



International Journal of Allied Medical Sciences and Clinical Research (IJAMSCR)

ISSN:2347-6567

IJAMSCR |Volume 7 | Issue 4 | Oct - Dec - 2019
www.ijamscr.com

Research article

Medical research

Factors affecting delay in diagnosis and surgery of patients presenting with typical signs and symptoms of cervical spondylotic myelopathy in rural population

Aishwarya R, Dr.Sathish Anand V S, Dr. Nandhish H S, Dr.Thanga Thirupathi Rajan

Department of Neurosurgery, Saveetha Medical College and Hospital, Chennai, Tamil Nadu, India 602105

*Corresponding Author: Dr. Sathish Anand V.S

Email id: sathishanandvs@gmail.com

ABSTRACT

Background

Cervical spondylotic myelopathy (CSM) can be broadly defined as symptomatic dysfunction of the cervical spinal cord caused by degenerative changes of the bony and ligamentous spine. Cervical spondylotic myelopathy is a neurodegenerative condition found in old age patients. The objective of this study is to assess the factors causing delay in diagnosis and surgery for patients presenting with signs and symptoms of CSM in rural population.

Method

A retrospective study of 62 patients who have undergone surgery for CSM at the department of Neurosurgery in Saveetha Medical College and Hospital during the period December 2014 to December 2018 is done. Delay in diagnosis of the condition is analysed in terms of patient related factors and physician related factors. Delay in surgery is analysed in terms of logistical, financial and personal factors.

Results

The study demonstrates the factors causing delay in diagnosis and surgery in rural population and its impact on quality of life and neurological recovery following surgery. The patients with delay in diagnosis showed more serious symptoms at time of presentation and hence had some persistent complaints after surgery. The main reason for delay in diagnosis were either due to the patients immediate complaint wasn't severe or patients not consulting concerned specialist. The reason for delay in surgery was mostly due to the financial issues in patients' family.

Conclusion

There is a considerable difference in the Nurick grade between the patients with and without delay during time of diagnosis and surgery. Patients without any delay had better prognosis. Hence it's necessary to address these factors in a rural population.

Keywords: Cervical Spondylotic myelopathy, Factors, Reasons, Patients, Physicians, finance

INTRODUCTION

Cervical spondylotic myelopathy (CSM) can be broadly defined as symptomatic dysfunction of

the cervical spinal cord caused by degenerative changes of the bony and ligamentous spine.[1] Evaluating a 12-year nationwide database in

Taiwan, Wu et al retrospectively estimated that the overall incidence of CSM-related hospitalization was 4.04 per 100 000 person-years. Wu et al also observed that older age and male gender were associated with a higher incidence of CSM.[2] There are three important pathophysiologic factors in the development of CSM: 1) static mechanical; 2) dynamic mechanical; and 3) spinal cord ischemia.[3] The onset of the disease is invariably insidious. In the initial series reported by Brain et al., the duration of symptoms ranged from one week to 26 years,

and almost half of the patients presented symptoms for more than one year at the time of diagnosis.[3]

Among the clinical staging scales most commonly used in the evaluation of cervical myelopathy are myelopathy assessment Scale Nurick (Table 1) and the modified scale of Japanese Orthopedic Association (MJOA). [4] They are helpful regarding prognostic, and it has been used in surgical patients to assess better patient's improvement.

Table 1: NURICK scale

Grading	Signs and symptoms
Grade 0	Signs and symptoms of root involvement but without evidence of spinal cord disease.
Grade 1	Signs of spinal cord diseases but no difficulty walking.
Grade 2	Slight difficulty in walking, which does not prevent full-time employment.
Grade 3	Extreme difficulty in walking that requires assistance and prevents full-time employment and occupation.
Grade 4	Able to walk only with someone else's help or with the aid of a walker.
Grade 5	Chair bound or bedridden.

