IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

A CASE REPORT ON LONG TERM COMPLICATIONS OF CAUDA EQUINA SYNDROME

Miss. J. Thejomai[1], Dr. K Thirumala Naik[2]

[1]Pharm.D Internship, Krishna Teja Pharmacy College, Tirupati, AP, India

[2]Associate Professor, Department of Pharmacy Practice, KTPC, Tirupati, AP, India

Abstract:

CaudaEquina Syndrome (CES) is a rare emergency disease when the ends of the spinal cord, namely the lumbar and sacral spinal nerves, get compressed, typically as a result of disc herniation or trauma. Bowel incontinence, bladder incontinence leading to UTI, high grade ulcers in the gluteal area, and saddle anaesthesia are some of the notable CES complications. One of the most uncommon neurosurgical crises is this one. A surgical operation termed a lumbar laminectomy, which decongests the lumbar spinal nerves, is the only cure for Caudaequina syndrome. In this case study, we will talk about and assess the long-term effects of caudaequina syndrome, which affect a variety of spheres of life. In this study, the relative Quality of Life (QoL) of patients is compared to the long-term complications of caudaequina syndrome.

Keywords: CaudaEquina Syndrome, Quality of life, Complications, Saddle anesthesia, Rehabilitation

Introduction:

The spinal nerve roots are collectively referred to as the caudaequina, and the caudaequina syndrome is an uncommon condition in which the lumbar and sacral nerves, in particular, are compressed. The most frequent aetiologies of CES include disc herniation and trauma. It has a variety of short- and long-term effects, including saddle anaesthesia, bladder and bowel problems, and others. Additionally, it negatively impacts the patient's physical, emotional, social, and economical facets of life. Although there is no particular cure for CES, early detection and prompt management are essential to avoiding the illness's fatal consequences. Lumbar Laminectomy is a surgical procedure of treatment in CES. CES improves over years as spinal nerves grow 1-2 mm per year.

Case Report:

A 61-year-old man who had complained of nausea and vomiting for four days, as well as a fever that had persisted for ten days, visited the emergency room. Since four days ago, his fever has been accompanied by chills. He doesn't have a medical history of weakening all over, loose stools, constipation, or stomach pain. The patient's December 2015 fall from a height that caused a spinal injury and CaudaEquina Syndrome was discovered after a reconciliation. Stabilising the L1 vertebrae required surgical repair. Due to urine retention, the patient had to be catheterized. After more testing, it was determined that the patient had an infection of the urinary tract caused by a catheter, with CES as the underlying cause. A course of antibiotics was prescribed for the condition, and the patient was then released after his or her symptoms had improved.

Discussion:

Rare and not life-threatening is the CaudaEquina Syndrome. The spinal cord serves as both the brain's sensory input and motor output channel. Among the 31 spinal nerves, the lumbar, sacral, and coccygeal nerves do not depart the spinal cord at the same level as they enter the vertebral column. These nerves form an inferior angulation along the lumterminale, a pia mater extension that connects the arachnoid and dura maters and holds the spinal cord to the coccyx.These nerves' roots are known as the "CaudaEquina." A neurosurgical emergency occurs as a result of caudaequina compression in CES [1]. It is evident that this illness is quite uncommon because the incidence rate in the general population ranges from 0.31 to 1 per 100,000[2]. Disc herniation and spinal stenosis are the two specific aetiologies that directly contribute to the development of CES. Since caudaequina compression occurs, it causes a severe combination of symptoms,

including loss of visceral function, saddle anaesthesia, lower back discomfort, sciatica (either bilateral or unilateral), weakness in the lower limbs, and sciatica. Bladder dysfunction may result from a combination of sensory and motor impairments. Patients with 3-5 CES experience sexual problems as well. The symptoms may progressively become better over time in 30–50% of individuals after decompression surgery [6]. To confirm the diagnosis, radiologic investigations will be helpful. Lower extremities are typically impaired in patients. Ankle jerk reflex is also missing, and perianal feeling is diminished. Only when symptoms are present and significant should surgery be considered. Findings from MRI (Magnetic Resonance Imaging).

