

Recurrence after Surgery In Lumbar Disc Protrusions

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ABSTRACT

Background: Persistent symptoms after operation for lumbar disc protrusions may be due to: (1) disc prolapse at another level; (2) residual disc material in the spinal canal; (3) nerve root pressure by a hypertrophic facet joint or a narrow lateral recess ('root canal stenosis'). After careful investigation, any of these may call for re-operation; but second procedures don't have a high success rate.

Objective: This study is designed to verify the possible causes of recurrence after surgery for lumbar disc prolapse and their appropriate treatment regarding re-exploration.

Methods: A follow-up and result of treatment in 100 cases operated upon for lumbar disc prolapse is presented. Clinical & radiological assessments including myelography and magnetic resonance imaging were done post-operatively in persistent symptoms including backache or sciatica.

Results: In this series, twelve patients required re-exploration, 9 patients had only one re-exploration and 3 patients had two explorations each. One patient had one re-exploration was subjected to sacro-iliac fusion, which improved his symptoms.

Conclusion: In the majority of patients the causes of persistence of symptoms are beyond the control of the surgeon. Removal of disc prolapse is effective in most instances in relieving the pain in lower extremity but a large number of patients continue to suffer from further backache and a few from further leg pain of varying intensity. Re-exploration carries a bad prognosis but if a disc prolapse is found at re-exploration then the result is much more favorable

Keywords: Sciatica, recurrent lumbar disc, re-exploration.

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Introduction

One of the greatest problems in orthopedic surgery and neurosurgery is the treatment of failed spine surgery. Numerous reasons for the failures have been advanced. The best result from repeat surgery for disc problems appears to be related to the discovery of a new problem or identification of a previously undiagnosed or untreated problem. Waddell *et al* ⁽¹⁾ suggested that the best result from repeat surgery are when the patient had experienced 6 months or more of complete pain relief after the first procedure, when leg pain exceeded back pain, and when a definite recurrent disc could be identified. They identified adverse factors as scarring, previous infection, repair of pseudoarthrosis, and adverse psychological factors. Similar factors were identified by Lehmann and LaRocca ⁽²⁾ and Finnegan *et al* ⁽⁹⁾. Satisfactory results from re-operation have been reported to be from 40% to 80% patients should expect improvement in the severity of symptoms rather than complete relief of pain. As the frequency of number of repeat back surgeries increases, the chance of a satisfactory result drops precipitously.

The recurrence or intensification of pain after disc surgery should be treated with the usual conservative methods initially.

If these methods fail to relieve pain, a complete

reevaluation should be performed ⁽³⁾. Frequently a repeat history and physical examination will give some indication of the problem.

Additional testing should include psychological testing, myelography, and magnetic resonance imaging to check for tumors or a higher disc herniation, along with reformatted computed tomographic scan to check for areas of foraminal stenosis or far lateral herniation. The use of the differential spinal, root block, facet block, and discograms may help identify the source of pain. The presence of abnormal psychological test results or an abnormal differential spinal should serve as a modifier to any suggested treatment indicated by the other testing. Satisfactory non-operative treatment of this problem should be attempted before additional surgery is performed, provided this surgery is elective. A distinct, surgically correctible, anatomic problem should be identified before surgery is contemplated. The surgery should be specifically tailored to the anatomic problem or problems identified ⁽⁴⁾.

The aim of study is to verify the possible causes of recurrence after surgery for lumbar disc prolapse and their appropriate treatment.

Clinical Material

In the period 1993-1999, 174 patients were subjected to operations for removal of lumbar disc prolapse, in three hospitals (Diwanyia, Medical City, and Al-Kindy). Adequate clinical records of 146 patients were available.

One hundred of these patients were followed up, were contacted through post or telephone and each of them filled in or helped to fill in a questionnaire. Most of the patients in whom the results considered a failure were requested to attend for review and the present state was evaluated both by clinical and radiological examination.

The longest follow-up is 9 years and the shortest 2.5 years. All of these patients were operated upon by orthopedics surgeons (except in one instance where a re-exploration was carried out by a neurosurgeon).

Clinical Features

Sex and Age:-

In this series 64 patients were males and 36 patients were females with a ratio of M: F 1.8:1.

The maximum numb Injury

History of injury of one or other form e.g. lifting, gardening, digging, fall or sudden unguarded movement was recorded in 46 patients – this was not confined to patients with particular types of work (i.e. heavy or less heavy) .