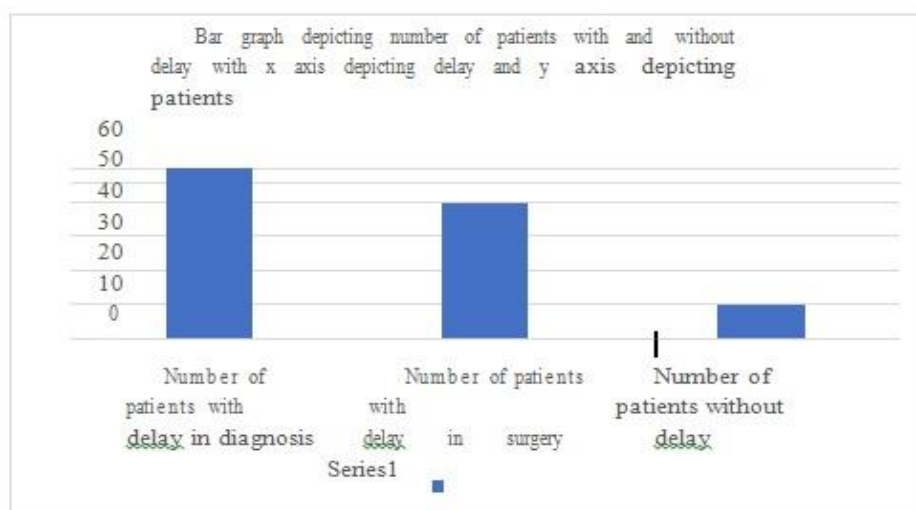
CSM being a neurodegenerative disorder continues to deteriorate the patient if left untreated. Hence early diagnosis and treatment interventions is necessary to prevent the further deterioration of patients health. In rural population, early diagnosis and treatment remains a challenging task. The present study is done to assess the delay in diagnosis and surgery for patients presenting with typical signs and symptoms of CSM

surgery for CSM at the department of neurosurgery in Saveetha Medical College and Hospital from December 2014 to December 2018. Data is collected from the medical records division in our institute. Questions pertaining to delay was asked based on questionnaire by interactive voice response via telephone and the data are entered . The data is then divided into delay in diagnosis from onset of initial symptoms, delay in surgery after diagnosis, nurick grading of the patients- both with and without delay, factors leading to delay.

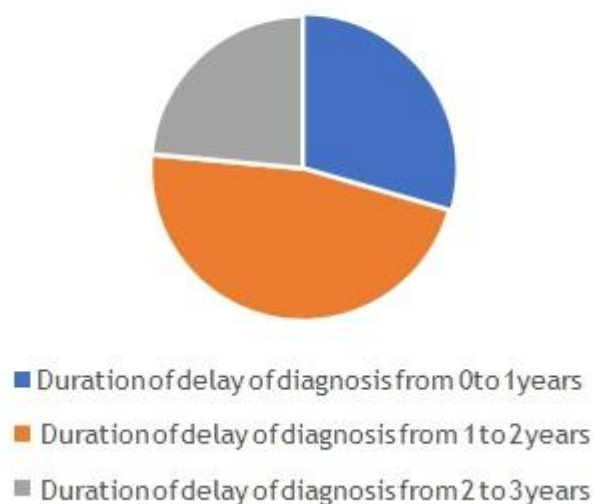
MATERIALS AND METHODS

A retrospective study is done on 62 patients of both sexes and all ages who have undergone

