The Omental Cake Sign in Pediatric Tuberculosis

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Abstract: Ultrasound and computed tomography (CT) images showing ascites and omental infiltration (omental cake sign) in a 12-year-old girl with abdominal pain and fever for two weeks. The presence of abdominal and mediastinal lymphadenopathy as well as of a pulmonary consolidation at CT suggested a diagnosis of tuberculosis which was then clinically confirmed. After treatment with ethambutol, rifampicin and isoniazid, pyrazinamide, and vitamin B6 (i.e., intensive treatment for two months followed by a continuation phase with two drugs regimen for four months) the patient fully recovered. Abdominal involvement is rare in children with tuberculosis but the presence of omental involvement together with ascites and enlarged lymph nodes at imaging may suggest this diagnosis and guide the clinicians to proper testing.

Keywords: omental cake sign; abdominal tuberculosis; children; radiology
From a radiological point of view, the distinction between malignant and benign omental cake might be quite challenging. Some authors, for instance, suggested that mesenteric nodules, nodular or symmetrical thickening of the peritoneum, splenic calcifications, and splenomegaly may suggest tuberculosis [7-10]. Nevertheless, some of these features were not evident in our patient, demonstrating how this diagnosis might be challenging.

Despite a reported trend of decline of the rate of tuberculosis [11], there is the need to increase awareness about this infection in the pediatric population, not only among radiologists. In this direction, the Global Tuberculosis Programme of the World Health Organization, established in 1997, recently highlighted the importance of the systematic collection of information regarding tuberculosis in children [12].

As a result of increased reporting coverage and more accurate data collection, it became clearer that children younger than 5 years are at higher risk of severe infections, and that the lack of a correct diagnosis and therefore of a proper treatment are associated with higher mortality rates (22% in non-treated children vs. 9% in treated ones) [12]. In line with this evidence, the model recently proposed by Yerramsetti et al. showed how pediatric tuberculosis is often under-reported and underlined the importance of easy diagnostic tools, especially in high-burden areas [11].

Radiologists can certainly play a role in such settings by improving the diagnostic process of tuberculosis in children, even in cases without immunodeficiencies or debilitating diseases.

Thus, pediatric radiologists identifying omental cake, ascites, and enlarged lymph nodes with or without pulmonary signs, should include tuberculosis among their differential diagnoses and guide their clinicians to proper testing.

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