



What is Your Radiologic Diagnosis?

Radyolojik Tanınız Nedir?

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A 4-year-old girl presents to the pediatric emergency service of our hospital with complaints of fever and abdominal pain ongoing for 4 days. It is learned that the patient presented to another center with similar complaints two days ago, and an enema was performed after gas distension was observed in the abdominal X-ray and abdominal ultrasonography was normal. The SARS-CoV-2 PCR test of the patient performed at another medical center results in negative. It is learned that her siblings had fever and flu-like complaints 20 days ago. On physical examination of the patient, erythematous maculopapular rashes on the palms and redness in the conjunctiva were observed. The liver is palpable 2 cm below the costal margin. During admission, pulse is measured as 160 pulse/min, body temperature as 36.6°C, and all other vital signs are found normal. Laboratory tests reveal increase in C-reactive protein and erythrocyte sedimentation rate (CRP= 13 mg/dL, ESR= 34 mm/h). Contrast-enhanced abdominal computed tomography (CT) is performed on the patient upon detection of abdominal tenderness in the physical examination. Abdominal CT detects mild wall thickening of the gallbladder and pericholecystic fluid (white arrow) (Figure 1), wall thickening of the terminal ileum (white arrow) (Figure 2), intraabdominal free fluid (star) (Figure 3A), and periportal edema (white arrows) (Figure 3B). What is your diagnosis for this patient whose abdominal CT slices have been presented with these findings?

Diagnosis: Multisystem inflammatory syndrome (MIS-C) seen in children associated with COVID-19.

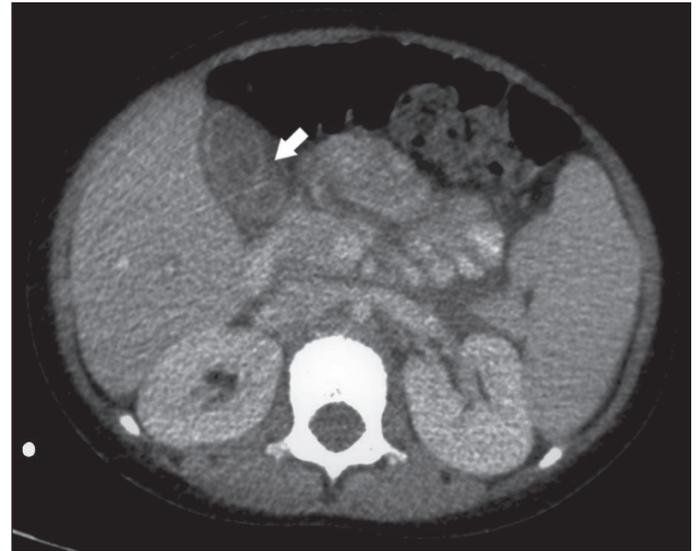


Figure 1. Contrast-enhanced abdominal CT in the axial plane.

Short Discussion

Multisystem inflammatory syndrome (MIS-C) seen in children associated with COVID-19 is a rare complication of SARS-CoV-2 infection. The disease usually occurs within 4 weeks of previous SARS-CoV-2 infection or contact with a COVID-19 patient (1,2). Clinical findings involve different systems. Most of the patients present with high fever and associated gastrointestinal system complaints (2). Cardiovascular involvement is common, and cardiac involvement and dysfunction neg-

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Figure 2. Contrast-enhanced abdominal CT of the pelvis in the axial plane.

actively affect the prognosis (1,2). Therefore, early diagnosis and appropriate treatment are both very crucial in the course of the disease. The reason of the disease is the inflammatory response that develops following the infection. In patients diagnosed with MIS-C, SARS-CoV-2 PCR test is mostly negative

but antibody tests are found positive, indicating previous infection (3). However, the diagnosis is not ruled out if there is no SARS-CoV-2 PCR positivity or proof of previous infection, concurrent with the clinical findings (4). In children with previous COVID-19 infection, SARS-CoV-2 contact or antibody positivity, diagnosis is made with fever ongoing for more than 24 hours, elevated inflammatory parameters on laboratory tests, and the presence of findings suggestive of involvement of at least two organ systems (cardiovascular, gastrointestinal, respiratory, dermatological, neurological, hematological) (4). Although radiologic examination aids in the diagnosis in MIS-C, diagnosis is made through clinical findings and laboratory results. The most commonly detected findings on chest X-ray of the patients include cardiomegaly, bilateral nonspecific opacities, peribronchial thickening, and pleural effusion (5,6). Bilateral pulmonary opacities are seen secondary to cardiogenic pulmonary edema in cases with cardiac involvement (5). The most commonly detected findings on abdominal ultrasonography, CT and magnetic resonance imaging are ascites in small quantities, hepatomegaly, wall thickening in the terminal ileum, wall thickening of the gallbladder, and mesenteric lymphadenopathies (5,6).

