

A REVIEW OF 3200 CASES OF
HERNIATED LUMBAR DISC

A. ALIMOHAMMADI M.D

INTRODUCTION:

In this monograph it is attempted to review 3200 cases of herniated lumbar disc which have been treated either surgically or medically by the author in past 6 years in Emam Khomeini and private MEHR hospital at Tehran, Iran and point out the indications for operation, the value of myelography in diagnosis of the herniated discs, the result of operation and finally the causes of complications.

Materials:

In general, we classify the patients in three groups

Group 1- These patients usually have no previous history of backache but following lifting a heavy thing or a stressful exercise they develop severe low back pain, sometimes accompanied by a radiating pain in the course of one or more relevant roots:

DEPARTMENT OF NEUROSURGERY, UNIVERSITY OF TEHRAN

Group II: Those patients with history of lumbar disc disease, which developed severe pain in the lower back and lower extremity. Of sudden onset, with a clear herniated lumbar disc syndrome (ie, diskitis + root atrophy. + sensory and motor deficits). This group comprised 860 cases out of 3200.

Group III: This group were those cases who continued to have mild signs and symptoms of lumbar disc syndrome following an acute attack of herniated lumbar disc disease, or those patients who gradually evolved low back pain which might radiate to the lower extremities, or got worse by exercise and ameliorated by rest or medical treatment, but these patients never improved completely.

On examination, neurological findings for a herniated lumbar disc syndrome, are only partially present. Even in some patients there is no objective finding but the patient still complaining of pain.

Results :

From 3200 cases mentioned above for-only 1608 cases it was necessary to do myelography. From 624 cases with complete blockage to the passage of contrast media in the lumbar region, there were 588 patients with herniated lumbar disc and 36 cases with spinal cord tumors, (comprising, 2 neurinomas, 2 plasmocytoma, 2 chordoma, 28 ependymoma and 2 cases of disc space tuberculosis).

Thus of total 588 patients, all were treated surgically either for a protruded disc or a tumor which simulated an offending disc. But in 840 cases with partial block in their myelograms, only 48 cases were negative surgically, and for the rest, surgical intervention was

found to be mandatory.

On the other hand in patients with normal myelogram (144 cases) which were operated upon, only for their clinical findings, 102 were positive, but in the remaining 42 cases no pathology was found in the relevant surgical exploration-table, No.2,.

Table No 1

No	NO	Sort of treatment	Grouping	Total Number
80	1056	Conservative	Group I No clear past history, but severe signs and symptoms appear	1320
20	264	Surgery		
90	774	Surgery	Group II Low back pain in Past history + Signs and symptoms of sudden onset.	860
10	86	Conservative		
70	714	Conservative	Group III Pain in the back and radiating pain in the lower extremities+signs and symptoms of herniated lumbar disc	1020
10	316	Surgical		

Discussion :

Movement and pressure on the disc cause the disc to press the adjacent capsule, irritating the intracapsular nerve fibers inducing paravertebral muscle spasm as a result of reflex phenomenon.

Accumulation of lactic acid inside the muscle also causes pain, lumbago.

In the past we used to treat patients in group II surgically with out performing a myelography, but in recent (6) years we do practically in all cases lumbar myelography before embarking on surgery.

Nearly 90% of such myelograms are positive, in the remaining 10% it is always not difficult to treat them individually, considering their physical and psychological status.

Some patients besides lumbar pain suffer root pain as well which results from injury to the recurrent intracapsular branch.

80% of patients in this group will improve by medical management and bed rest.

When there is evidence of root compression or there is obvious weakness of ankle, foot or toes, or the patient continues to have persistent pain which is not responsive to medication, it is advisable to proceed to do a myelography and surgical intervention if indicated.

Only 20% of these patients will finally undergo surgery.

Those patients who suffer spondylosis of one or more vertebrae, also belong to this group. The intervertebral discs are slightly bulging. Treatment depends upon the physical and psychological status of the individual pati-

ent and his profession. These patients will often improve by combined treatment:

le. Medication, corset devices, exercise and suspension procedures.

On plain lumbar X-ray one may find radiological findings such as narrowing of the I.V. disc spaces between the adjacent vertebrae, loss of normal lumbar lordosis, extensive spondylosis and canal stenosis. In this and canal stenosis. In this group we perform a myelography which is positive in 30 percent of cases.

They need surgical intervention, in the remaining 70% conservative management will suffice. Table No.1

False negative myelography in some patients is possibly because of anterior aspect of the dura at the L₅-S₁ region.

Evaluation of myelography: Considering all statistics-mentioned (Table 2) the conclusions will be as follow:

We believe that myelography should be performed in almost all patients with suspected herniated lumbar disc who suffer sciatic pain. In nearly 96.8 percent of cases myelograms correspond to clinical findings present in individual patients, thus myelography will be a valuable guide to the surgeon.

In the remaining 3.2% which the myelograms are negative, the treatment will depend upon clinical findings.

If there is clear signs and symptoms of herniated disc the effective management will have to be continued.

Of total of 1920 cases, which has been operated by the author, 66 were spinal cord tumors and the remaining 1854 cases were herniated lumbar disc.