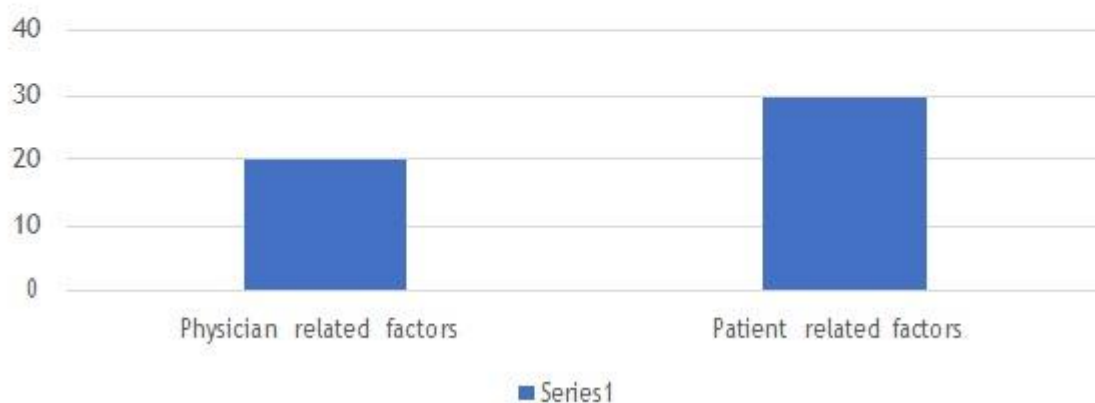
RESULTS AND DISCUSSIONS

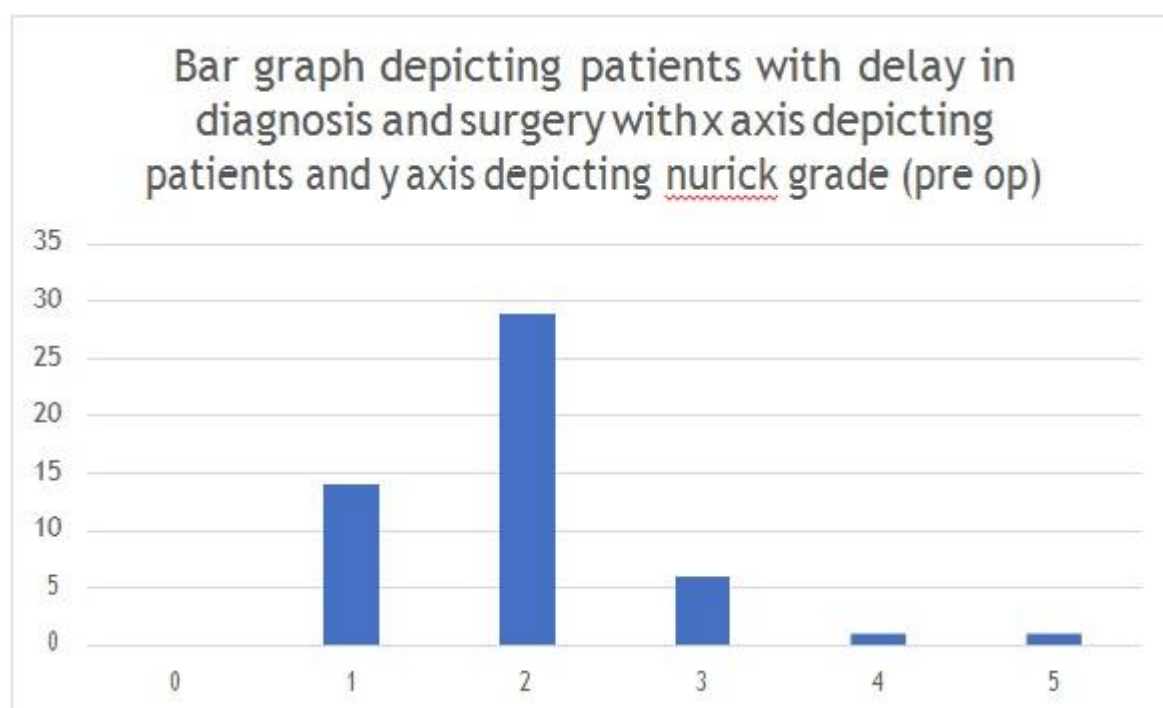
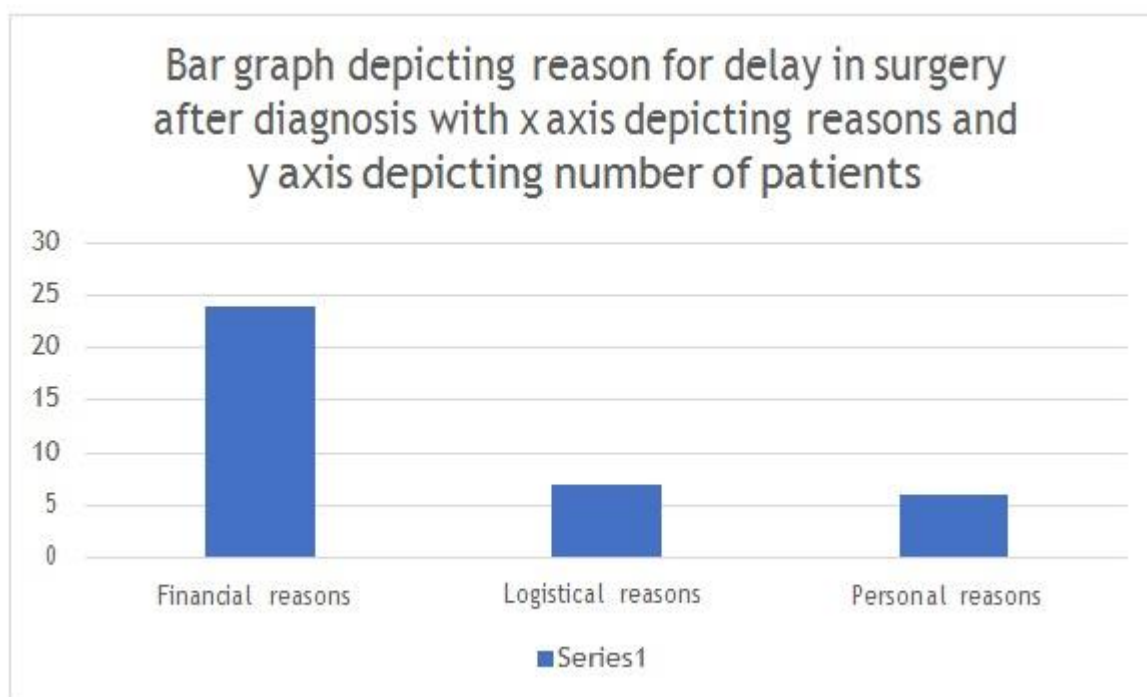


