



ORIGINAL ARTICLE

## Status of Patients Presented with Different Spinal Pathologies: Experience of One Year at Referral Neuroscience Hospital in Bangladesh

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### Abstract

**Background:** Several spinal diseases are admitted in the hospital for the management. **Objective:** The purpose of the present study was to assess the status of patients presented with different spinal pathologies admitted at referral neuroscience hospital in Bangladesh. **Methodology:** This retrospective cross-sectional study was conducted in the Department of Neurosurgical spine at National Institute of Neurosciences and Hospital, Dhaka, Bangladesh from January 2022 to December 2022 for a period of one year. All the patients with any age presented with spinal complain like pain, movement restriction or bony destruction were selected for this study. The patients with traumatic injury to the spine were excluded from this study. The details of the patients were recorded for this study. The management of the patients were performed according to the treatment protocol of this institute. **Results:** A total number of 463 patients were admitted in the Department of Neurosurgery Spine during the study period. Among these, 357 cases were treated with surgery and the rest 106 cases were managed under conservative treatment. The mean age group of this study population was  $35.2 \pm 15.3$  years with the age range of 21 to 71 years. The male and female ratio was 1.5:1. Among 463 cases surgery was performed in majority of cases which was 357 cases and the rest of 106 cases were managed by conservative treatment. Most of the spinal cord pathologies were detected in the lumber region which was 251(70.3%) cases. Spinal cord pathologies in cervical region was reported in 69(19.3%) cases. However, others are reported in 37(10.4%) cases. **Conclusion:** In conclusion the middle age male patients are most commonly presented with the spinal pathologies and the lumber region is the most common site of pathologies. [*Journal of Current and Advance Medical Research, July 2023;10(2):70-74*]

**Keywords:** Spinal Pathologies; spinal surgery; spinal cord lesion

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### Introduction

Spinal cord lesion (SCL) is sudden and unexpected. It can be devastating and costly in human and social terms<sup>1</sup>. Owing to inadequate services, most people with Spinal cord lesion in low-resource countries died within 2 years of acquiring spinal

injury<sup>2</sup>. Spinal cord lesion continues to be a major cause of disability throughout Asia as well as in Bangladesh<sup>3-4</sup>. Patients who have Spinal cord lesion, very often develop life-threatening complications<sup>3</sup>. These patients can, however, be assisted to regain integration within the community by appropriate treatment and specialized

rehabilitation<sup>5</sup>. In Bangladesh, there is no specialized government hospital for the treatment and rehabilitation of people with spinal cord lesion. The only one non-government organization is the Centre for the Rehabilitation of the Paralyzed, which has been working in this field for the last 30 years. This could, therefore, be seen as an area not receiving due attention by the government, leaving the treatment and rehabilitation of these patients mainly to non-government organizations.

Spinal cord injury is one of the most debilitating and devastating injuries in the world<sup>6</sup>. It is a catastrophic and devastating condition that often affecting healthy and young individual. This debilitating condition not only creates enormous physical disability but also emotionally depress the patient. It causes important changes within an individual physical and psychological relationship with their environment. Some of the changes involve the loss of motor function, inability to control bladder and bowel function and the vitiated sexual functioning. It also has an impact on quality of life, life expectancy and economic burden<sup>7</sup>. In respect to this changes they are likely to have profound effect of an individual social and interpersonal relationship within their community<sup>8</sup>. It is one of the most serious injuries that a person can survive. It is probably the most devastating of all the illness that can befall man. Internationally incidence rate for SCI range from 10.4 to 83 case per millions of population, with significant difference between different country or region<sup>9</sup>. There are no effective restorative therapies for SCI as yet, so prevention is the best medicine at present. The purpose of the present study was to assess the status of patients presented with different spinal pathologies admitted at referral neuroscience hospital in Bangladesh.

