International Journal of Early Childhood Special Education (INT-JECSE)
DOI:10.9756/INTJECSE/V14I5.974 ISSN: 1308-5581 Vol 14, Issue 05 2022

A 5-Years Old Male Child with Inflammatory Demyelinating Diseases: A Rare Case Report

Aditya Nistane[1],Kavita Gomase[2], Aniket Pathade[3]
[1]Third-year BSc Nursing student, Smt. Radhikabai Meghe Memorial College of Nursing Sawangi (Meghe) Wardha, Datta Meghe Institute of Medical Sciences, Maharashtra, India.
Email. aditya7721847551@gmail.com
[2]Assistant Professor, Department of Obstetrics & Gynaecology Nursing, Smt. Radhikabai Meghe Memorial College of Nursing, Datta Meghe Institute of Medical Sciences, Sawangi (Meghe) Wardha, Maharashtra, India.
Email: kavitapravin3@gmail.com
[3] Research Scientist, Jawaharlal Nehru Medical College, Datta Meghe Institute of Medical Sciences, Sawangi, Wardha, Maharashtra.

Abstract:
A neurological condition known as demyelinating illness causes damage to the myelin sheath, which protects nerve fibers, optic nerves, and the spinal cord. The damage weakens the conduction of transmission signals in affected nerves. This reduction cause deficiency in cognition, movement, sensation, or other neurological functions in which the nerves are involved. Here we are presentinga case of a 5-year-old male childwho was brought by his parents to the emergency department with the chief complaints of difficulty in swallowing, slurred speech, weakness, stiffness of muscle, fever and cough, pain, and loss of coordination. He has a history of hospitalization for pneumonia at the age of one year. Physical examination shows weakness and dullness along with localized tenderness, muscle spasms, difficulty in movements, and slurring of speech. He has undergone a blood test, Magnetic resonance imaging (MRI). And then started on immunosuppressive therapy.

Keywords: Demyelination,Myelinoclastic, Leukodystrophic.

INTRODUCTION

Demyelination disease is connected to the loss of myelin and it is a kind of adipose tissue that protect as well as covers the nerves all around the human body. This state causes cerebral shortfall, like behavioral or cognitive problems, vision changes, altered sensation, and weakness. Demyelination damages the part of the brain, peripheral nerves, and spinal cord. It can arise as a result of a variety of medical diseases and situations. Multiple sclerosis is the most prevalent demyelinating disease (MS).(1)Demyelination damages spinal and nerves, causing cognitive impairments and leg weakness, as well as a loss of bowel and bladder control. The damage weakens the conduction of transmission of signals in affected nerves. (2)When they affect the white matter, lesions are frequently big, multifocal, hyperintense, and asymmetric. Involvement of the thalami and basal ganglia in the grey matter is frequently observed in this way. When making the diagnosis of acute disseminated encephalomyelitis, sequential MRI is crucial because it can reveal partial or complete remission of the lesions.(3)

CASE PRESENTATION

A 5-year-old male is presented with the chief complaints of difficulty in swallowing, slurring of speech for 5 days, weakness and stiffness of muscles,fever and cough for 5 days, pain, and loss of coordination for 15 days. The patient also developed changes in bladder and bowel function for 7 days. He is having a history of prior hospitalization of pneumonia when he was one year of age for that he was treated in the local hospital.

On physical examination weakness and dullness were found in the lower extremities along with localized tenderness, muscle spasms, difficulty in movements, and slurring of speech. The patient's gait was unstable. The neurological findings in the patient were attributed to the spinal cord lesion, and the cranial lesions at that time were thought to be asymptomatic.

A patient has undergone an investigation like MRI, Complete blood count, Erythrocyte sedimentation rate (ESR), and-reactive protein test, Liver Function Test, and Kidney Function Test. Complete blood count shows Hb%- 9.3 gm%.Peripheral smear shows RBCs – normocytic mildly hypochromic platelets, adequate on smear. No hemiparasitewas seen.ESR (Erythrocyte sedimentation rate) is 18mm. MRI shows hypointense, edematous, non-enhancing lesions in bilateral occipital regions.

The patient is on symptomatic treatment, rehabilitation, immunosuppression, and supplements.The patient is treated with Inj.Methylprednisolone, Tab. Omnacortil, syrup. Melvil. The patient is on supplements such as B12 and copper, which help the restoration of normal nutrient levels. A modest dose of injectable (IV) steroids or plasma exchange is used to treat the disease.

DISCUSSION

Children are typically diagnosed with acute disseminated encephalomyelitis (ADEM), a clinically isolated syndrome (CIS), such as transverse myelitis, or Neuromyelitis Optica at the time of their initial presentation. These conditions could lead to physical and mental impairment or be identified as Multiple Sclerosis at the end (MS).(4-9)

Recent research has increased knowledge of inflammatory demyelinating illnesses, which were previously thought to be more common in adults than in children. Some juvenile inflammatory demyelinating illnesses have a poor prognosis over the long term, but the course of treatment can be improved. The potential for physical and mental impairment brought on by these illnesses emphasizes the urgent requirement for therapeutic approaches for neurorehabilitation, neurodegeneration, and neuro repair. (10-16)

A study was done on, the two most common demyelinating syndromes in children is examined. MS i.e. multiple sclerosis and ADEM i.e. acute disseminated encephalomyelitis are two diseases that affect the central nervous system. The smaller the children, the more research is necessary to identify its physiological and pathological aspects, likely causative agents, symptoms, diagnostic, treatment, prognosis, history, and unique changes that complicate diagnosis.(16-17)