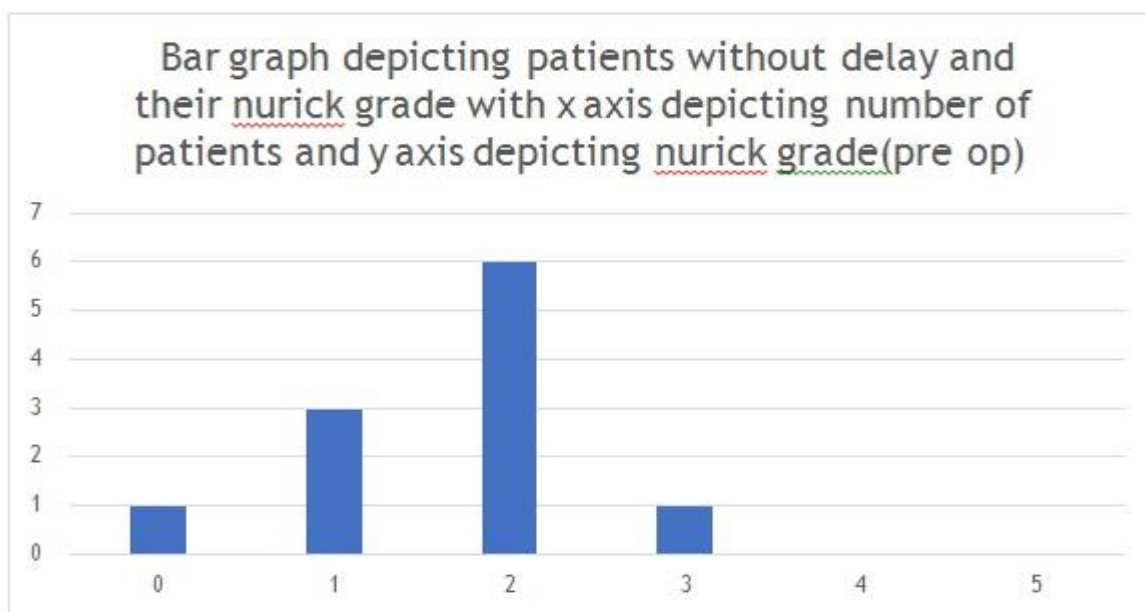
Pie chart depicting duration of delay of diagnosis from onset of initial symptoms



