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(CASE REPORT)

Rare presentation of MIS in adult COVID patient: Case report and review of literature

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Abstract

Multi inflammatory syndrome (MIS) is a rare complication associated with covid-19 with few cases reported in pediatric age group. This entity is not well studied in adults. We report a case of a young male presented to us in very critical condition and was diagnosed as a case of MIS-A (Multi Inflammatory Syndrome - Adult). He was successfully treated with intravenous immunoglobulin, steroids and other supportive measure. By correct and timely diagnosis of this entity, one can prevent fatal outcome.

Keywords: Multi-inflammatory syndrome; Adult COVID-19; Immunoglobulin; Steroids

1. Introduction

Multi inflammatory syndrome (MIS) is a relatively new complication that is associated with COVID-19 disease, with cases mainly documented in children. However, not much is known about this entity in adults with only few cases reported from Europe and United States.[1] ???. Here in we report a case of a thirty two year old male who was diagnosed as MIS-A (Multi Inflammatory Syndrome-Adult) and treated successfully.

2. Case report

A thirty-two-year-old male, without co-morbidities presented to our hospital with complaints of diffuse abdominal pain that was colicky in nature and was associated with multiple episodes of watery, non bloody loose stools. Patient also had low grade fever on the same day which was relieved by taking paracetamol. He had past history of mild Covid-19 illness four weeks back and was managed at home. On examination, patient was toxic, agitated, febrile (temperature-100°F) with heart rate of 110/min, hypotensive (BP=90/50mmHg) and tachypneic. Per abdomen examination revealed diffuse abdominal tenderness. He was resuscitated with intravenous fluids and vasopressor support in emergency room & was started on high flow oxygen therapy after shifting to intensive care unit. Meanwhile, relevant investigations were sent,

which revealed leucocytosis, deranged kidney and liver functions(S. Creatinine:3.79mg/dl S. Urea:51.9mg/dL,SGOT-1053.0 U/L,SGPT-619.1U/L, bilirubin (Total/Direct:4.68/4.47 mg/dL,GGT:79.9 U/L,ALP:31.2 U/L),raised inflammatory biomarkers (CRP - 190.8mg/L / Procalcitonin - 100ng/mL).Based on patient's clinical findings and past history of COVID-19 infection, differential diagnosis of septic shock and MIS-A was made. Patient was started on empirical broad spectrum antibiotics (meropenem, tigecycline,doxycycline), and other supportive care.Two dimensional Echocardiography showed Generalized global hypokinesia of Left Ventricle, LVEF = 45%and was suggestive of Acute Myocarditis. Continuous renal replacement therapy (CRRT) along with OXIRIS™ filter was started& it was continued

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for 2 days for oliguria and renal failure. Patient was put on invasive ventilation the same day of admission in view of multi-organ dysfunction in high oxygen requirement. Based on patient's clinical findings,laboratory parameters (raised CRP, D-Dimer, negative culture, COVID IgG positivity)&COVID RT PCR negative status- a diagnosis of MIS-A was made. Patient was given methyl prednisolonepulse therapy (1gm IV OD for 2 days). He was also given Intravenous immunoglobulin therapy (A total of 120gmIV Ig in 2 divided doses 24 hoursapart was given).Within 24 hours, patient's renal functions showed mild improvement with a reduction in inflammatory markers (Figure 1). He was extubated on 5th day and gradually started maintaining on minimal oxygen support. Patient's condition improved & he was shifted to ward and after 4 days he was discharged to home.

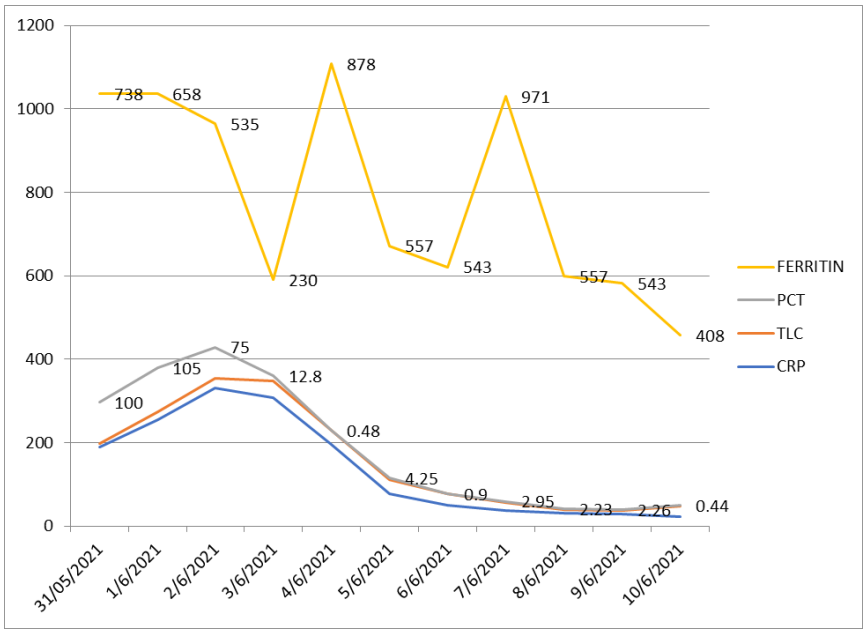

Figure 1 CRP, TLC, Ferritin, Procalcitonin (PCT) Trend

3. Discussion

Multisystem inflammatory syndrome in children (MIS-C) is a well-recognized entity, whereas a parallel syndrome in adults has not been well defined. MIS-C was first described in children in April 2020 where in child presented with complaints of abdominal pain, shock and cardiac dysfunction [2]. Later with growing number of cases, CDC released a definite criteria for MIS-C [3].

In June 2020, similar syndrome was identified in adults. A study of 27 patients published in United States, where adults developed cardiovascular, gastrointestinal, dermatologic and neurologic symptoms in the presence of severe respiratory illness along with documented COVID-19 infection in recent past [1]. This was followed by release of defining criteria for MIS-A with included other clinical (primary & secondary) as well as lab parameter.{4}

Pathogenesis of MIS-A is still unclear. However, Fox et al highlighted the role of endothelial damage secondary to small vessel vasculitis as a potential cause with finding of thrombi in pulmonary vasculature in these patients, thus, explaining the need for hypercoagulability monitoring [5].. Additional proposed mechanisms for extra-pulmonary dysfunction in COVID-19 include thrombo-inflammation, dysregulated immune responses and dysregulation of the renin-angiotensin-aldosterone system. [1].

There are no clear cut guidelines available for MIS-A management. However, CDC, highlights the importance of use of intravenous immunoglobulin and steroids in MIS-C [6]. A study conducted by Ouldali et al, proposed favorable outcome in children who were given combination of methyl prednisolone and IV Ig than IV Ig alone [7].

4. Conclusion

The present case highlights the importance of early diagnosis of MIS-A & need for timely management in preventing mortality.

Compliance with ethical standards

Disclosure of conflict of interest

There is no conflict of interest between authors

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

Highlights

We like to highlight the importance of knowing about this entity in post covid adult patients and timely treatment initiation for this syndrome.

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