Distribution of Pain

Distribution of pain in the earliest attacks and at the time of operation – the common event was that pain started as backache and after a variable interval the patient also suffered from sciatica. Little less common was the development of backache and sciatica at the onset and both components persisting in every attack.

The age of patients was between 30 and 50 years. The youngest patient was 18 years old and the oldest was 66 years old .Two patients were under 20 years and 10 were over 50 years of age.

Some of the patients with only lower limb pain at the time of operation had some backache but described it as “not troublesome “or “not worth mentioning” or “only occasional”.

Side Involved in Lower Limb Pain

Sciatica involved the two sides with almost equal frequency. In cases of bilateral sciatica most of the patients had one extremity more affected than the other. In one instance only the pain was of equal intensity in both lower extremities

Clinical Signs

As far as the spinal signs are concerned the most constant was limitation of lumbar spine mobility. It was found to a variable extent in each of these 100 patients. Among the neurological signs diminished or absent jerks was commoner than motor or sensory signs .Limitation of straight leg rising was present in all except four. It is significant that in 3 of these patients the disc exploration was negative.

Diagnosis and Investigation

The diagnosis was mainly based upon the history of periodicity of the symptoms, limitation of straight leg rising and limitation of spinal mobility. Though neurological signs were present in nearly 62%, too much emphasis was not laid upon these and patients were frequently operated upon in the absence of neurological signs. Plain radiography of the lumbo-sacral spine was done in every patient who has normal or in a few instances showed a narrowed disc space .Plain radiograph really served to exclude other sinister pathology rather than positively diagnosing a disc lesion.

Myelography was not carried out as a routine investigation. It was carried out on three occasions only where persistence of symptoms followed after a negative exploration in each case. In one of these the myelography was negative and in the other two the root sheath did not fill up and the cause was found to be a bony osteophyte in one and adhesions in the other. Lumbar puncture was carried out on only one occasion to substantiate the clinical diagnosis of meningitis which complicated the post-operative course in one patient.

Magnetic resonance imaging is the newest technologic advance in spinal imaging. The advantages of this technique include the ability to demonstrate intra-spinal tumors, examine the entire spine, and identify degenerative discs.

Indication for Operation

It is accepted that the only absolute indication for operative removal of a disc prolapse is cauda equina compression from acute prolapse. Other indications are an acute attack failing to respond to three weeks conservative treatment and recurrent attacks resulting in considerable loss of work. There are no cases of acute prolapse causing cauda equine compression and sphincter disturbance in this series.

Patients were admitted in the hospital about 2days before operation and in some instances the patient was already in the hospital for weeks under conservative treatment which failed to improve the symptoms. In each and every instance conservative treatment in the form of bed rest and traction, plaster of Paris jacket, etc., was tried and only when the symptoms persisted or worsened or the attacks recurred frequently was the patient submitted to operation.

Operative Technique

The aim of operation was to eliminate the root pressure. The disc space was entered after removal of the disc prolapse and loose pieces of disc material, but complete curettage of the disc

space was not carried out.

All the operations were done under general anesthesia. In 97 instances only disc removal was carried out. In three patients a posterior fusion was also carried out, two combined with disc exploration and one as a separate procedure later on. In one patient in addition to disc removal a foramenotomy was carried out.

In all patients inter-laminar extra-dural approach was used. After removal of ligamentum flavum sometimes some bone from the adjoining laminae was removed to obtain adequate exposure. When the operation was done in prone position, more bone was removed from the laminae in 15 instances we removed complete laminae on one side, and in one instance removal of lamina on both sides was done.

Operative Findings

It was a policy to explore the suspected space first and if a convincing prolapse was found in that space, the next space was not explored. If the findings were negative, or less convincing, in the first space explored, then the next space was explored.

Types of Level and Lesion Found

The prolapsed disc was found at either fifth or fourth lumbar disc. In this series lumbo-sacral disc protrusion was more common. There is only one instance of disc protrusion at L.1-L.2 level. The incidence of double lesion is considerably lower in this series. There were only two patients with double lesions. Considering that only 51 patients had two or more than two spaces explored, the incidence comes to 4%.

Disc level at which protrusions were found

The type of lesion is differentiated as a sequestered disc, sequestered disc with thin coverings (disc sequestering out into the canal or incising thin coverings) or only as a bulge with intact ligamentous coverings which had to be incised to remove the protrusion. In most occasions in first 2 instances the nerve root was adherent to the protrusion.

On two occasions considerable bleeding from the extra-dural veins was encountered.