According to the research, there is a connection between MS lesions and the neuroimaging and etiology of several inflammatory disorders of the central nervous system, such as neuromyelitis optica, acute disseminated encephalomyelitis, and Balo's concentric sclerosis. It covers the pathological characteristics of many inflammatory demyelinating conditions that affect the central nervous system as well as neuropathological research that has illuminated potential mechanisms underlying the emergence of demyelinated lesions.(17-18)

CONCLUSION

Demyelination disease is the loss of myelin and this results in neurological shortfalls, like behavior and cognitive problems, vision changes, weakness, and altered sensation. This type of condition can occur in any age group, but each demyelination disease affects different areas of the brain, spinal cord, and peripheral nerves.Significant therapeutic and prognosis ramifications follow from a demyelination diagnosis. The majority of the time, the diagnosis is made clinically, with the histopathologist's role being primarily limited to postmortem confirmation and clinicopathological association.The histological evaluation, however, occasionally plays a crucial role in determining whether demyelination is present or what caused it to occur before death.

References:

1. Tillema JM, Pirko I. Neuroradiological evaluation of demyelinating disease. Ther Adv Neurol Disord. 2013 Jul;6(4):249–68.
2. Demyelinating Disorders: Types, Causes, Symptoms, Treatments [Internet]. [cited 2022 Aug 5]. Available from: https://www.webmd.com/multiple-sclerosis/what-are-demyelinating-disorders
3. Srinivasan A, Sankar J, Ganapathi K. Inflammatory demyelinating disorders of childhood: Experience with six children. Neurology India. 2010 May 1;58(3):452.
4. Absoud M, Wassmer E. Childhood CNS inflammatory demyelinating diseases. Pediatrics and Child Health. 2010 Sep 1;20(9):404–10.
5. Spalice A, Parisi P, Papetti L, Nicita F, Ursitti F, Del Balzo F, et al. Clinical and Pharmacological Aspects of Inflammatory Demyelinating Diseases in Childhood: An Update. Current Neuropharmacology. 2010 Jun 1;8(2):135–48.
6. Noorbakhsh F, Johnson RT, Emery D, Power C. Acute Disseminated Encephalomyelitis: Clinical and Pathogenesis Features. Neurol Clin. 2008 Aug;26(3):759–80.
7. Pathology of Multiple Sclerosis: Where Do We Stand? - PMC [Internet]. [cited 2022 Aug 5]. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3915566/
8. Acharya, S., Shukla, S., Andhale, A., Annadatha, A., Gupte, Y., 2020e. Neuroleptic Malignant Syndrome (NMS) after Treatment with Metoclopramide - A Rare Case Report. JOURNAL OF EVOLUTION OF MEDICAL AND DENTAL SCIENCES-JEMDS 9, 3065–3066. https://doi.org/10.14260/jemds/2020/671
9. Andhale, A., Acharya, S., Shukla, S., 2020e. Primary systemic amyloidosis with peripheral and autonomic neuropathy presenting as recurrent presyncope: A case report. MEDICAL SCIENCE 24, 1818–1821.
10. Ankar, R.S., Singh, S., 2020. Chemotherapy Induced Peripheral Neuropathy - A Review. JOURNAL OF EVOLUTION OF MEDICAL AND DENTAL SCIENCES-JEMDS 9, 3147–3151. https://doi.org/10.14260/jemds/2020/689
11. Aradhey, P., Bakre, A., Kumar, S., Acharya, S., 2020. Clinical profile of Uremic polyneuropathy in Chronic Kidney Disease patients. MEDICAL SCIENCE 24, 945–951.
12. Birelliwar, A., Athawale, V., Kapoor, A., Naqvi, W.M., 2020. Early gait training program and proprioceptive neuromuscular facilitation in the patient with post debridement amputation - A rare case report. MEDICAL SCIENCE 24, 3421–3426.

13. Chaturvedi, A., Garikapati, A., Bagga, C.S., Chande, A., Kumar, S., 2020. Temporal lobe epilepsy: A rare post chicken pox neurological sequel. MEDICAL SCIENCE 24, 1596–1599.
14. Chaturvedi, S., Garikapati, A., Ansari, I., Bagga, C., Kumar, S., 2020. Trastuzumab induced cardiomyopathy with cerebellar stroke: Double Trouble. MEDICAL SCIENCE 24, 2424–2427.
15. Chaudhary, R., Nagula, K., Taksande, A., n.d. Modified Glasgow Coma Scale and the Alert Verbal Painful Unresponsive Scale for Assessing the Level of Consciousness in Pediatric Critical Care Patients-A Comparative Study. JOURNAL OF PEDIATRIC NEUROLOGY. https://doi.org/10.1055/s-0041-1725981
16. Darda, P.P., Mishra, S.A., Nagvi, W.M., Sahu, A., 2020. Rehabilitation of compound elbow fracture, brachial artery injury with median and ulnar nerve neuropathy: A case report. MEDICAL SCIENCE 24, 1641–1648.
17. Devalla, A.R., Deshpande, H., Ninave, S., Bhaisare, R., 2020. Assessment of Malnutrition and Enteral Feeding Practices in Critically Ill in Neurosurgery ICU in Rural Teaching Hospital. JOURNAL OF EVOLUTION OF MEDICAL AND DENTAL SCIENCES-JEMDS 9, 2610–2613. https://doi.org/10.14260/jemds/2020/568
18. Ghogare, A.S., Agrawal, S.R., Patil, P.S., Vankar, G.K., 2020a. Obsessive compulsive disorder with psychotic features as neuropsychiatric manifestation of fahr's disease. ANNALS OF INDIAN PSYCHIATRY 4.