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Lumbar Spinal Stenosis: An Update on the Epidemiology, Diagnosis and Operative Complication

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Abstract

Background

Lumbar spinal canal stenosis is one of the most important causes of Low Back Pain & it is the frequent cause of disability. When conservative treatments fail, surgery is the only way to treat this patients & different surgical procedure are there. Posterior decompression by Laminotomy, Laminectomy, Foraminotomy is common operation for spinal canal stenosis in our country.

Objective

The aim of this study was to assess the epidemiology, clinical feature, diagnosis and operative complcation of the lumbar spinal stenosis patients.

Methods

This Prospective Interventional Study study was carried out among 28 patients attending at the department of Orthopaedic Surgery at Dhaka Medical College Hospital, Bangladesh Spine & Orthopaedic Hospital (BSOH), Al-Manar Hospital Ltd, Dhaka for the treatment of lumbar spinal canal stenosis within the defined period from January 2022 to December 2022. Ethical clearance was obtained from the Institutional Review Board (IRB) of DMCH. Purposive sampling was done according to availability of the patients. Statistical analyses of the results were obtained by using window based computer software devised with Statistical Packages for Social Sciences (SPSS-20.1).

Results

Mean age of the patients was 51.32±8.29 years and the ranges were 40-70 years where maximum belonged to 40-49 years of age (42.86%). Greater part of the patients was female 60.71% with a female: Male ratio 1.6 :1. Maximum patients were Housewife 57.14% and manual worker 32.14%. All of the study patients had low back pain and 85.71% had leg pain. 92.86% patients had Neurogenic claudication. Motor weakness in lower extremities were seen in 22 patients (78.57%) & Sensory changes were seen in 21 patients (75.00%). Most commonly involved intervertebral disc level was L4/L5 (39.29%) & less in L2/3, 3/4 (3.57%). operative complications were seen in 2 patients (7.14%) where in 2 patients (7.14%) developed superficial wound infection post-operatively.

Conclusion

Lumbar spinal stenosis (LSS) is a common spinal disorder in the older population. All of the study patients had low back pain. Most commonly involved intervertebral disc level was L4/L5. Operative complications were seen in only 2 patients.

Keywords: Lumbar Spinal Stenosis, Epidemiology, Clinical Feature

Introduction

Approximately 75% to 80% of the adult population may experience low back pain (LBP) at least once in their lifetime [1]. The common musculoskeletal condition which affects adult population today is Low back pain (LBP). Chronic LBP (CLBP) is a syndrome in which there is pain in lower back region, which lasts minimum 12 weeks. Degenerative lumbar spine disorders comprise the major proportion of etiology of chronic low back pain in adult population, which often leads to serious disability to carry out daily routine activities. These conditions are often managed initially using conservative treatment like NSAIDs,

rest, muscle strengthening exercises, lumbosacral brace [2]. The management options for patients with degenerative lumbar disease have evolved over the decades with variable results of the different options published globally [3].

Materials & Method

This Prospective Interventional Study study was carried out among 28 patients attending at the department of Orthopaedic Surgery at Dhaka Medical College Hospital, Bangladesh Spine & Orthopaedic Hospital (BSOH), Al-Manar Hospital Ltd, Dhaka for the treatment of lumbar spinal canal stenosis within the defined period from January 2022 to December 2022. Ethical clearance was obtained from the Institutional Review Board (IRB) of DMCH. Purposive sampling was done according to availability of the patients. The collected data were entered into the computer and analyzed by using SPSS (version 20.1) to assess the epidemiology, clinical feature, diagnosis and treatment of the lumbar spinal stenosis patients.

Results

Mean age of the patients was 51.32±8.29 years and the ranges were 40-70 years where maximum belonged to 40-49 years of age (42.86%) (Table 1).

Table 1: Distribution of the study patients (n=28)

Age (years)	Number	percentage
40-49	12	42.86%
50-59	9	32.14%
≥60	7	25%
Total	28	100%

Greater part of the patients was female 60.71% with a female: Male ratio 1.6 :1. (Table 2).

