

**MACROPHAGE ACTIVATION SYNDROME INDUCED BY MULTISYSTEM  
INFLAMMATORY SYNDROME TEMPORALLY ASSOCIATED WITH COVID-19-A CASE  
REPORT**

**Gaukhar KURMANOVA  
Yulduz KHAIDAROVA  
Zhanar MUSSAGULOVA  
Gulzhan TRIMOVA**

Al-Farabi Kazakh National University

**ABSTRACT**

Multisystem inflammatory syndrome temporally associated with COVID-19 (MIS-C) manifests with a picture of vasculitis (KAWA-COVID-19), similar to the Kawasaki disease and develop as a result of dysregulation of the immune system in response to SARS-CoV-2. About 2% of children with KAWA-COVID-19 develop macrophage activation syndrome (MAS), which is the cause of death in 1.3-2% of cases of MIS-C in children. **CASE REPORT:** A 16-year-old girl had fever for 5 days, rash on the palms, loose stools up to 2-3 times a day, nausea, repeated vomiting, pain in the right iliac region. Chest X-ray was normal. The surgeons diagnosed acute appendicitis and performed appendectomy. A day after the operation, the patient's condition deteriorated sharply: drop in blood pressure up to 50/20 mm Hg, persisted despite the administration of dopamine 10.6 µg / kg / min., mezaton 190ng / kg / min, shortness of breath, swelling on the face, fever and signs of viral conjunctivitis. Laboratory tests deteriorated significantly: elevated C-reactive protein (434.4 mg / ml), procalcitonin (25.22 ng / ml), ferritin (1741.1 ng / ml), D-dimer (13.43 mg / l), ALT and total bilirubin, LDH, creatinine and urea, a decrease in total protein and albumin. In CBC: Hb 94g/l, PLT -  $55 \times 10^9/l$ , WBC  $18.1 \times 10^9/l$ , LYM -3.8% and neutrophilia (94.3%); CT of abdomen: hepatomegaly, splenomegaly and adenopathy of mesenteric lymph nodes and ultrasound revealed pericarditis, bilateral hydrothorax and bilateral oophoritis. She developed bilateral pneumonia and ARDS within 12 hours: saturation decreased from 99% to 84.9%. RT PCR was negative for SARSCov-2, but antigen test was positive at autopsy. Despite the treatment with high doses of steroids, intravenous immunoglobulin, the patient died. The fatal course of MIS-C in this patient was due to the severe adrenal insufficiency and late administration of corticosteroids and / or biological therapy.

**Key Words:** MIS-C, KAWA-COVID-19, macrophage activation syndrome.