## Methodology

**Study Settings and Population:** This retrospective cross-sectional study was conducted in the Department of Neurosurgical spine at National Institute of Neurosciences and Hospital, Dhaka, Bangladesh from January 2022 to December 2022 for a period of one year. All the patients with any age presented with spinal complain like pain, movement restriction or bony destruction were selected for this study. The patients with traumatic injury to the spine were excluded from this study.

**Study Procedure:** The details of the patients were recorded for this study. The management of the patients were performed according to the treatment protocol of this institute. After surgery the

specimens were sent to the Department of Neuropathology at National Institute of Neurosciences and Hospital, Dhaka, Bangladesh and were tested for histopathological examination. The findings of the histopathological test were recorded. The morbidity and mortality were assessed among the patients. The study included patients with non-traumatic spinal cord lesion as well as those with cauda equina syndrome while excluding those who could not communicate or had SCI attributable to congenital causes such as spina bifida, motor neuron disease, multiple sclerosis, or peripheral nerve damage like Guillain-Barre syndrome or poliomyelitis. Basic demographic and clinical information, including address and cell phone number, was collected from the medical records using a semi-structured questionnaire.

**Statistical Analysis:** Statistical analysis was performed by Windows based software named as Statistical Package for Social Science (SPSS), versions 22.0 (IBM SPSS Statistics for Windows, Version 22.0. Armonk, NY: IBM Corp.). Continuous data were expressed as mean, standard deviation, minimum and maximum. Categorical data were summarized in terms of frequency counts and percentages. Every effort was made to obtain missing data.

**Ethical Clearance:** This study was approved by the institute. The patients were not required to provide consent for participation in this study. All methods in this study were carried out in accordance with relevant guidelines and regulations of studies involving human beings. Because the data were extracted from the data base registry system, we did not consent the study participants, but the dataset was kept in confidential folder and was de-identified (no names extracted).

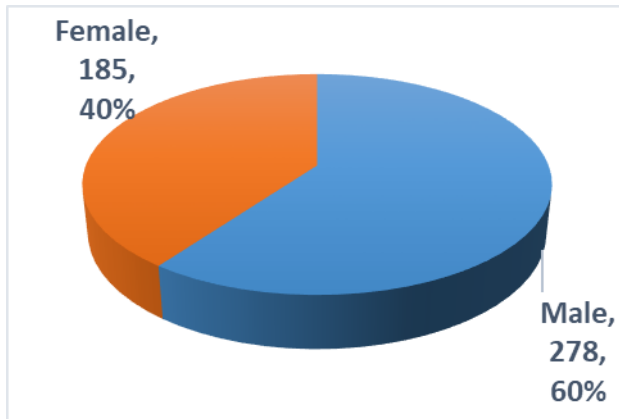
## Results

A total number of 463 patients were admitted in the Department of Neurosurgery Spine during the study period. Among these, 357 cases were treated with surgery and the rest 106 cases were managed under conservative treatment.

The most common age group were 18 to 40 years which was 273(58.9%) cases followed by 40 to 60 years and more than 60 years which were 138(29.8%) cases and 52(11.3%) cases respectively. The mean age group of this study population was 35.2±15.3 years with the age range of 21 to 71 years (Table 1).

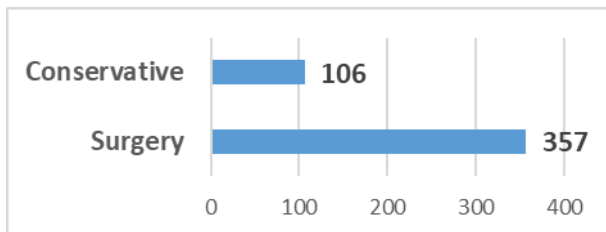
**Table 1: Age Group Distribution of the Study Population (n=463)**

Age Group	Frequency	Percent
18 to 40 Years	273	58.9
40 to 60 Years	138	29.8
More than 60 Years	52	11.3
<b>Total</b>	<b>463</b>	<b>100.0</b>
<b>Mean±SD (Years)</b>	35.2±15.3 (21 to 71)	