Table 2: Gender distribution of the study population (n=28)

Gender	Number	percentage
Female	17	60.71%
Male	11	39.29%
Total	28	100%

Maximum patients were Housewife 57.14% and manual worker 32.14% (Table 3).

Table 3: Occupation of the study population (n=28)

Occupation	Number	percentage
Manual worker	9	32.14%
Housewife	16	57.14%
Sedentary worker	3	10.72%
Total	28	100%

All of the study patients had low back pain and 85.71% had leg pain. 92.86% patients had Neurogenic claudication. Motor weakness in lower extremities were seen in 22 patients (78.57%) & Sensory changes were seen in 21 patients (75.00%) (Table 4).

Table 4: Clinical manifestations of the study population (n=28)

Clinical manifestations*	Frequency (n)	percentage
Low back pain	28	100
Leg pain	24	85.71
Neurogenic claudication	26	92.86
Motor weakness	22	78.57
Sensory disturbances	21	75.00

Most commonly involved intervertebral disc level was L4/L5 (39.29%) & less in L2/3, 3/4 (3.57%) (Table 5).

Table 5: Level of intervertebral disc space involvement of the study population (n= 28)

Disc space	Frequency (n)	percentage
L3/4,4/5,5/S1	7	25
L4/5, L5/S1	2	7.14
L3/4	1	3.57
L4/5	11	39.29
L5/S1	5	17.86
L2/3,3/4,4/5,5/S1	1	3.57
Total	**28**	**100**

Operative complications were seen in 2 patients (7.14%) wherein 2 patients (7.14%) developed superficial wound infection post-operatively. (Table 6)

Table 6: Operative complications of the study population (n=28)

Operative complications	Frequency (n)	percentage
Superficial wound infection	2	7.14
Damage to the dura	0	0
Nerve root injury	0	0
Total	2	7.14

Discussion

In our study mean age of the patients was 51.32±8.29 years and the range were 40-70 where maximum belonged to 40-49 years of age (42.86%). Similar result was found by Murthy & Reddy (2016) where maximum patients were in the age group of 41-50 years (36.7%) followed by 51-60 years(33.3%) [4]. In our study greater part of the patients were female 60.71% with a female: Male ratio 1.6 :1.Murthy & Reddy (2016) found male 46.7% and female 53.3% which is almost similar to our study [4]. In our study maximum patients were Housewife 57.14% and manual worker 32.14%. Hossain *et al*. (2021) in their study found 65% patients were housewife &20% patients were sedentary worker and 15% patients were manual worker [5]. Almost similar result was found by Aziz & Aziz 2022 [6].

Regarding clinical manifestation, all of the study patients had low back pain and 85.71% had leg pain. 92.86% patients had Neurogenic claudication. Motor weakness in lower extremities were seen in 22 patients (78.57%) & Sensory changes were seen in 21 patients (75.00%). Almost similar findings were observed by Hossain *et al*. (2021) where 100% patient had LBP, 85% had radiculopathy and 70% patient had both sensory & motor involvement [5].

In our study, 60.72% patients had only a single level involvement while 39.28% patients had multi-level involvement. Murthy & Reddy 2016 found nearly similar result where single level involvement was 80% & multilevel was 20% [4]. Hossain *et al*. 2021 in their study found 3 patient of desiccated disc and 17 patients of degenerated spondylolisthesis. Among desiccated disc, 1 patient at L3/L4, 1 patient at L4/L5 and 1 patient at L5/S1.Amongspondylolisthesis 10 patient at L4/L5 and 7 patients at L5/S1 [6]. In our study we also found 12 patients spondylolisthesis at L4/L5 and 7 patients at L5/S1 which almost similar. Operative complications were seen in 2 patients (7.14%) where in 2 patients (7.14%) developed superficial wound infection post-operatively. Okuda *et al*. (2006) in their study found only 1(0.4%) patient developed superficial wound infection [7].

Conclusion

Lumbar spinal stenosis (LSS) is a common spinal disorder in the older population. All of the study patients had low back pain. Most commonly involved intervertebral disc level was L4/L5. Operative complications were seen in only 2 patients.

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Conflict of Interest

Authors declare no conflict of Interest.

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