Dural puncture leading to some leak of the cerebro-spinal fluid occurred in six instances.

Table -4.

Post-Operative

After operation the patient was nursed flat on back and after two days was allowed to roll on his side. He sat on the edge of the bed on the seventh day and gentle back extension exercises were started. On the twelfth day the stitches were removed the patient allowed to walk.

The patients were usually discharged home at the end of the second week, and then attended as

out-patient for follow up and physiotherapy,

which was continued for a variable period from four weeks to three months, the average stay in hospital, was 2-8 weeks.

Complications

The complications were mostly minor and infrequent and resulted in no morbidity.

Dural puncture and CSF leak at the time of operation did not cause any collection under the wound or delayed wound healing. The dural puncture was so small that no attempt was made to repair it.

Transient root damage was seen only in one patient who had a disc prolapse removed from his 4th space, resulting in weakness of tibialis anterior the power recovered to normal in the next few months.

Retention of urine was seen in only 3 patients and needed one catheterization in each instance.

In one patient the catheterization had awakened a chronic lower urinary tract infection, which quickly responded to antibiotics. One patient had difficulty in emptying her bladder after her second re-exploration and was found to have 100 to 150 c.c. of residual urine.

The complication of superficial haematoma and/or infection did increase the period of hospitalization considerably. The average period of hospital stay in these patients was 3-6 weeks.

Deep venous thrombosis occurred in two patients. Both were treated with anticoagulants. In both it was cleared up without any further complications. Pulmonary complications had occurred in three patients. All these five patients were males between 40 and 45 years old.

Meningitis developed in one patient on the fifth post-operative day and coagulase positive Staph. Aureus was grown from blood culture. This infection was controlled with chemotherapy and left no untoward effects

Results

Backache and sciatica are both subjective disturbances and this creates certain difficulty in reviewing a series of cases. Also, the higher the thresholds to operation the better are the results. If a wider range is included the results will not be so good. The following grades were used in evaluating the results⁽⁸⁾.

Grade-1: Complaint or disability and return to previous or heavier employment. Their may be some intermittent discomfort not interfering with working ability or requiring treatment.

Grade-2: Intermittent disability reducing the working capacity but responding to periods of conservative treatment.

Grade-3: Continuing pain and spinal stiffness

which did not respond to conservative treatment.

(Table1)

| <i>Occupation</i> | <i>%</i> |
|-------------------|----------|
| Heavy manual work | 26% |
| Less heavy work | 45% |
| Sedentary work | 29% |

| <i>Distribution of Pain at The Time of Operation</i> | <i>% of Patients</i> |
|--|----------------------|
| Lumbar spine only | 1% |
| Lower limb only | 20% |
| Lumbar spine and lower limb | 79% |

(Table 5)

| | |
|---------------------------|------------|
| <i>Less Than 6 months</i> | <i>26%</i> |
| 6-12 Months | 16% |
| Over 1 Year | 58% |

(Table 7)

| <i>No. of Spaces Explored</i> | <i>%</i> |
|-------------------------------|----------|
| One space only | 63 |
| Two spaces | 46 |
| Three spaces | 4 |
| Four spaces | 1 |

(Table 9)

| <i>Type of Lesion</i> | <i>%</i> |
|--|----------|
| Definite protrusion with intact Ligamentous coverings | 47% |
| Sequestered disc with thin Coverings (sequestering on incision) | 18% |
| Sequestered disc with no coverings | 18% |

(Table 10)

| <i>Complication</i> | <i>Incidence</i> |
|---|------------------|
| Dural puncture and C.S.F. leak during operation | 6 % |
| Transient nerve root Damage | 1 % |
| Difficulty in passing urine | 6 % |
| Retention of urine | 3 % |
| Superficial Haematoma needing aspiration | 8 % |
| Superficial wound infection | 7 % |
| Deep vein thrombosis | 4 % |
| Pulmonary complications | 3% |
| Meningitis | 1 % |

(Table3)

(Table 2)

| <i>Distribution of Pain at The Onset</i> | <i>% of Patients</i> |
|--|----------------------|
| Lumbar spine only | 43% |
| Lower limb only | 18% |
| Lumbar spine and lower limb | 39% |

(Table 4)

| <i>Side Involved In Lower Limb Pain</i> | <i>% of Patients</i> |
|---|----------------------|
| Right | 40% |
| Left | 45% |
| Both | 15% |