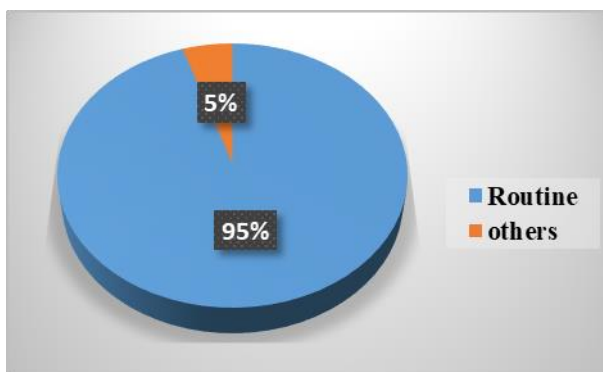


**Figure I: Gender Distribution among the Study Population (n=463)**

Among 463 cases majority were male which was 278(60.0%) cases and the rest of 185(40.0%) cases were female. The male and female ratio was 1.5:1 (Figure I).



**Figure II: Management of Study Population (n=463)**



**Figure III: Surgical Option among the Study Population (n=357)**

Among 463 cases surgery was performed in majority of cases which was 357 cases and the rest of 106 cases were managed by conservative treatment (Figure II).

The surgery was performed either elective surgery or emergency surgery. Most of the patients were operated by routine or elective surgery which was 95.0% cases and the rest of 5.0% cases were emergency surgery (Figure III).

**Table 2: Lesion of Different Location of Spine (n=357)**

Location	Frequency	Percent
Lumbar	251	70.3
Cervical	69	19.3
Others	37	10.4
<b>Total</b>	<b>357</b>	<b>100</b>

Most of the spinal cord pathologies were detected in the lumbar region which was 251(70.3%) cases. Spinal cord pathologies in cervical region was reported in 69(19.3%) cases. However, others are reported in 37(10.4%) cases (Table 2).

**Discussion**

A total number of 463 patients were admitted in the Department of Neurosurgery Spine during the study period. Among these, 357 cases were treated with surgery and the rest 106 cases were managed under conservative treatment. The most common age group were 18 to 40 years which was 273(58.9%) cases followed by 40 to 60 years and more than 60 years which were 138(29.8%) cases and 52(11.3%) cases respectively. The mean age group of this study population was 35.2±15.3 years with the age range of 21 to 71 years. Among 463 cases majority were male which was 278(60.0%) cases and the rest of 185(40.0%) cases were female. The male and female ratio was 1.5:1. Similar study has been conducted by Majumder et al<sup>10</sup> and the study has been added that age is a factor associated with LBP in this study.

The prevalence of LBP persistently increased with age but this was not statistically significant. This is in consistent with the present study. However, an analysis reported that the risk and prevalence of LBP increased with age<sup>7</sup> which is not consistent with the present study. There is a systematic review on global prevalence of LBP which has revealed the association of age and it is highest in the 40 to 49 age group<sup>11</sup>. This is in consistent with the present study. The overall prevalence rises with age 65,

which gradually reduces thereafter<sup>9</sup>. Some possible explanations are LBP characteristics in older adults that differ from the middle-aged population less intense back pain, more leg pain and more depression<sup>12</sup>. Among 463 cases surgery was performed in majority of cases which was 357 cases and the rest of 106 cases were managed by conservative treatment. The surgery was performed either elective surgery or emergency surgery. Most of the patients were operated by routine or elective surgery which was 95.0% cases and the rest of 5.0% cases were emergency surgery.

The surgical treatment of these cases are mostly elective and are preplanned as because these are not emergency cases like injury to the spinal cord. This leads to the routine surgery among the patients. Few of them need emergency surgery which is due to unavoidable situation during observational period. Similar report has been published by Islam et al and have mentioned that the emergency surgeries are performed when there is a road traffic accident or fall from height. In this present study the traumatic injury of the spinal cord has been excluded. Therefore, the routine surgeries are more common in this study.

