

## A catastrophic case of Multisystem inflammatory syndrome (MIS-C) with small bowel obstruction

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### ABSTRACT

**Summary:** There is no definitive guideline to distinguish multisystem inflammatory syndrome in children (MIS-C) associated with gastrointestinal symptoms from surgically-based pathologies such as volvulus. A 9-year-old boy presented with periumbilical abdominal pain and non-bilious vomiting. A week prior, he and his family had fever. He arrived at the emergency department dehydrated and in shock. His abdomen was soft, non-tender and non-distended. Abdominal x-ray showed faecal loading and no dilated bowel while ultrasound showed features of enterocolitis. The polymerase chain reaction was positive for SARS-CoV-2. He was treated for MIS-C and intravenous immunoglobulin and methylprednisolone were administered. Later, there was progressive abdominal distention where CT angiography of abdomen demonstrated ascites and generalized small bowel dilatation and thickening. Exploratory laparotomy found small bowel volvulus and anomalous bands (AB). SARS-CoV-2 has been speculated to trigger dysregulation of the immune response resulting in multiorgan failure. Around 68.3% - 73.7% of MIS-C patients had gastrointestinal symptoms. Small bowel obstruction secondary to AB is a rare entity contributing only about 3% of the total cases<sup>2</sup>. AB may be acquired as a result of an infection or inflammatory condition, or it may be congenital. The diagnosis of obstructed congenital AB was based on the exclusion of acquired cause<sup>3</sup>. Recent SARS-CoV-2 infection may have contributed to this patient's condition. As immunomodulatory therapies are required, it is crucial to consider MIS-C in the diagnostic process. This case illustrates the complexity in attaining a diagnosis. COVID-19 can cause a myriad of inflammatory dysregulation which in turn, present as a multitude of symptoms. Physicians in all time should always think of other possible causes of the symptoms to ensure the best course of management for the patient.

## Diagnostic dilemma in febrile children: Multisystem inflammatory system in children (MIS-C) versus dengue fever

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### ABSTRACT

**Summary:** Multisystem inflammatory syndrome in children (MIS-C), emerged from late April to early May 2020 and affected clusters of children in Europe and North America. In dengue-endemic regions like Malaysia, MIS-C is likely to cause a diagnostic dilemma with dengue fever due to overlapping clinical and laboratory features, especially in the Emergency Department (ED). A healthy 10-year-old boy, who completed vaccination for COVID-19 presented to the ED with a 3 days history of fever associated with vomiting and loose stool. The patient was lethargic with skin rash, buccal mucosa redness and dry lips. Dengue virus antigen detection (NS-1) antigen test was positive. Subsequently, he was diagnosed with dengue fever with warning signs. Laboratory investigation shows White blood cells  $4.0 \times 10^9/L$ , Hemoglobin 10.5g/dL, Hematocrit 34 %, Platelet  $198 \times 10^9/L$  and CRP 19 . Serial electrocardiogram shows ischemic changes, Q wave and U wave on lead II and III, T inversion V1-V4. Thorough bedside echocardiography by a paediatrician discovered mild pericardial effusion and dilated both left coronary artery and right coronary artery with perivascular cuffing. The patient was diagnosed with MIS-C with gastrointestinal and cardiovascular involvement. COVID-19 antibody screening was positive for Immunoglobulin (IgG) N protein. However, dengue serology was negative. He was treated with intravenous immunoglobulin for two days and started on a tapering dose of steroids. Finally, he improved and was discharged well after seven days in the hospital. Oral mucosal findings, raised inflammatory parameters, anaemia and bedside echocardiography findings can differentiate MIS-C from dengue fever in the emergency department. This case highlights the need for Emergency Department doctors to have vast knowledge and patience to do a meticulous clinical evaluation, correctly interpret laboratory investigation and do thorough bedside echocardiography in febrile children with suspicious evidence of MIS-C.