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Post Covid Lower Limb Axonal Neuropathy – A Case Report

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ABSTRACT

Introduction: The spectrum of neurologic complications subsequent to novel coronavirus 2 (SARS-Cov-2) infection is broad. COVID-19, caused by the infection with the SARS-Cov-2, is pandemic affecting the whole globe with periods of exacerbations and remissions. Neurological manifestations occur in about 36.4% of patients infected with SARS-Cov-2.

Case Report: Here reported case is of 37- year- old female who was clinically diagnosed with post covid lower limb axonal neuropathy after 50 days of covid 19 infection. A survey on neurological manifestations was specially designed addressed 10 neurological manifestations of COVID-19: headache, altered sensation, nausea and vomiting, sudden hemiparesis (stroke), numbness and paresthesia, vertigo, ataxia, seizure, encephalitis/meningitis, Guillain-Barré Syndrome (GBS), and myelitis.

Conclusion: Physical rehabilitation playing a significant part in treating balance, strength and returning to independence is known worldwide.

Key Words: Axonal Neuropathy, Post Covid Complication, Physiotherapy, Nerve Conduction Velocity test, Balance, Strength

INTRODUCTION

COVID-19, caused by the infection with the SARS-Cov-2, is pandemic affecting the whole globe with periods of exacerbations and remissions. The spectrum of neurologic complications subsequent to novel coronavirus 2 (SARS-Cov-2) infection is broad. Neurological manifestations occur in about 36.4% of patients infected with SARS-Cov-2 and span several domains within the central and peripheral nervous system.^{1,2} One of those is sub-acute peripheral neuropathy. Here reported case is of 37 year old female who was clinically diagnosed with post covid lower limb axonal neuropathy after 50 days of covid 19 infection.

CASE REPORT

This healthy 37-years-old female got tested positive with covid 19 in early May 2021. After 25 days of infection, she felt swelling over right eye for which she consulted an ophthalmologist who gave her 5 dose of methylprednisolone IV daily for choroidal thickening. After 2 weeks she felt sudden numbness in her both lower limbs which not only made her

ambulation difficult but also lead to domestic fall once. Consequently, she consulted an orthopedic surgeon who further commented L5-S1 disc bulging with haemangioma based on MRI. Blood reports were suggestive of reduced haemoglobin 9.5gm/dl along with reduction in P.C.V, M.C.V., M.C.H. M.C.H.C. with values 30.8%, 60.5%, 18.7%, 30.8% respectively. Furthermore, NCV finding concluded axonal motor neuropathy.

The patient had no co-morbidity hence diabetic neuropathy was ruled out. Furthermore, since the patient developed manifestations after covid 19 infection, Guillain Barre Syndrome was first on our differential list. Ascending flaccid paralysis, areflexia but in contrast our patient had involvement of lower back, lower limb till distal thigh. Moreover, patient had an acute presentation which goes against the chronic course of multiple sclerosis with no demyelinating lesions on MRI- brain and spinal cord. Considering nutritional neuropathy, a classic B12 deficiency scenario, presents with chronic fatigue and neurological symptoms like tingling, numbness and loss of balance, Despite the Methylcobalamin injections 1000mcg/ml for 5 doses there was no relief in pain, but the numbness went down to 50% as stated by pa-

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tient. Hyperreflexia in knee can be seen due to corticospinal tract involvement, vibration, and proprioception is involved too, which was absent in this case. Cauda Equina can present with lower limb hyperreflexia, radiating pain and fecal incontinence which is classic in cauda equine but was absent in this patient, neither the MRI spine suggested any nerve root damage or compression.

On assessment, patient had pain which was sharp and stabbing in nature radiated posteriolaterally downwards originating from buttocks that gave her a sensation of heavy limb. According to Oxford grading for Manual Muscle Testing, on right side grade 1 in tibialis anterior, grade 2 in hamstrings, grade 1 in gluteus and the rest had grade 3, where on left side these muscles were grade 3. Clinical picture came out to be of post covid lower limb axonal neuropathy. Physiotherapy was aimed to reduce pain, stimulate paretic muscles, strengthen them and hence make patient independent. Exercises were started in form of mechanical strengthening of bilateral lower limbs in form hip flexion, extension, abduction and back extension, electrical muscle stimulator and fast brushing for weak muscles like tibialis anterior

On progression after 15 days of exercise patient did all the above mentioned exercises with 1kg of weight along with dynamic and static balance training, gait training with verbal and audio cueing from therapist and visual biofeedback from mirror while training. Furthermore, pain was reduced to NPRS 2 at rest which was 8 initially.

DISCUSSION

Peripheral neuropathy represents a spectrum of diseases with different etiologies, of which the commonest are certain comorbidities like diabetes and can also be genetically inherited. Survey on neurological manifestations was specially designed for COVID-19 patients by researchers which addressed 10 neurological manifestations of COVID-19: headache, altered sensation, nausea and vomiting, sudden hemiparesis (stroke), numbness and paresthesia^{3,4} vertigo, ataxia, seizure, encephalitis/meningitis, Guillain-Barré Syndrome (GBS), and myelitis. Neurological manifestations were later confirmed by a thorough review of all available patient records.⁵ Peripheral neuropathies are commonest neurological conditions having an incidence of 77/100,000 per year and a prevalence of 1–12% in all age groups and up to 30% in older people.³ Physical rehabilitation playing a significant part in treating balance, strength and returning to independence is known worldwide.

CONCLUSION

This case study of post Covid Axonal Neuropathy gives an insight into the disease, its complication and challenges. It

as well demonstrates the contradictions of diagnosis, the detailed prognosis and its management. Persistent monitoring, early interventions and meticulous plan of management are the key components to expedite the recovery.

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Authors' Contribution:

Dr Yashasvi and Dr Dhara conceived and conceptualized the idea. Dr Yashasvi, Dr Dhara and Dr Khanjan were involved with analysis of the facts, differential diagnosis and backing it up with theoretical framework. Dr Yashasvi drafted the manuscript. Dr Dhara reviewed the manuscript.

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