Curious case of steroid responsive diffuse anterior horn cell disease associated with COVID-19 infection

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Abstract
Covid-19-associated neurological manifestations are being reported with increased frequency throughout the world. In a study from China, symptoms referable to peripheral nervous system (PNS) were described in approximately 9% of hospitalized Covid-19 patients. Common PNS symptoms reported in the study were loss of taste/smell and muscle pains. With this communication, we expand the spectrum of PNS manifestations of Covid-19 infection by reporting an association of steroid responsive diffuse anterior horn cell disease with Covid-19 infection from a tertiary care centre in India. Neurological manifestations of Covid-19 are diverse, and our case which to best of my knowledge is the first case in literature to report an occurrence of steroid responsive diffuse anterior horn cell disease associated with Covid-19 infection, adds to the ever-increasing spectrum of neurological manifestations associated with this pandemic causing virus. Good response to steroid in our case serves to provide an insight into the possible pathogenesis of this manifestation and also paves the way for future therapeutic decisions related to this association.

Keywords COVID-19 · Anterior horn cell disease · Steroid responsive · India

Introduction
COVID-19-associated neurological manifestations are being reported with increased frequency throughout the world. In a study from China, symptoms referable to peripheral nervous system (PNS) were described in approximately 9% of hospitalized COVID-19 patients. Common PNS symptoms reported in the study were loss of taste/smell and muscle pain [1]. With this communication, we expand the spectrum of PNS manifestations of COVID-19 infection by reporting an association of steroid responsive diffuse anterior horn cell disease with COVID-19 infection from a tertiary care center in India.

Case
A 23-year-old female patient with no previously known comorbidity was admitted to our hospital with 20-day history of gradually progressive weakness of both lower limbs followed by upper limbs. Patient also gave history suggestive of fasciculations over both arms and thighs. There was no history suggestive of any cranial nerve, bowel, and bladder or sensory abnormalities. She was found to have COVID-19 infection confirmed by positive nasopharyngeal polymerase chain reaction (PCR) 1 month back. She required assistance for being seated on to the bed and had difficulty in gripping objects with either of her hands. On examination, she had no cranio-bulbar weakness, mild wasting was noted in both deltoid and quadriceps femoris muscles, hypotonia was evident in all 4 extremities, and power proximally was 2/5 and distally was 3/5 in right upper and lower limbs, whereas it was 4/5 proximally and 4/5 distally in left upper and lower limbs as per the Medical Research Council (MRC) grading. Deep tendon reflexes were depressed symmetrically (1+) except for bilateral absent triceps reflex, and plantar response was flexor bilaterally. Sensory examination was normal. Patient was therefore, diagnosed as subacute onset, gradually progressive asymmetric pure motor lower motor neuron...
Neurological manifestations of COVID-19 are diverse, and our case which to the best of my knowledge is the first case in literature to report an occurrence of steroid responsive diffuse anterior horn cell disease associated with COVID-19 infection and adds to the ever-increasing spectrum of neurological manifestations associated with this pandemic causing virus. Good response to steroid in our case serves to provide an insight into the possible pathogenesis of this manifestation and also paves the way for future therapeutic decisions related to this association.

Declarations

Conflict of interest The authors declare no competing interests.

Ethical approval None.
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