 (75%) were managed by conservative line of management. In 20-40 age group – 78% managed conservatively and 22% managed operatively. In 40-60 age group – 72% managed conservatively and 28% managed operatively. In ≥60 age group – 78% managed conservatively and 22% managed operatively. **CONCLUSION:** This study shows the patient recovery ratio from conservative to surgical management of lumbar disc herniation is 3:1. All patients with lumbar disc herniation should undergo conservative trial initially. Only if conservative trial fails or patient with persistent disabling pain or neurological deficit are subjected to operative intervention. Relatively young patients (20-40) age group had majority of them managed conservatively. The more common age group affected was 40 to 60 years age group with the average of 44.9 years with significant male predominance and also this age group had slight higher percentage of operative rate compare to other two groups.

KEYWORDS : lumbar disc lesion, epidemiology, conservative trial, minimal invasive lumbar discectomy.

INTRODUCTION:

Humans are the sufferers of back and leg and pain since the history. The ancient cures, of back pain are now appearing as a modern international epidemic. In entire lifespan upto 80 % of people are affected by this symptom at some time. The most frequent cause of limitation of activity in people younger than +5 years is impairments of the back and spine as by the national center for health statistics. In otherwise healthy people in the 3rd and 4th decades of life intervertebral disc disease and disc herniation are most prominent. It accounts for a majority of cases of low backache in clinical practice and also a major contributor of limitation in day to day activities.

In 1934, Mixter and Barr published their study that concluded that the suffering caused by sciatic pain can be improved by laminectomy with decompression and extraction of herniated lumbar disc²⁷. Since then increasing number of patients have been operated upon for this disorder. "Gold standard" for operative intervention in patients with herniated lumbar discs whose conservative treatment has failed is now the Open discectomy.

Discectomy first reported by Mixter and Barr¹ (1934) has changed the management of lumbar disc herniations. Kambin and Savitz² (1973) introduced the concept of endoscopic lumbar discectomy. Caspar³ (1977), Yasargil⁴ (1977) and Williams⁵ (1978) added refinements in approach with the use of microsurgical technique. Foley and Smith⁶ (1997) introduced an operative endoscope with the tubular system termed it "Endoscopic Discectomy". As an alternative to the endoscope, Foley *et al.* (2003) modified the tubular retractors to include a microscope, which is termed "Micro Endoscopic Discectomy" (MED). The term is used interchangeably for describing the discectomy procedure utilizing tubular retractors either with an endoscope or a microscope. 7 Recent prospective randomized control trials (RCTs) have found a benefit of surgery for patients when conservative therapies fail. 8 9 10 11 Discectomy performed open or with an operating microscope remains the standard surgical management. 12 13 14 Tubular retractor system 15 16 17 is being increasingly used now. The potential benefits of to this technique include less muscle and local damage, better cosmesis, 18 19 20 decreased pain and operative time and faster recovery after surgery. 21 22 On the other hand, open surgery includes extensive retraction and dissection of paraspinal muscles, longer operative time, longer

incisions and bone resection.^{23 24} However, the outcome studies of lumbar disc surgery document a success rate of 51 to 89% in spite of advances in investigations, operative technique is important. Hence, plotting epidemiology of lumbar disc disease patients needing conservative versus operative intervention will give us a guide for patient selection and plan the management.

MATERIAL AND METHODS:

In this prospective study 120 patients with lumbar disc disease were screened using the inclusion and exclusion criteria. Informed consent was taken for all patients and approval of the Institutional Review Board was obtained prior to the commencement of the study.

INCLUSION CRITERIA:

- 1) All lumbar disc lesion and spinal stenosis patients
- 2) Medically fit for surgery
- 3) Patients with age >18 years

EXCLUSION CRITERIA:

- 1) Lumbar disc lesion and spinal stenosis managed non-operatively
- 2) Medical contraindication for surgery
- 3) Patient with age <18 years

A detailed history was obtained and they were subjected to a thorough clinical examination. Radiological investigations (plain x-ray and MRI lumbar spine) were carried out to confirm the diagnosis and know the level of the lesion. The patients were also assessed pre-operatively with the Oswestry low back pain disability score. All 120 patients were managed conservatively with bed rest and pelvic traction for 4 days, analgesics (NSAIDs) for 2 weeks, combination tablet containing (Gabapentine + methylcobalamine + nortriptyline) for 2 weeks and low back stretching and core strengthening exercises. Followed up on OPD basis every monthly and clinically assessed. Those who failed conservative trial had underwent minimal invasive lumbar discectomy with tubular retractor system. Postoperatively the patients were followed up after 1st, 2nd, 3rd, 6th months and thereafter yearly. The Oswestry low back pain disability score used post-operatively to assess the outcome analysis of functional status.