Most of the spinal cord pathologies were detected in the lumbar region which was 251(70.3%) cases. Spinal cord pathologies in cervical region was reported in 69(19.3%) cases. However, others are reported in 37(10.4%) cases. The most of the patients are presented with weight bearing areas which is most likely the lumbar region. This is consistent with the study of Hoque et al<sup>12</sup> where the most of the lesion have been found in the lumbar region. The lumbar region is vulnerable than other region of spinal cord considering the injury or pressure effects.

## Conclusion

In conclusion the middle age group are most commonly presented with the spinal pathologies. In this study male is predominant than female. The elective surgeries are most commonly performed among the study population. The lumbar region is the most common site of pathologies which is observed among the patients. Further large scale study should be carried out to get the real scenario.

## Acknowledgements

None

## Conflict of Interest

The authors declare no conflicts of interest.

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**Contributions to authors:** Conception and design: Khan YF, Khan MSK; Acquisition, analysis, and interpretation of data: Khan MSK, Alam MS; Manuscript drafting and revising it critically: Khan YF, Khan MSK, Alam MS; Approval of the final version of the manuscript: Khan YF; Guarantor accuracy and integrity of the work: Khan YF

## Data Availability

Any inquiries regarding supporting data availability of this study should be directed to the corresponding author and are available from the corresponding author on reasonable request.

## Ethics Approval and Consent to Participate

Ethical approval for the study was obtained from the Institutional Review Board. As this was a retrospective study the written informed consent was not obtained from all study participants. All methods were performed in accordance with the relevant guidelines and regulations.

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## References

1. Cripps RA. Spinal cord injury, Australia, 2006–07 [serial online] 2009 [cited 20 November 2010]. Available from: <http://www.aihw.gov.au/publications/inj/scia06-07/scia06-07.pdf>
2. Momin AKM. The University of Leeds The level of integration of people with spinal cord lesion in Bangladesh. 2003.
3. Muldoon M, Muldoon S. Asian spinal cord injury network – current status. [serial online] [cited 20 November 2010]. Available from: <http://www.scs-isic.com/abstract/22.pdf>.
4. Hoque MF, Grangeon C, Reed K. Spinal Cord Lesions in Bangladesh: an epidemiological study 1994–1995. *Spinal Cord* 1999;37: 858–861.
5. Singh R, Sharma SC, Mittal R, Sharma A. Traumatic spinal cord injury in Haryana: an epidemiological study. *Indian J Community Med* 2003;28:184–186

6. Islam MS, Hafez MA, Akter M. Characterization of spinal cord lesion in patients attending a specialized rehabilitation center in Bangladesh. *Spinal cord*. 2011;49(7):783-6.
7. de Schepper EI, Koes BW, Veldhuizen EF, Oei EH, Bierma-Zeinstra SM, Luijsterburg PA. Prevalence of spinal pathology in patients presenting for lumbar MRI as referred from general practice. *Family practice*. 2016;33(1):51-6
8. Pochon L, Kleinstück FS, Porchet F, Mannion AF. Influence of gender on patient-oriented outcomes in spine surgery. *European Spine Journal*. 2016;25:235-46
9. Tanenbaum JE, Alentado VJ, Miller JA, Lubelski D, Benzel EC, Mroz TE. Association between insurance status and patient safety in the lumbar spine fusion population. *The Spine Journal*. 2017;17(3):338-45.
10. Majumder MS, Hakim F, Bandhan IH, Razzaque MA, Zahid-Al-Quadir A, Ahmed S, et al. Low back pain in the Bangladeshi adult population: a cross-sectional national survey. *BMJ open*. 2022;12(9):e059192.
11. Islam MS, Hafez MA, Akter M. Characterization of spinal cord lesion in patients attending a specialized rehabilitation center in Bangladesh. *Spinal cord*. 2011;49(7):783-6.
12. Hoque MF, Grangeon C, Reed K. Spinal cord lesions in Bangladesh: an epidemiological study 1994–1995. *Spinal cord*. 1999;37(12):858-61