

Post Covid-19 Transverse Myelitis in a Patient with Psoriatic Arthritis

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Abstract

Coronavirus disease 2019 (COVID-19) pandemic has affected more than 17 million people as of July 2020 [1]. 80% of the victims suffer from mild symptoms. The most common features of disease are fever, cough, fatigue, myalgias and diarrhoea [2]. Extrapulmonary features of this illness are; cardiovascular, renal, gastrointestinal, hepatobiliary, dermatological, haematological and neurological [3]. Neurological manifestations have been reported upto one third of patients [4]. The neurological injury results from direct viral toxicity or immune mediated mechanism [5].

To date, this is a first case of transverse myelitis following mild COVID-19 illness in a patient with psoriatic arthritis.

Keywords: *Coronavirus Disease 2019 (COVID-19); Transverse Myelitis; Psoriatic Arthritis*

Introduction to Case Report

A 50 years old Caucasian man with a history of psoriatic arthritis on sulphasalazine, developed myalgias, headache and an episode of diarrhoea but no fever or sore throat. He tested positive for COVID-19 checked by his primary care physician. Sulphasalazine was stopped and he was treated symptomatically while quarantined at his house. His symptoms lasted for 10 days but a week later he reported ascending numbness and paraesthesias of his lower limbs, which rapidly moved to his mid waist. He did not report any motor weakness or autonomic symptoms and COVID-19 test was negative twice 72 hours apart. He further reported severe electric shock moving down his spine on moving his neck down. On examination, he was afebrile and hemodynamically stable. Neurological examination showed, reduced pin prick sensation, level T5. The joint sense and position sense were normal. He had a positive Lhermitte's sign. However, Romberg's sign was negative. The examination of cranial nerves, motor and cerebellar system was normal. Respiratory, cardiovascular and gastroenterological examination was normal.

MRI scan with contrast of his spine showed, ill-defined patchy intramedullary T2WI hyperintensity seen involving thoracic spinal cord from T5 to T8 level showing patchy post-contrast enhancement at T7-T8 level, consistent with the diagnosis of transverse myelitis (Figure 1). MRI cervical spine and head was normal.

His laboratory findings are listed in table 1.

He was treated with intravenous methylprednisolone 1gram a day for 5 days followed by oral Prednisolone with tapering instructions over 6 weeks. His symptoms improved 50% a week later at the time of discharge. At 6 weeks follow up he reported 70% improvement in his symptoms. Lhermitte's sign improved completely and sensory level improved from T5 to L2.



Figure 1: A: Image showing ill-defined patchy intramedullary T2WI hyperintensity involving thoracic spinal cord from T5 to T8 level. B. Image showing patchy post-contrast enhancement at T7-T8 level.

| Tests | Analyte | Result | Units | Reference Range |
|----------------------|--------------------------------|----------|------------|-----------------|
| Complete blood count | Leucocyte count (WBC) | 5.82 | 10000/ul | 4 - 10 |
| | Erythrocyte count (RBC) | 4.74 | 1000000/ul | 4.5 - 5.5 |
| | Haemoglobin | 14.4 | mg/dl | 13 - 17 |
| | Platelets | 244 | 10000/ul | 150 - 410 |
| | Neutrophil count | 48.5 | % | 40 - 75 |
| | Lymphocyte count | 37.6 | % | 20 - 45 |
| | Monocyte count | 11.3 | % | 2 - 10 |
| | Eosinophil count | 2.1 | % | 1 - 6 |
| CRP | C-reactive protein | 0.6 | mg/dl | 0 - 5 |
| Renal | Creatinine | 81.1 | umol/l | 62 - 106 |
| Liver function | Aspartate Aminotransferase | 40.3 | U/L | < 35 |
| CSF | Glucose | 6.47 | mmol/l | |
| | Total proteins | 59 | mg/dl | |
| | Cell count-Total | 6 | | |
| | Monocytes | 100 | % | |
| | COVID19 PCR | Negative | | |
| | Gram stain/culture sensitivity | Negative | | |
| | Oligoclonal band | Negative | | |
| | IgG | 4.38 | mg/dl | < 4 |
| Serum | IgG | 890 | mg/dl | 700 - 1600 |

| | | | | |
|---------------------------------|-----------------------------------|--------|-------|---------|
| | Aquaporin 4 | < 1:10 | titer | < 1:10 |
| | Anti nuclear antibody (ANA) | 1:100 | IU | < 1:100 |
| | ANA profile-anti histone antibody | 36 | IU | < 10 |
| | Rheumatoid factor | < 8 | IU/L | < 8 |
| Escherichia Coli K1 | Not Detected | | | |
| Haemophilus influenzae | Not Detected | | | |
| Listeria Monocytogenes | Not Detected | | | |
| Neisseria Meningitidis | Not Detected | | | |
| Streptococcus A | Not Detected | | | |
| <i>Streptococcus pneumoniae</i> | Not Detected | | | |
| Cytomegalovirus | Not Detected | | | |
| Enterovirus | Not Detected | | | |
| Herpes simplex virus 1 | Not Detected | | | |
| Herpes simplex virus 2 | Not Detected | | | |
| Human Herpes virus 6 | Not Detected | | | |
| Human Parecovirus | Not Detected | | | |
| Varicella Zoster virus | Not Detected | | | |
| Cryptococcus neoformans | Not Detected | | | |

Table 1

Discussion

This the first reported case of post COVID-19 transverse myelitis in a psoriatic arthritis patient. No other causes of transverse myelitis were found by performing a battery of tests and imaging. Temporal relationship of appearance of his symptoms and remarkable response to steroids suggest autoimmune response to COVID-19 infection rather than spinal cord injury from direct invasion of the virus. There is one case reported, psoriatic arthritis association with transverse myelitis, however this patient had exacerbation of arthritis before developing transverse myelitis [6].

Conclusion

This case highlights the importance of early recognition of a post viral neurological complication of COVID 19 infection in order to prevent permanent disability associated with delayed treatment.

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