Table 1 lists the several standardised scoring methods that were applied to this patient to assess their quality of life in relation to the effects of long-term caudaequina syndrome problems. Utilising the Barthel Index to measure the patient's functional independence, it was discovered that the patient was only partly independent. Using the Short Form Survey (SF 36), which measures physical functioning, role limitations, emotional well-being, social functioning, energy/fatigue, pain, and general health perceptions, the patient's quality of life was evaluated. It was discovered that CES had a significant impact on the patient's physical, emotional, and social well-beingMeasurements of urinary incontinence and faecal incontinence were made using the King's Health Questionnaire and the Wexner scale, respectively, and it was discovered that the patient had considerable issues with bladder and bowel dysfunction, which were the main CES consequences. Four rating levels are assigned to each response on the King's Health Questionnaire (KHQ). From 0 (best) to 100 (worst), the eight Domains were graded. On a scale from 0 (best) to 30 (worst), the severity of symptoms is rated. By utilising the Warwick Edinburgh Mental Well Being Scale (WEMWBS), which has a cutoff point of 41, the patient's mental health was evaluated. A higher score indicates less mental health. Using the Financial Well Being Scale developed by the Consumer Financial Protection Bureau (CFPB), the patient's financial health was evaluated. The patient received a score of 51, which indicates a moderate level of financial well-being. Due to their inability to work and resulting poor quality of life, CES patients suffer negatively in all spheres of their socioeconomic lives [5]. Despite the fact that CES is an uncommon disorder, because to the variety in how it manifests, a delay in diagnosis and treatment may happen, which increases the risk of consequences including 7paralysis. For the patient to have the best chance of a positive result, a meticulous diagnosis must be made quickly. Physical abnormalities, emotional difficulties, socioeconomic lifestyle problems, psychological issues, and problems with one's sexuality are only a few of the lifestyle implications of

caudaequina syndrome. High grade bed sores are caused by saddle anaesthesia in the gluteal area, one of the physical abnormalities. Bowel and urinary incontinence may affect the patient. The bowels and bladder may not feel like they are opening to the patient. Whether the bowels or bladder have begun or finished, the patient could not feel anything. Possibly spending a lot of time in bed, the patient. [6-9] the patient develops a poor quality of life and has a gloomy outlook on the future. As the patient's ability to work independently declines, the patient's dependence rate rises. The patient's emotional and socioeconomic state are additional factors to be taken into account. Due to the spinal nerve damage, the patient endures psychological distress and needs family support. The patient's quality of life will drastically decline. The patient's socioeconomic lifestyle is diminished since they have less touch with the outside world and are unable to work. This demonstrates how seriously spinal cord damage has impacted the individuals. Another aspect to take into account that may necessitate a detailed examination is the psychological issue. Following a spinal injury or an illness causing bed rest that results in a poor socio-economic lifestyle, a patient with high socio-economic status may become sad or feel down. Regarding long-term problems, the patient's sexual habits also have a significant role. A good relationship may be impacted by the sexual discontent. Another element that may be impacted by the sexual dysfunction is another one that lowers the patient's wellbeing. The patient has experienced and is presently experiencing a devastatingly poor quality of life, according to the results of analysing the elements using several standardised scoring methods.

Conclusion:

Although rarely life threatening, CaudaEquina Syndrome is one of the rarest neurosurgical crises that might manifest differently and have an adverse impact on the patient's physical and emotional well-being. It has negative impacts on the patient's mental, socioeconomic, and financial state of life if undetected or improperly treated, since it can result in long-term repercussions including paralysis. Five parameters spanning all facets of life were used to assess the long-term difficulties, and they were graded using standardised scoring methods. Therefore, the patient will need long-term rehabilitation in all facets of their future lives. So, when it comes to CES and its effects, professionals should use considerable caution. There is a dearth of data, and research on caudaequina syndrome is currently ongoing for potential future review.

Ethical statement:

This study has no cruelty to humans or animals. Since, it is a review article, we did not took a subjects in this study.

Conflict Of Interest:

The authors declared that there is no conflict of interest.