RESULTS:

A hospital based prospective study was done with 120 patients with lumbar disc herniation about 90 (75%) patients recovered from

conservative line of management and 30 (25%) patients required operative intervention

Table 1: Age correlation with conservatively managed patients

Age group	Total patients	No. of patient	Percentage (%)
20-40	46	36	78.26%
40-60	56	40	71.42%
≥60	18	14	77.77%
Total	120	90	75%

Majority of the patients lied in age group 40-60 and next into 20-40 age group and percentage of patients recovered from each age group is around 70 to 80%

Table 2: Age correlation with operatively managed patients

Age group	Total patients	No. of patient	Percentage (%)
20-40	46	10	21.73%
40-60	56	16	28.57%
≥60	18	4	22.22%
Total	120	30	25%

Majority of cases i.e. 16 were in the age group of 40-60 years. The minimum age of the patient was 28 years and maximum was 66 years. The more common age group affected was 40 to 60 years age group with the average of 44.9 years with significant male predominance and also this age group had slight higher percentage of operative rate compare to other two groups.

- Out of 120 patients only 30 (25%) patients needed operative intervention and rest 90 (75%) were managed by conservative line of management.
- In 20-40 age group – 78% managed conservatively and 22% managed operatively.
- In 40-60 age group – 72% managed conservatively and 28% managed operatively.
- In ≥60 age group – 78% managed conservatively and 22% managed operatively.



1. Guide wire localization and serial dilator insertion

2. Serial tubular retractor insertion



3. Radiographic level confirmation

4. Operating field with fiberoptic illumination

DISCUSSION:

All 120 patients were managed conservatively with bed rest and pelvic traction for 4 days, analgesics (NSAIDs) for 2 weeks, combination tablet containing (Gabapentine + methylcobalamine + nortriptyline) for 2 weeks and low back stretching and core strengthening exercises.

They followed up on OPD basis monthly for clinical assessment. Among these 90 patients showed signs of recovery with no to minimal limitation in activities of daily living. And 30 patients even after completing conservative management of about 4-6 months came with unresolving symptoms or disabling pain or neurological deficit where subjected to operative intervention. All patients underwent minimal invasive lumbar discectomy with tubular retractor system.

Postoperatively the patients were followed up after 1st, 2nd, 3rd, 6th months and thereafter yearly. The Oswestry low back pain disability score used post-operatively to assess the outcome analysis of functional status.

CONCLUSION:

Out of 120 patients only 30 (25%) patients needed operative intervention and rest 90 (75%) were managed by conservative line of management. All patients with lumbar disc lesion needs conservative trial. Only if conservative trial fails or patient with persistent disabling pain or neurological deficit are subjected to operative intervention. Relatively young patients (20-40) age group had majority of them managed conservatively due to relatively strong core and low back muscles and were compliant in doing physiotherapy. The more common age group affected was 40 to 60 years age group with the average of 44.9 years with significant male predominance and also this age group had slight higher percentage of operative rate compare to other two groups.

REFERENCES:

1. Mixter WJ, Barr JS. Rupture of the intervertebral disc with involvement of the spinal canal. *N Engl J Med*. 1934;211:210-5. [Google Scholar]
2. Kambin P, Savitz MH. Arthroscopic microdiscectomy: An alternative to open disc surgery. *Mt Sinai J Med*. 2000;67:283-7. [PubMed] [Google Scholar]
3. Caspar W. A new surgical procedure for lumbar disc herniation causing less tissue damage through a microsurgical approach. In: Wullenweber R, Brock M, Hamer J, editors. *Advances in Neurosurgery*. Berlin: Springer-Verlag; 1977. pp. 74-7. [Google Scholar]
4. Yasargil MG. Microsurgical operation for herniated disc. In: Wullenweber R, Brock M, Hamer J, Klinger M, Spoerri O, editors. *Advances in Neurosurgery*. Berlin: Springer-Verlag; 1977. p. 81. [Google Scholar]
5. Williams RW. Microlumbar discectomy: A conservative surgical approach to the virgin herniated lumbar disc. *Spine (Phila Pa 1976)* 1978;3:175-82. [PubMed] [Google Scholar]
6. Foley KT, Smith MM. Microendoscopic discectomy. *Techniques in Neurosurgery*. 1997;3:301-7. [Google Scholar]
7. Kulkarni AG, Dhruv AN, Bassi AJ. Microendoscopic Excision of C2 osteoid osteoma: A Technical Report. *Spine (Phila Pa 1976)* 2008;38:E1231-4. [PubMed] [Google Scholar]
8. Atlas SJ, Keller RB, Wu YA, Deyo RA, Singer DE. Longterm outcomes of surgical and nonsurgical management of sciatica secondary to a lumbar disc herniation: 10 year results from the Maine lumbar spine study. *Spine (Phila Pa 1976)* 2005;30:927-35. [PubMed] [Google Scholar]
9. Pearson AM, Blood EA, Frymoyer JW, Herkowitz H, Abdu WA, Woodward R, et al. SPORT lumbar intervertebral disk herniation and back pain: Does treatment, location, or morphology matter? *Spine (Phila Pa 1976)* 2008;33:428-35. [PMC free article] [PubMed] [Google Scholar]
10. Peul WC, van Houwelingen HC, van den Hout WB, Brand R, Eekhof JA, Tans JT, et al. Surgery versus prolonged conservative treatment for sciatica. *N Engl J Med*. 2007;356:2245-56. [PubMed] [Google Scholar]
11. Gibson JN, Waddell G. Surgical interventions for lumbar disc prolapse: Updated Cochrane Review. *Spine (Phila Pa 1976)* 2007;32:1735-47. [PubMed] [Google Scholar]
12. Tait MJ, Levy J, Nowell M, Pocock C, Petrik V, Bell BA, et al. Improved outcome after lumbar microdiscectomy in patients shown their excised disc fragments: A prospective, double blind, randomised, controlled trial. *J Neurol Neurosurg Psychiatry*. 2009;80:1044-6. [PubMed] [Google Scholar]
13. Katayama Y, Matsuyama Y, Yoshihara H, Sakai Y, Nakamura H, Nakashima S, et al. Comparison of surgical outcomes between macro discectomy and micro discectomy for lumbar disc herniation: A prospective randomized study with surgery performed by the same spine surgeon. *J Spinal Disord Tech*. 2006;19:344-7. [PubMed] [Google Scholar]
14. McGirt MJ, Ambrossi GL, Datto G, Sciubba DM, Witham TF, Wolinsky JP, et al. Recurrent disc herniation and long term back pain after primary lumbar discectomy: Review of outcomes reported for limited versus aggressive disc removal. *Neurosurgery*. 2009;64:338-45. [PubMed] [Google Scholar]
15. Freudenstein D, Duffner F, Bauer T. Novel retractor for endoscopic and microsurgical spinal interventions. *Minim Invasive Neurosurg*. 2004;47:190-5. [PubMed] [Google Scholar]
16. Husain M, Jha DK, Agrawal S, Husain N, Gupta RK. Conical working tube: A special device for endoscopic surgery of herniated lumbar discs. *J Neurosurg Spine*. 2005;2:265-70. [PubMed] [Google Scholar]
17. Isaacs RE, Podichetty V, Fessler RG. Microendoscopic discectomy for recurrent disc herniations. *Neurosurg Focus*. 2003;15:E11. [PubMed] [Google Scholar]
18. Schick U, Döhner T, Richter A, König A, Vitzthum HE. Microendoscopic lumbar discectomy versus open surgery: An intraoperative EMG study. *Eur Spine J*. 2002;11:20-6. [PMC free article] [PubMed] [Google Scholar]
19. Shin DA, Kim KN, Shin HC, Yoon H. The efficacy of Microendoscopic discectomy in reducing iatrogenic muscle injury. *J Neurosurg Spine*. 2008;8:39-43. [PubMed] [Google Scholar]
20. Kotil K, Tuncakale T, Tatar Z, Koldas M, Kural A, Bilge T. Serum creatine phosphokinase activity and histological changes in the multifidus muscle: A prospective randomized controlled comparative study of discectomy with or without retraction. *J Neurosurg Spine*. 2007;6:121-5. [PubMed] [Google Scholar]
21. Harrington JF, French P. Open versus minimally invasive lumbar microdiscectomy: Comparison of operative times, length of hospital stay, narcotic use and complications. *Minim Invasive Neurosurg*. 2008;51:30-5. [PubMed] [Google Scholar]
22. Yeung AT, Yeung CA. Minimally invasive techniques for the management of lumbar disc herniation. *Orthop Clin North Am*. 2007;38:363-72. [PubMed] [Google Scholar]
23. Mayer HM, Brock M. Percutaneous endoscopic discectomy: Surgical technique and preliminary results compared to microsurgical discectomy. *J Neurosurg*. 1993;78:216-25. [PubMed] [Google Scholar]
24. Ditsworth DA. Endoscopic transforaminal lumbar discectomy and reconfiguration: A postero-lateral approach into the spinal canal. *Surg Neurol*. 1998;49:588-98. [PubMed] [Google Scholar]