(Table6) The Percentage of Clinical & Neurological Signs in Our Series

| <i>Limitation of Mobility of Lumbar Spine</i> | <i>100%</i> |
|---|-------------|
| Lumbar scoliosis | 22% |
| Positive neurological signs | 62% |
| Limitation of S.L.R. | 96% |

(Table 8)

| <i>Level of Protrusion</i> | <i>%</i> |
|----------------------------|----------|
| Fifth space | 56% |
| Fourth space | 30% |
| Double protrusions | 4% |
| Upper lumbar protrusions | 1% |

(Table11) Summarizes the Results of Operation in this Series

| <i>Grade</i> | <i>%</i> |
|--------------|----------|
| 1 | 77 % |
| 2 | 16 % |
| 3 | 7 % |

(Table 12) Operative Findings at Re-Explorations

| <i>Operative Findings</i> | <i>no. of cases</i> |
|---|---------------------|
| 1. Recurrence of original disc herniation | 6 |
| 2. Disc herniation at another level | 3 |
| 3. Root adherence | 11 |
| 4. Bony projections | 2 |
| 5. No abnormality | 2 |

(Table 13) Operative Findings at Re-explorations

| | Result in Grades | | | |
|--|------------------|---|---|---|
| | 1 | 2 | 3 | |
| No Pathology Discovered | 14 | 6 | 6 | 2 |
| Osteophyte or Adhesions Irritating the Root | 4 | 3 | 0 | 1 |
| Total | 18 | 9 | 6 | 3 |

(Table 14)

| Authors | Total Cases | % Age of Excellent Good and Fair Results | %Age of Poor Results |
|--|-------------|--|----------------------|
| Waddell G., <i>et al</i> (1) | 321 | 93.4 | 6.6 |
| Lehmann, T.R., & LaRocca, H.S.(2) | 277 | 92.0 | 8.0 |
| Finneson, B.E. & Cooper, V.R.(5) | 101 | 91.0 | 9.0 |
| Egbert,(3) L.D., Battit, G.E., Welch & Bartlet | 578 | 89.6 | 10.4 |
| Gentry, W.D.(6) | 150 | 89.3 | 10.7 |
| Hasue, M. & Fujiwara, M.(7) | 619 | 94.6 | 5.4 |
| Pheasant, H.C. & Dyck, P.(8) | 443 | 97.0 | 3.0 |
| Cauchoix, j., Ficat, C. & Girard, B.(4) | 767 | 93.2 | 6.8 |
| Present series | 100 | 93.0 | 7.0 |

(Table 15)

| Occupation | Results in Grades | | |
|------------|-------------------|-------|-------|
| | 1 | 11 | 111 |
| Heavy | 65% | 26.9% | 8.1% |
| Less heavy | 75% | 12.5% | 12.5% |
| sedentary | 82% | 18% | 0% |

(Table 16)

| Duration of Symptoms | Results in Grades | | |
|----------------------|-------------------|-------|------|
| | 1 | 11 | 111 |
| Less than 6 months | 91% | 4.5% | 4.5% |
| 6 months to 1 year | 70% | 20% | 10% |
| over 1 year | 74.7% | 18.5% | 6.8% |

Re-Explorations:-

In this series, 12 patients required re-exploration, 9 patients had only one re-exploration and 3 patients had two explorations each. One patient who had 1 re-exploration was subjected to sacro-iliac fusion which improved his symptoms but this patient never returned to work.

Out of this 15 re-exploration 6 were excellent or good, two in the improved category and 7 were failure, i.e. 40% of re-explorations was excellent or good and 46% were poor. Re-explorations definitely seem to have a bad prognosis.

Negative Explorations

In 18 patients the exploration was negative, in the sense that convincing disc protrusion was found.

The operative findings and result in these cases is as shown in **Table-13**.

Findings and results in negative explorations

Results in patients where some cause of nerve pressure was found (e.g. bony lip or adhesions) were better than in patients in whom no pathology was discovered at operation.

Discussion

The results in this series are similar to most of the series published so far. The results of lumbar disc surgery without spinal fusion have been compiled **Table-14**. Admittedly it is difficult to compare one's results with those of another because the criteria for judging good, fair and poor may differ. Majority of the authors have utilized a "Cured, satisfactory or poor" classification. When the results in the present series were compressed into this classification, there was no significant difference between this series and the series reported by other authors.⁽²⁾

Factors Influencing the Results

1. Age

The results in patients > 40 years of age were compared with the results in patients < 40 years..The difference was not significant.