ABBREVIATIONS

CES - CaudaEquina Syndrome

MRI - Magnetic Resonance Imaging

SF 36 - Short Form Survey

KHQ - King's Health Questionnaire

WEMWBS - Warwick Edinburgh Mental Well Being Scale

CFPB - Consumer Financial Protection Bureau

References:

1. Tortora, G. J., &Derrickson, B. H. (2015). Principles of Anatomy and Physiology. Wiley Global Education.

2. Hazelwood, J. E., Hoeritzauer, I., Pronin, S., &Demetriades, A. K. (2019). An assessment of patient-reported long-term outcomes following surgery for caudaequina syndrome. ActaNeurochirurgica, 161(9), 1887-1894.

3. Gitelman, A., Hishmeh, S., Morelli, B. N., Joseph Jr, S. A., Casden, A., Ku□ik, P., ... & Stephen, M. (2008). Caudaequina syndrome: a comprehensive review. Am J Orthop (Belle Mead NJ), 37(11), 556-62.

4. Hur, J. W., Park, D. H., Lee, J. B., Cho, T. H., & Park, J. Y. (2019). Guidelines for cauda equina syndrome management. Journal of Neurointensive Care, 2(1), 14-16.

5. Lavy, C., James, A., Wilson-MacDonald, J., & Fairbank, J. (2009). Caudaequina syndrome. Bmj, 338.

6. Kanematsu, R., Hanakita, J., Takahashi, T., Minami, M., Inoue, T., Miyasaka, K., ...& Honda, F. (2021). Improvement in Neurogenic Bowel and Bladder Dysfunction Following Posterior Decompression Surgery for CaudaEquina Syndrome: A Prospective Cohort Study. Neurospine, 18(4), 847.

7. Gardner, A., Gardner, E., & Morley, T. (2011). Caudaequina syndrome: a review of the current clinical and medico-legal position. European Spine Journal, 20(5), 690-697.

8. Podnar, S., Tršinar, B., &Vodušek, D. B. (2006). Bladder dysfunction in patients with caudaequina lesions. Neurourology and Urodynamics: Official Journal of the International Continence Society, 25(1), 23-31.

9. Attabib, N., Kurban, D., Cheng, C. L., Rivers, C. S., Bailey, C. S., Christie, S., ... & O'Connell, C. (2021). Factors associated with recovery in motor strength, walking ability, and bowel and bladder function after traumatic caudaequina injury. Journal of neurotrauma, 38(3), 322-329.

10. Hazelwood, J. E., Hoeritzauer, I., Carson, A., Stone, J., &Demetriades, A. K. (2021). Long-term mental wellbeing and functioning after surgery for caudaequina syndrome. Plos one, 16(8), e0255530.

11. Mahoney, F. I. (1965). Functional evaluation: the Barthel index. Maryland state medical journal, 14(2), 61-65.

12. Kelleher, C. J., Cardozo, L. D., Khullar, V., & Salvatore, S. (1997). Anew questionnaire to assess the quality of life of urinary incontinent women. BJOG: An International Journal of Obstetrics & Gynaecology, 104(12), 1374-1379.

13. Jorge, J. M. N., &Wexner, S. D. (1993). Etiology and management of fecal incontinence.

Diseases of the colon & rectum, 36(1), 77-97.

14. “Warwick Edinburgh Mental Well-Being Scale (WEMWBS) © NHS Health Scotland,

University of Warwick andUniversity of Edinburgh, 2006, all rights reserved.

Parameter	Scale Used & Result Obtained
Functional Independence	[11]Barthel Index - Partially Independent
Quality Of Life	SF 36 Scale Physical Functioning - 20% Role Limitations Due To Physical Health - 0% Role Limitations Due To Emotional Problems - 0% Energy/ Fatigue - 50% Emotional Well Being - 60% Social functioning - 0% Pain - 90% General Health - 55% Health Change - 50%
Urinary Incontinence	King's Health Questionnaire[12] General Health - 50% Incontinence Impact - 100% Role Limitations - 100% Physical Limitations - 100% Social Limitations - 77.7% Personal Relationships - 66.7% Emotions - 44.4% Sleep - 33.3% Severity Measures - 33.3% Symptom Severity Scale - 16
Faecal Incontinence	[13] Wexner Scale score: 13- Partial Incontinence
Mental Well Being	Warwick Edinburgh mental well-being scale [12] score: 41- Reduced Mental Well Being
Financial Well Being	CFPB Financial Well Being Scale score: 51- Moderate Financial Well Being

Table 1- Assessing Long Term Complications Of CES Patient By Using Standardized Scoring System