Bar graph depicting reasons for delay in diagnosis from onset of initial symptoms with x axis representing reason and y axis representing number of patients







RESULTS

The study is conducted on patients of both sexes and all ages who have undergone surgery for CSM in department of neurosurgery at Saveetha Medical college and hospital. It was found that out of 62 patients evaluated based on the questionnaire, 51(82.3%) patients had delay in diagnosis from onset of initial symptoms. Delay due to physician related factors were found to be 22 (43%) patients and that due to patient factors was found to be 29(56.8%) patients. Then 39 (62.9%) patients had delay in surgery from diagnosis with 24(61.5%) patients having financial reasons, 7(17.9%) patients had logistical reasons and 6(15.3%) patients had personal reasons. Out of the 62 patients assessed, 48(77.4%) patients showed immediate improvement in functions, 10(16.1%) showed no improvement and 4 (6.4%) had worsened conditions. The p value showed significance in delay of diagnosis and surgery (0.05)

DISCUSSION

Cervical spondylotic myelopathy can be broadly defined as symptomatic dysfunction of the cervical spinal cord caused by degenerative changes of the bony and ligamentous spine. Out of the 62 patients assessed in our study, 51 patients had delay in diagnosis out of which 29 patients (56.8%) was due to patient related factors and 22 patients (43%) was due to physician related factors. The patient related factors depended on severity of initial symptoms and progression. Physician related factors were

disorganised referral system and incompetence in terms of infrastructure in rural areas. The mean time delay according to our study from initiation of symptoms to diagnosis of CSM was 1.5 years as compared to 2.2 years according to a study by EyarBehrbalk et al [5] Majority of symptomatic patients (90 %) reported to general physician and the rest 10% reported to physicians of other specialities in our study. In a study reported by Eyar et al it was found that 90.4 % symptomatic patients initially reported to family practitioners [5]. Of the 33 patients, (the mean nurick grade was 2.1) undergoing anterior decompression and fusion, 24 showed immediate functional improvement and nine were unchanged according to a study by Michael et al [6]. In our study, out of the 62 patients operated, 48 (77.4%) showed immediate improvement in functions, 10 (16.1%) showed no improvement and 4 (6.4%) patients had worsened conditions. Comparatively, a study conducted by Chen et al showed immediate improvement for 13 patients out of 16 (81.2%) and 3 (18.7%) showed no immediate improvement in results after surgery.[7] The mean nurick grade is found to be 2 in patients with delay at time of surgery(pre operatively) 39 (62.9%) out of 62 study group patients showed delay in surgery from period of diagnosis. 61.5% patients underwent surgery after a delay ranging from 5 to 60 days after diagnosis and advised surgery, with mean duration being 20 days due to financial stress. 17.9% patients had delay in surgery after diagnosis due to logistical reasons such as distance related conditions. 15.3 % patients were due to personal reasons such as fear

of surgery, family struggles, mental preparation for eliminating fear of surgery etc. 28.57% of patients in our study were found to have myelomalacia on further evaluation after surgical treatment as compared to 26.8% patients in a study conducted by Clifton et al [8]. % patients had no delay in diagnosis or surgery according to our study. They mainly presented to the ER department due to an incident of trauma which had aggravated symptoms which the patient had previously had unnoticed. Hence the patient had immediate diagnosis and intervention due to proper screening. In our peripheral centre, where the target patients were mainly rural population, we found that there is significant delay in diagnosis and definitive treatment which in turn affects their overall neurological recovery.