2. Occupation

The effect of occupation on the results of operations was examined of the patients with heavy manual work only 65% were in Grade 1 as compared to the 82% in sedentary workers.

3. Duration of Pain

Of patients with symptoms of less than six months 91% were in Grade 1 as compared with 70% of patients with a longer history.

Re-exploration

The findings in 15 re- exploration in 12 patients are shown in **Table-11**. Only 50% of these patients had Grade1 result. Re-exploration carried bad prognosis in this series, the result was Grade 1 in most of these patients (5 out of 9 were in Grade 1). Clinical presentation or responses to treatment were not of any help in distinguishing between recurrent disc lesion and root adherence. The period of remission between operations perhaps may be significant, root adherence being more common in patients with incomplete remission than those who had enjoyed remission of symptoms.

Analysis of Patients with Recurrent Or Persistent Symptoms

As mentioned before, the rate of failure in this series was 7%. But if we consider who required

subsequent surgery the percentage of recurrence rises to 16%. Strictly speaking recurrence of symptoms due to disc prolapses at another level

should not be classed as recurrence. Considering this the recurrence rate falls to 13%. Factors thought to be responsible for the persistence or recurrences of symptoms in this series are discussed below.

Mistaken Diagnosis

There were 18 negative explorations in this series. The results were much less favorable in these patients than in those where a definite disc prolapse was found. The incidence of negative explorations varies between operative series (depending upon a number of factors such as the composition of series, the definition of negative explorations, and of surgical indications.), as follows:-

Lehmann, T.R and LaRocca, H.S. (1981)⁽²⁾ - 28%
Waddell, G., et al (1979)⁽¹⁾ -12.7%, Macnab, I (1971)⁽¹⁰⁾ -23%.

Authors who define "negative findings " as those cases in which no disc pathology of any kind is found have, of course, much lower figures, i.e. 0.5% to 3.4% .By this definition the incidence of negative exploration in this series was still considerably higher ,i.e. 14%. This suggests that selection of patients in this series was much more liberal. The frequency of disc herniation in patients with sciatica severe enough to indicate surgery, i.e. pure sciatica syndrome, was reported by Finneson, BE ⁽⁵⁾, (1979) to be 89%, and by Macnab, I ⁽¹⁰⁾ (1971) to be 83%. The latter also found disc prolapse in 60% of their patients with such severe sciatica that surgery was indicated, even though neurological signs were absent.

Many explanations have been sought, mainly mechanical in nature, for negative explorations. Macnab, I ⁽¹⁰⁾ (1971) suggested that lateral disc herniation in the inter-vertebral foramen is overlooked in ordinary exploratory surgery. Using fascetectomies, Lahmann TR and LaRocca, HS ⁽²⁾ (1981), demonstrated the occurrence of such prolepses. Waddell G *et al* ⁽¹⁾ (1979), established that root pressure can arise from a slight ventro-dorsal constriction of the foramen by disc prolapse or retro-position of a lumbar vertebra as a result of disc degeneration. Thickening of the ligamentum flavum was considered as a cause of root pressure Pheasant, HC and Dyck,P ⁽⁸⁾ (1982). This finding was reported with rather high frequency in operated series from early 1970', but its clinical significance was subsequently questioned.

The "concealed disc" concept introduced by Macnab I ⁽¹⁰⁾ (1971) was another attempt to explain negative explorations.

Macnab's observations received considerable support initially but were subsequently criticized by Cauchoix J Ficat C and Girard, B. ⁽⁴⁾, (1978).

It has also been stated that many negative explorations arise from surgeons' failure to localize the prolapse, often on account of migrating sequestra (Finnegan, WJ *et al* ⁽⁹⁾ 1979). There is a wealth of evidence to show that the results of surgical treatment for severe sciatica are dependant upon whether or not mechanical root pressure is discovered and eliminated, (Finneson, BE and Cooper VR ⁽⁵⁾ 1979).

The importance of good pre-operative diagnosis is therefore obvious. There were 3 patients in this series in which the symptoms could have been due to pathology other than disc prolapse. In one patient exploration of the lower two disc spaces revealed no prolapse and 6 months later she was subjected to another exploration at which the S-1 root was found adherent to, and compressed by, an osteophyte from the upper border of the sacrum. This patient had a defect in the pars interarticularis of the 4th lumbar vertebra, and the two negative explorations which failed to relieve the symptoms suggest that the instability of the 4th lumbar vertebra was responsible for the symptoms that she suffered.