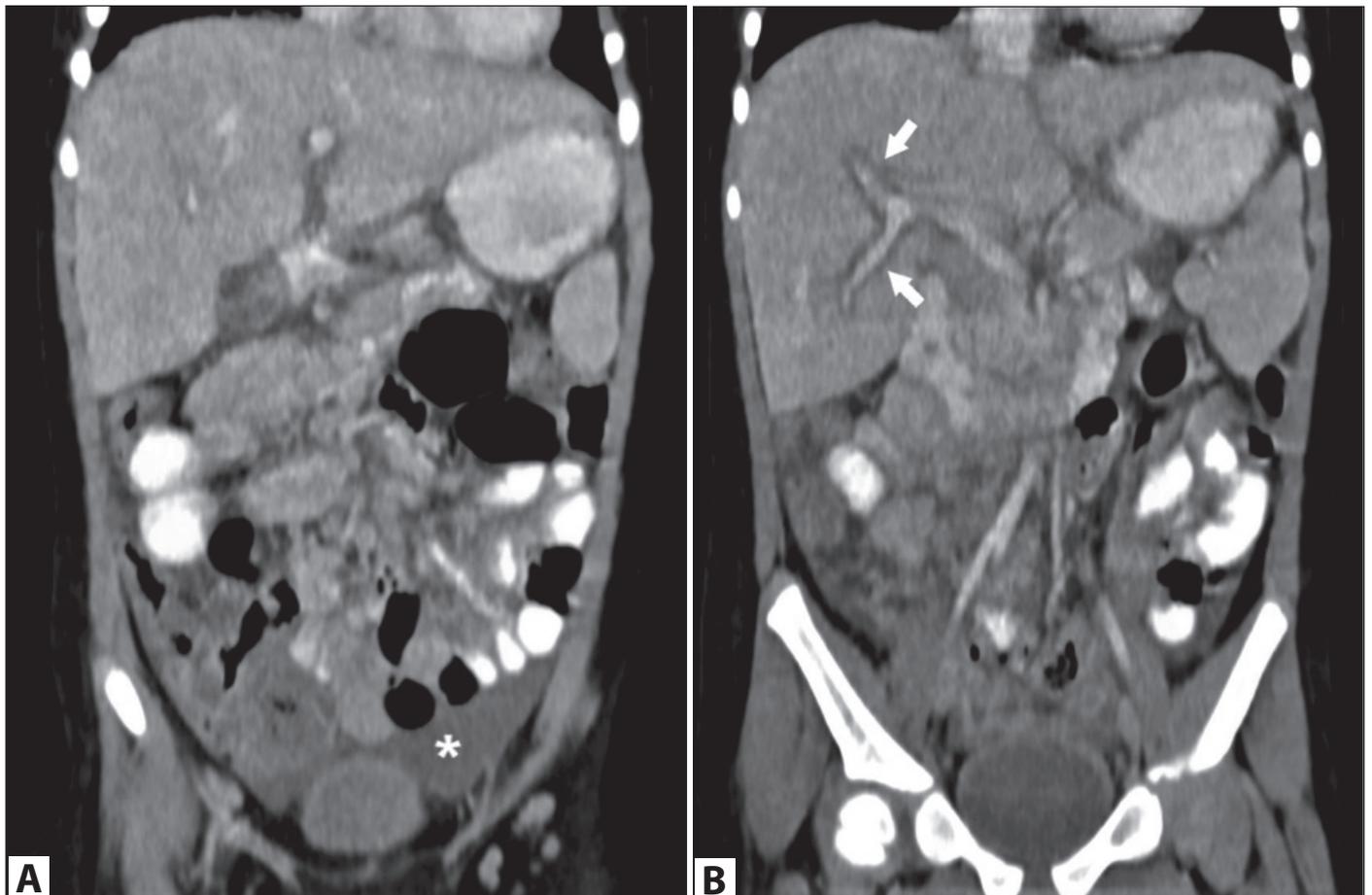


Figure 3. Coronal reformatted images of the contrast-enhanced abdominal CT slices.

Treatment frequently includes intravenous steroid, intravenous immunoglobulin and immunomodulating agents. In cases with cardiac involvement, like myocarditis and coronary artery aneurisms, anticoagulants are crucial in treatment. Majority of the patients recover with early diagnosis and appropriate treatment, and MIS-C mortality rate is reported as 1.5% in related studies (3).

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