Myelographic Signs	Total number	Cases with herniated disc	Cases with cord tumor	Negative
Complete blockage	624	588	36	-
Partial Blockage	840	792	-	48
No blockage	144	102	-	42

Table NO, 2

The result of myelography performed in 1608 cases,
(surgically proved)

In general, when there is clear signs and symptoms of disc disease, confirmed radiologically, in the hand of an expert surgeon, in 93% the result will be excellent, but in 7% there is possibility of encountering complications.

Table No3

Result	Number of patients	Percent
Complete cure	1344	70%
Partial improvement	532	54.4%
No change	44	4.6%

Causes for complications:

1- Skill and experience of surgeon are of prime in achieving good results.

Inadvertant trauma to the neural elements during operation,unnecessary division and separation of muscles during exposure, using too much cautery, specially near the roots, often lead to untoward complications such as infection, urinary retention or even irreversible neurological deficits.

2- Technique.

Some surgeons still prefer to do Bilateral Laminectomy even when dealing with a unilateral protruded disc,which is obviously unnec essary, this may lead to instability of vertebral column and often causes low back pain as a result of injury to the facets and artheritis.

In recent years many surgeons, among them Yasargil,do disc surgery using microscope, with small skin incisions,

ligamentaflava can be opened with a U-Shaped flap which is replaced and stitched after removing the offended elements, this method have been used by author in a few cases, these patients had a better post operative course with earlier ambulation.

The author's opinion is that although microscope may be used in disc surgery but it is not always essential.

3- Laminectomy should be done unilaterally by Fenestration method unless the disc is protruded under the root.

4- It is neccessary to remove all bone spurs, situated medially, as these osteophytes causing pressure on the posterior longitudinal ligament, irritating it's nerve fibers to causes back pain.

5- Sometimes despite all attemptscarried out during operation, the patientcontinuous to have pain postoperatively, but the quality of pain usually differs from the pain Presented before operation.

In some cases persistent pain is the result of arechnoiditis possibly induced by myelography or perhaps due to sustained pressure on the roots and degeneration of neural fibres or thickening with adhesions of the meninges and ligamentous elements following similar degenerative processes.

In any instance, many of these patients will improve gradually with passage of time.

In some cases with presumed arachnoiditis it was attempted to relieve the pain by releasing the neural elements from adhesions, microsurgically, but readhesion occured soon after.

6- Sometimes, during operation, the dura tears inadver-

one or more roots causing radicular pain.

7- Occasionally an oppending lateral protruded intervertebral disc at a lower level, impinges the root at a higher level.

SUMMARY

It is attempted to review 3200 cases of herniated lumbar disc to point out the indications for operation, the value of myelography, the result of operation and the causes of complications. We believe that myelography should be performed in almost all patients. In nearly 96.8 percent of cases myelograms correspond to clinical findings. In general when there is clear signs and symptoms of disc disease, confirmed radiologically, in the hand of an expert surgeon, in 93 percent the result will be excelent.

REFERENCES

1. Armstrong, J.R. M.D., F.R.C.S. Lumbar Disc Lesions Aberdeen. E. and Livingston LTD. 1952.
2. Dyck Peter M.D. Surg Nevral Volume 6.1976 The Femoral Nerve Traction Test With Lumbar Disc Protrusions 163-6 Sep. 1976.
3. Walsh, L.S. and Mackenzie, q (1956) Brain 76, 505
Reginald Nassin. H. Jacson Burrows Modern Trens In Diseases of the Vertebral 1959.
4. Douglas A, Brown M.S.
Jerry Engelberg, M.D.

-
- Intervertebral Disc Surgery J. of Neurosurgery Volume 52, June 1980 Chales, J. Lond Ph.D.
5. Extra Dural Spinal Cord And Nerve Root Compression From Benign Lesions of the Lumbar Area Chap 78 Neurological Surgery 1982 Youman's Vol 4
 6. Absence of Limitation of Straight Leg Raising in Proved Lumber Disc Lesion J. of Neurosurgery June 1980.
 7. Burton M. Onofrio, M.D.
Neurosurgery 1980 Page 348
Inter Vertebral Discitis: Incidence Diagnosis and Management, Clinical Neurosurgery 1980 Chap 29 Page 481.
 8. Sciatiea and the Neurosurgeon: Historical Perspective and Personal keminiscences. Clinical Neurosurgery 1980 Chap 31 Page 541.
 9. Child Hood and Adolescent, low Back Pain Clinical Neurosurgery 1980 Chap 32, Harold J. hoffman, M.D. Bc, F.R.C.S.
 10. Post Operative study of 100 lumbosacral Discectomies. J. of Neurosurgery Volume 50 March 1979 Bryce K.A. Weir, M.D.
 11. Lumbar-Disc Herniation in Children, Adolescence: Review of Operated Cases and Their Minimum 5 Years Follow up Year Book of Neurosurgery 1982 Page 387.
 12. Maroon J.C. Chymopapain In the Treatment of Ruptured Lumbar Discs, Preliminary Experience In 48 Patients. J. of Neurology Neurosurgery, and Psychiatry Vol 39 May 1976.