CONCLUSIONS

Based on the above study, it is evident that there is a delay in diagnosis of cervical spondylotic myelopathy and its surgical treatment. It is necessary that the patients be diagnosed and treated as early as possible to prevent further degenerative changes that can be caused by CSM. It is evident that patients should not ignore initial symptoms and family

physicians be able to diagnose or refer patients immediately with neurological symptoms for early and effective diagnosis. Surgery must be performed immediately after diagnosis to prevent the progression of symptoms. Government and hospitals should provide schemes and incentives to help patients in below poverty line and especially in rural areas of developing country must have proper infrastructure facilities for early diagnosis, with organised referral system so that the patient reaches the concerned specialist for definitive treatment. By addressing these factors, we will be able to achieve significantly neurological and functional recovery of patients with Cervical compressive spondylotic myelopathy.

Acknowledgements

Thanks to Saveetha Medical College and Hospital and the Neurosurgery department for providing data and patient details necessary for the study.

Thanks to Dr. Thanga Thirupathi Rajan HOD of neurosurgery, Dr. Sathish Anand VS assistant professor of neurosurgery and Dr. Nandhish HS assistant professor of neurosurgery department for providing necessary guidance.

REFERENCES

- [1]. David W Cadotte, Alina Karpova and Michael G Fehlings, Cervical spondylotic myelopathy : surgical outcome in the elderly. *Int.J.clin.Rheumatol.* 5(3), 2010, 327-337.
- [2]. Wu, JC, Ko, CC, Yen, YS. Epidemiology of cervical spondylotic myelopathy and its risk of causing spinal cord injury: a national cohort study. *Neurosurg Focus.* 35, 2013, E10. doi:10.3171/2013.4.FOCUS13122
- [3]. W. R. Brain, D. Northfield, and M. Wilkinson, "The neurological manifestations of cervical spondylosis," *Brain*, 75(2), 1952, 187-225.
- [4]. Roberts AH. Myelopathy due to cervical spondylosis treated by collar immobilization. *Neurology.* 16, 1966, 951-4
- [5]. Eyal Behrbalk et al, Delayed diagnosis of cervical spondylotic myelopathy by primary care physicians, *JNS*, 1944
- [6]. Michael J Ebersold, Michel C Pare and Lynn M Quast, Department of Neurologic Surgery, Mayo Clinic and Mayo Foundation, Rochester, Minnesota surgical treatment of CSM, *JNS*
- [7]. Chen, Tzu-Yung, MD; Dickman, Curtis A., MD; Eleraky, Mohammed, MD; Sonntag, Volker K. H., MD, The Role of Decompression for Acute Incomplete Cervical Spinal Cord Injury in Cervical Spondylosis, 23(22), 1998.
- [8]. A. G. Clifton, J. M. Stevens, P. Whitear, B. E. Kendall, Identifiable causes for poor outcome in surgery for cervical spondylosis, *Neuroradiology*, 32(6), 1990, 450-455

How to cite this article: Aishwarya R, Dr. Sathish Anand V S, Dr. Nandhish H S, Dr. Thanga Thirupathi Rajan. Factors affecting delay in diagnosis and surgery of patients presenting with typical signs and symptoms of cervical spondylotic myelopathy in rural population. *Int J of Allied Med Sci and Clin Res* 2019; 7(4): 1247-1252.

Source of Support: Nil. **Conflict of Interest:** None declared.