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Clinical presentation of sciatica in South Indian population

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Abstract

Background: Lumbar disc herniation is a multi-factorial problem and its etiology is still an enigma. Patients with lumbar disc herniation are commonly seen in day to day clinical practice and it has been suggested that the probability of symptoms resolving with conservative treatment decreases progressively with time. The present study was carried out to clinically evaluate the pattern of presentation of lumbar disc herniation.

Methods: This cross sectional study was carried out among 50 patients diagnosed with lumbar disc herniation based on symptomatology and clinical evaluation. Radiological confirmation of the diagnosis was made. The participants were grouped into three categories based on the duration of illness.

Results: Majority of the participants belonged to the age group of 36.89 years. The duration of symptoms was <6 months for 38% of the participants. Overall, pain was the most prominent symptom among all the participants, followed by altered sensation and then with weakness. Severe pain was witnessed among those with >12 months of symptoms. At all times of clinical presentation, L4-L5 segment were commonly involved.

Conclusion: The present study has documented increase in the complications like sensory and motor deficits with prolonged duration of symptoms. It is therefore essential that due awareness be created among the occupational sections so as to minimize the need for surgical interventions.

Keywords: Lumbar disc herniation, sciatica, motor deficit, paraspinal spasm

Introduction

Lumbar disc herniation is a multi-factorial problem and its etiology is still an enigma. Patients with lumbar disc herniation are commonly seen in day to day clinical practice and a majority of these patients respond to non-operative methods of management and rarely require any form of surgical intervention^[1]. The disease burden has been seldom documented in literature in India. According to certain studies, the prevalence of lumbar disc herniation has been estimated as 1%-3%. The clinical symptomatology has been largely restricted to middle age group, among people aged between 30-50 years^[2].

Although the reason for symptomatic improvement remains elusive, Haro *et al.*^[3] proposed a local inflammatory process in the epidural space which possibly stimulates host macrophages to resorb the displaced disc tissue, this has been contemplated as a probable reason. It has been suggested that the probability of symptoms resolving with conservative treatment decreases progressively with time^[4] In many studies prolonged morbidity has been regarded as a negative predictor^[5, 11]. However some have contradicted this impression^[12, 13].

It is often difficult to determine the natural history of the disease, since a wide range of open-ended treatment options are available in the Indian setting. Studies have shown that only 10% of these patients require surgical management^[2]. However, it is potentially dangerous to carry out conservative treatment in all patients with herniated discs, especially because many reports indicate that patients with long standing pre-operative symptoms have fewer chances of obtaining satisfactory results from surgery than those whose symptoms are of short duration^[6, 14, 15]. Therefore, the need for documenting the epidemiology and clinical presentation of lumbar disc herniation is essential, so as to effectively devise strategies for deciding on the intervention required. The present study was carried out to evaluate the clinical presentation of lumbar disc herniation in a single institution set-up in South India.

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Methodology

Study setting and participants

The present study was carried out as a cross sectional study in the Department of Orthopedics of a tertiary teaching institution for a period of one year. All the patients who presented during the study period with sciatica in the absence of any co-existing disc pathology and diagnosed with lumbar disc herniation constituted the study population.

Ethical approval and informed consent

Approval was obtained from the Institutional Ethics Committee prior to the commencement of the study. Each participant was explained in detail about the study and informed consent was obtained prior to data collection.

Data collection

A structured interview schedule was used to obtain information regarding the clinical presentation, symptomatology. A detailed clinical examination was carried out by the principal investigator to document clinical findings.

Data analysis

Data was entered and analyzed using Microsoft Excel spreadsheet 2010. The clinical symptoms and pattern of presentation were expressed as percentages.

Results

A total of 50 patients were included in study out of which 19 patients were in sub cohort A with duration of sciatica less than 6 months and 16 in sub cohort B with duration of sciatica 6 months- 12 months and 15 in sub cohort C with duration of sciatica more than 12 months.

Majority of the participants belonged to the age group of 36.89 years. The duration of symptoms was <6 months for 38% of the participants while the duration lasted for 6-12 months among 32% of the participants (table 1)

In correlation with the duration of symptoms, it was observed that majority of the participants who witnessed symptoms for <6 months were males (84.21%) while among those who witnessed symptoms for 6-12 months, majority were females (31.25%). Among those with over a year of symptoms, majority were males (60%). (Table 2)

Overall, pain was the most prominent symptom among all the participants, followed by altered sensation and then with weakness. The symptomatology was increasingly prominent in <6 months duration while severe pain was witnessed among those with >12 months of symptoms. (Table 3)

The most predominant clinical sign observed <12 months was paraspinal muscle spasm and nerve tension signs while in those with >12 months of symptoms, sensory and motor deficit were evident (80% and 86.67% respectively). (Table 4) At all times of clinical presentation, L4-L5 segment were commonly involved (73.68% for those <6 months), (75% for those with 6-12 months of symptoms) and 73.33% for those with symptoms over one year. (Table 5/ figure 1&2)

Discussion

In this study the difference in mean age of the patients among sub cohort A and B was significant and the difference in mean age was not significant among sub cohort A vs. C and B vs. C. Sub cohort A comprises younger population when compared to sub cohort B and C. In sub cohort A 84.21% of patients are males which is more than that of sub cohort B and C. In sub cohort B and C 68.75% and 60% of patients are males respectively. In all the three sub cohorts pain is the

predominant presenting complaint and other associated complaints like altered sensation, weakness of limbs are present only in very few cases. In this study it was found that par spinal muscle spasm and nerve tension signs are present in more number of patients in sub cohort A when compared with sub cohort B and C. It is common to have sensory and motor deficits in patients of long-standing duration of sciatica. In this study it was found that the level of disc involved is equally distributed among the various sub cohorts. It is also observed L4-L5 disc is more commonly involved than L5S1 disc in all the sub cohorts.