There were two patients in this series in which a large protrusion was found at exploration and was removed. The symptoms recurred after initial relief for two months in one patient and after 4 years in another. Re-exploration was negative in both these patients and failed to relieve the symptoms. Both had pain on rotation of hip, and radiology showed osteoarthritis of hip. It seems that earlier recognition of this could have avoided re-exploration in these two patients.

The symptomatology for an L4 syndrome is very similar to that seen in osteoarthritis of hip, with pain and tenderness in the adductor muscles and the front of the thigh, and impairment of patellar reflex due to atrophy of the quadriceps.

Furthermore, some patients who initially appear to present, a definite L4 syndrome develop hip arthrosis in the course of a few years. One of the two patients with osteoarthritis of hip was thought to have 3rd space protrusion but re-exploration of the lower three spaces was negative.

Further Prolapse of Disc Material

The recurrent prolapse was at the same space in 6 patients and in 3 patients the recurrent prolapse was at another level. This incidence of proportion of recurrent prolapse at different and same level is as reported in other series (Hasue M and Fujiwara M ⁽⁷⁾ 1979) Mac nab, ⁽¹⁰⁾ I. (1971) states that the results do not differ whether the whole disc was evacuated or not at the time of removal of

prolapse. This may be so, but it appears from the high percentage of recurrence in this series that disc evacuation is necessary.

Failure to Recognize Double Lesion

It is thought this was 'the reason' for persistence of symptoms in one patient. At first exploration a small unconvincing bulge at the 4th space was incised but the disc did not extrude.

A very inadequate quantity of disc tissue was removed from this space. The 5th space was normal. Having enjoyed relief for 1.5 year the symptoms recurred again and at re-exploration only the 5th space was explored, which revealed only root adhesions. This exploration failed to relieve her symptoms. From her present clinical status it appears that she is suffering from a further root pressure.

The incidence of double lesion varies in different series from 5% to 20%. There were only two instances of double lesions in this series, but considering that only 46 patients had two disc spaces explored, the true incidence of double lesions may be higher.

Failure to Find the Disc

This happened definitely in one patient in whom the protrusion was very lateral, and was exposed only after foramenotomy at re-exploration. Some authors have routinely done foramenotomy at the time of disc removal and have claimed somewhat better results (Waddell G *et al* ⁽¹⁾ 1979). These authors state that, where the nerve root could not be retracted easily because of pressure from the underlying disc, foramenotomy done initially facilitated displacement of the root and exposure of the disc, but the main purpose of foramenotomy is to avoid symptoms secondary to post-operative root edema.

Root Adhesions

After the operation the root always tends to adhere to the scar of the trunk from which the diseased disc material was removed. This always happens and is unavoidable to some extent.

The root is liable to adhere particularly to nuclear tissue, to tags of annulus fibrosus, to posterior longitudinal ligament (Cauchoix J Ficat C ⁽⁴⁾, 1978). In a few cases no disc protrusion is found but the root is adherent to surrounding structures. Lehmann, TR and LaRocca ⁽²⁾ HS (1981) attribute this to long- standing repeated episodes of leakage of disc material into the canal. In most of the patients root adhesions were found at re-exploration. It is thought that these adhesions were the cause of poor result in at least 5 patients.

Permanent Root Damage

In one patient diminution of sensation of the outer border of the foot was unchanged by removal of a large protrusion from the 5th space.

He had a history of sciatic symptoms of long duration. It may be that the removal of prolapse was delayed too long.

Conclusion

A follow –up and results of 100 cases operated upon for lumbar disc prolapse is presented.

It is concluded that in the majority of instances the causes of persistence of symptoms are beyond the control of the surgeon. It must be appreciated that not all the cases of sciatica are due to disc prolapse, which is only one of the manifestations of lumbar disc degeneration.

Results of operation depend largely upon whether a disc prolapse was found and removed. Naturally accurate diagnosis is essential before embarking on operative treatment. At present there is no method which will give 100% accurate pre-operative Re-exploration carries a bad prognosis but if a disc prolapse is found at re-exploration then the result is much more favorable than in lower extremity but a large number of patients continue to suffer from further backache and a few from further leg pain of varying intensity . Diagnosis of disc prolapses in a negative re-exploration. Removal of disc prolapse is effective in most instances in relieving the pain in lower number of patients continue to suffer from further backache and a few from further leg pain of varying intensity.

Surgical removal of prolapsed disc material is not the perfect solution to the problem but is a satisfactory one as compared to other methods.

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