Case 11776

Unusual CT findings in abdominal tuberculosis: a case report and a review of the literature
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Section: Abdominal imaging
Area of Interest: Abdomen
Procedure: Contrast agent-intravenous
Imaging Technique: CT
Special Focus: Infection Case Type: Clinical Cases
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Patient: 39 years, male

Clinical History:
We report the case of a 39-year-old Asian man, immunocompetent, presenting with a symptomatology characterized by fever, diarrhoea, weight loss and abdominal distension; these symptoms started 10 days before his admission to our hospital.
Erythrocyte sedimentation rate was increased, HIV test was negative and a Mantoux test was non-reactive.

Imaging Findings:
An abdominal spiral CT was performed after administration of intravenous contrast using a delay of 70 and 180 seconds and a rate of contrast flow of 3 ml/sec. CT demonstrated low density ascites (10-20 HU), irregular omental thickening like ‘omental cake’, linear thickening of the small bowel mesentery with crowded vascular bundles, and peritoneal thickening with sporadic tiny nodules. Moreover, lymph nodes with short axis <10mm and homogeneous aspect were observed in the small bowel mesentery and retroperitoneal side (upper periaortic/pericaval) (Fig. 1).
The CT examination also documented moderate parietal thickening with circumferential enhancement of middle and distal ileum (Fig. 2).
We decided to perform a laparoscopic omental biopsy; the diagnosis of abdominal tuberculosis was based on the pathological findings of caseating granuloma.
A repeat CT of the abdomen was done after five months and it revealed minimal residual abnormalities of mesentery and omentum (Fig. 3).

Discussion:
In recent years the incidence of abdominal tuberculosis is increasing, especially among the population at risk and immunocompromised subjects [1, 5, 7]. Tuberculous peritonitis is a rare manifestation of tuberculosis, which occurs in less than 4% of all patients with tuberculosis and is commonly accompanied by ileo-cholic involvement [3, 4, 7, 11, 12].
To the best of our knowledge, the CT findings described in our patient are infrequent in abdominal tuberculosis. Specifically, the presence of free low-density ascites and omental thickening like omental cake are unusual findings. In tuberculous peritonitis, ascites is frequently described as free and with high density (20-45 HU) [4, 8, 9] and some authors described ascites as water density in relation to transudative phase [10, 13]. In our case, ascites laboratory results are suggestive of a transudative inflammatory phase and its attenuation values show water density. Hyun Kwon Ha et al. described smudged omentum as the most common pattern of infiltration in both abdominal tuberculosis and carcinomatosis, and omental cake as more common in patients with peritoneal carcinomatosis [2,
Secondly, the presence of lymph nodes with homogeneous structure and lower short axis < 10 mm, as in our case, is quite aspecific and unusual. In fact, De Backer et al. showed that the size of lymph nodes varied widely from microadenopathy to large conglomerate masses with lymph node short-axis of 18 mm on average [6]. Moreover, in an electronic search of the available English literature with search words “ileal tuberculosis” excluding abdominal tuberculosis in children [MEDLINE/Pubmed 1960-2013: www.ncbi.nlm.nih.gov/entrez/], only 22 cases of isolated jejunoileal tuberculosis in immunocompetent individuals have been reported worldwide. The present case updates the limited current literature on primary ileal tuberculosis; we described a moderate wall thickness of some ileal loops without cholic involvement, no longer evident after medical treatment at the next CT examination. Moreover, in agreement with Vanhoenacker et al, we confirm that isolated small bowel involvement is associated with peritonitis [1, 14].

We didn’t notice parenchymal abnormalities of solid organs in abdomen, but hepatosplenic involvement is very common at autopsy in patients with disseminated disease; this is due to the generally miliary form of the infection with nodules ranging from 0.5 to 2 mm in size, which may not be detected on CT [15].

**Differential Diagnosis List:** Diagnosis of abdominal tuberculosis was confirmed by histological omental biopsy.

**Final Diagnosis:** Diagnosis of abdominal tuberculosis was confirmed by histological omental biopsy.

**References:**


**Figure 1**

Description: Massive omental infiltration with soft tissue density with "omental cake" appearance (arrow) and lymphadenopathy in small bowel mesentery with homogeneous structure and short axis of 6mm (arrowhead) Origin: P. Sergio, Department of Radiology, Istituti Ospitalieri di Cremona, Cremona, Italy
Description: Normal appearance of ileo-caecal valve (arrow). Moderate parietal thickening of some ileal loops and crowded vascular bundles in the small bowel mesentery (arrowhead) Origin: P. Sergio, Department of Radiology, Istituti Ospitalieri di Cremona, Cremona, Italy
Figure 3

Description: Omental fat with ill-defined appearance of “smudged thickening” (arrow)

Origin: P. Sergio, Department of Radiology, Istituti Ospitalieri di Cremona, Cremona, Italy