Very few studies have documented the epidemiological presentation of lumbar disc herniation among the Indian population. In a study done by Kuppusamy S *et al.*, the mean age of the participants was 43.7 years, similar to the present study. L4-L5 was the most commonly affected segment of lumbar herniation, similar to the present study [16]. The etiopathogenesis of lumbar herniation has been widely discussed and it has been established that various mechanical and physiological factors including the presence of acidic environment and axial overload play a role in the causation of the symptoms. While pain has been the most common symptom established, focal paresis and motor deficits are also witnessed, with prolonged duration of illness [17].

Table 1: Age distribution of the participants based on the duration of symptoms:

Sub cohort	N	Mean age	Minimum	Maximum
A (< 6 months)	19	36.89	20	66
B (6-12 months)	16	46.06	30	75
C(> 12 months)	15	42.00	32	51

Table 2: Gender distribution of the study participants based on the duration of symptoms:

Sub cohort	N	Male patients (%)	Female patients (%)
A (< 6 months)	19	84.21	15.79
B(6-12 months)	16	68.75	31.25
C(>12 months)	15	60	40

Table 3: Clinical symptomatology of the study participants based on the duration of symptoms:

Sub cohort	Pain (%)	Pain and altered sensation (%)	Pain and weakness (%)	Pain altered sensation& weakness (%)
A(<6 months)	84.21	15.79	0	0
B(6-12 months)	81.25	6.25	6.25	6.25
C(>12 months)	93.33	6.67	0	0

Table 4: Clinical signs based on the duration of symptoms:

Sub cohort	Para spinal muscle spasm (%)	Nerve tension signs (%)	Sensory deficit (%)	Motor deficit (%)
A(<6 months)	94.73	94.73	63.15	57.89
B(6-12 months)	93.75	80	68.75	62.5
C(>12 months)	73.33	66.67	80	86.67

Table 5: Level of disc involvement among the study participants:

Sub cohort	N	Level of disc	Frequency	Percentage
A(< 6 months)	19	L4-L5	14	73.68
		L5-S1	5	26.32
B(6-12 months)	16	L4-L5	12	75
		L5-S1	4	25
C(>12 months)	15	L4-L5	11	73.33
		L5-S1	4	26.67



Fig 1: T2 axial L4L5 left Para median protrusion compressing left L5 nerve root

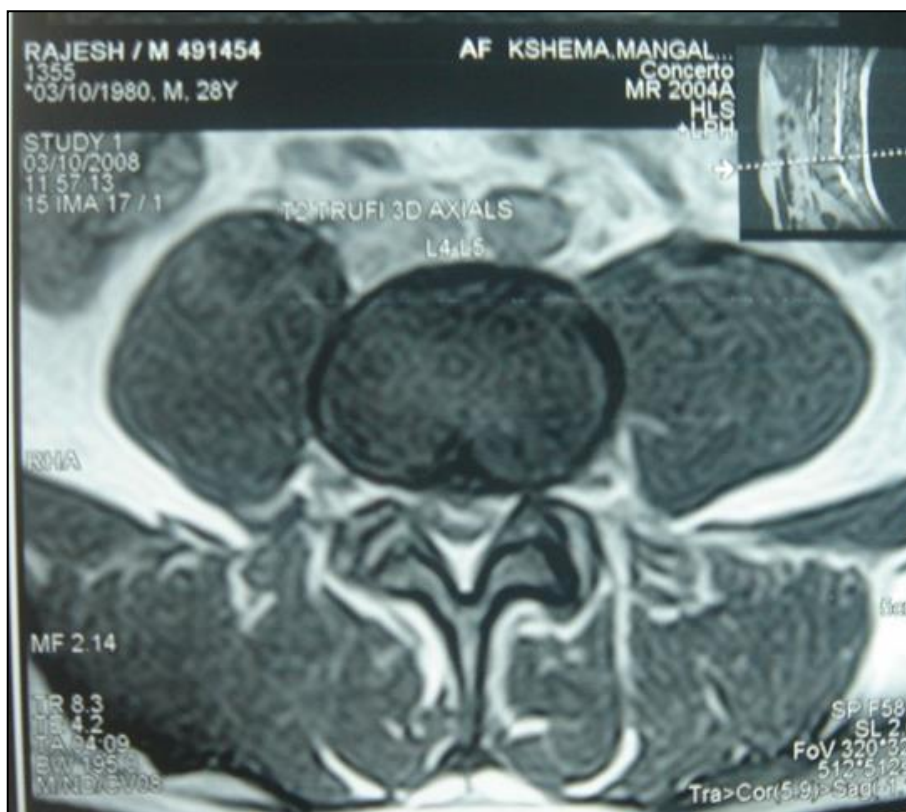


Fig 2: T2 axial L4L5 left Para median protrusion compressing left L5 nerve root

Conclusion

Lumbar disc herniation is a frequent, yet elusive orthopedic challenge which warrants careful weighing of symptomatology and clinical signs. The present study has documented increase in the complications like sensory and motor deficits with prolonged duration of symptoms. It is therefore essential that due awareness be created among the occupational sections, on appropriate posturing and movements, to prevent lumbar disc herniation and also to detect at earlier stages, so as to minimize the need for surgical interventions.

Declaration

Conflict of interest: nil

Funding: nil

Ethical approval: obtained

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