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RADIOLOGIC PATHOLOGIC CORRELATION / *Gastrointestinal imaging*

Radiological, clinical and histological correlations in a right segmental omental infarction due to primary torsion in a child

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Greater omental infarction is an uncommon cause of acute abdominal pain in children. It may be primary or secondary to torsion and can involve all or part of the omentum. Its basic histological findings allow us to understand its pathophysiology. Despite the relatively non-specific clinical presentation and the fact that it is relatively poorly understood, the widespread use of ultrasound and technical improvements in CT usually allow it to be diagnosed accurately. The approach to treatment is still contentious and while some patients benefit from laparoscopic resection of the necrotic omentum, many articles describe the merits of a conservative approach.

We describe a case of right greater omental segmental infarction due to primary torsion in a 12-year old boy diagnosed on imaging and treated by laparoscopic surgery, which rapidly resolved his symptoms.

Case report

A 12-year-old boy presented with moderate, isolated, right flank pain, which had developed gradually over 4 days. His clinical history did not reveal any triggering factors responsible for his symptoms and at the consultation the pain had become constant and was slightly worsened by movements and coughing. He had no bowel transit problems, nausea, and vomiting or urinary symptoms.

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Physical examination showed a slightly overweight patient with a temperature of 37.3 °C with diffuse abdominal tenderness in the right quadrants and an exquisitely painful point in his right flank, with no palpable mass. His bowel sounds were present and he had no hernias. He had no systemic signs, particularly organomegaly or lymphadenopathy.

His white cell count was 8690 Giga/L [4000—10,000], including 5610 Giga/L leucocytes [1500—7000] with a C-reactive protein of 3 mg/L [< 5]. His other routine investigations were normal and a urine test strip was negative.

Abdominal ultrasound showed painful infiltration of the deep abdominal fat with a hyperechogenic image (Fig. 1) 13 cm along its long axis, which was ovoid, homogeneous and located in the right flank between the abdominal wall and ascending colon. The appendix was healthy and the investigation was otherwise unremarkable.

Because of the child's radiological and clinical features, an abdominal and pelvic CT scan was performed and showed extensive heterogeneous infiltration of the deep abdominal fat in front of the right colon, extending from the hypochondrium to the iliac fossa. This was 14 cm long and contained linear structures with a whirl sign around a main vein, the gastro-colonic trunk (Figs. 2 and 3). He had slight enhancement of the parietal peritoneum and thickening of the wall of the right colon.

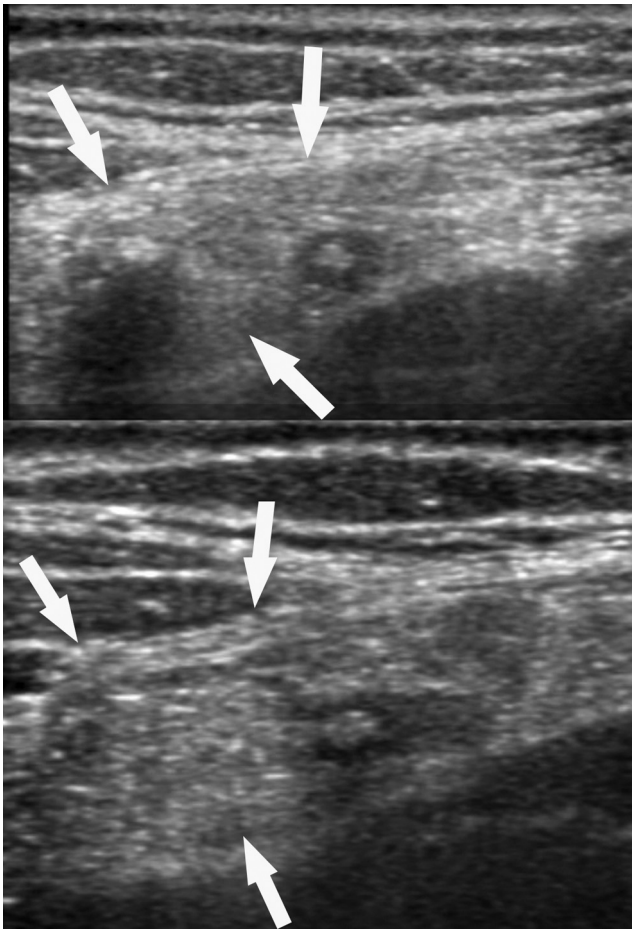

Figure 1. Hyperechogenic mass in the deep abdominal fat attached to the thickened parietal peritoneum (upper arrows).

As the boy did not have appendicitis or systemic signs and his pain was only moderate, he was started on medical treatment with analgesics, antibiotics and hydration. After 3 days, (i.e. 7 days from the time his symptoms started), he had not improved and an MRI was performed which showed a large area of heterogeneous infiltration in the deep abdominal fat in front of the ascending colon. This was hyperintense on T1, T2 and diffusion-weighted sequences and hypointense after fat suppression. It was peripherally enhanced after gadolinium injection (Fig. 4). No gastro-intestinal wall abnormalities or deep collection were present.

A diagnosis of right segmental greater omental infarction due to torsion was proposed and he was treated laparoscopically with resection of the infracted omentum. Inspection of the abdominal cavity showed (Fig. 5):

- a large yellowish mass in the right flank with areas of loss of coloration, representing the pathological omentum and signs of venous distress with a combination of loss of color, a purplish appearance and venous congestion;
- torsion around its vascular pedicle;
- an adhesion to the anterior abdominal wall;
- a small free serohematic peritoneal effusion.

Histological examination confirmed a diagnosis of primary segmental omental infarction with no tumor cells. Bacteriology samples were negative.

The boy had improved by the next day and was able to leave a few days after the procedure.

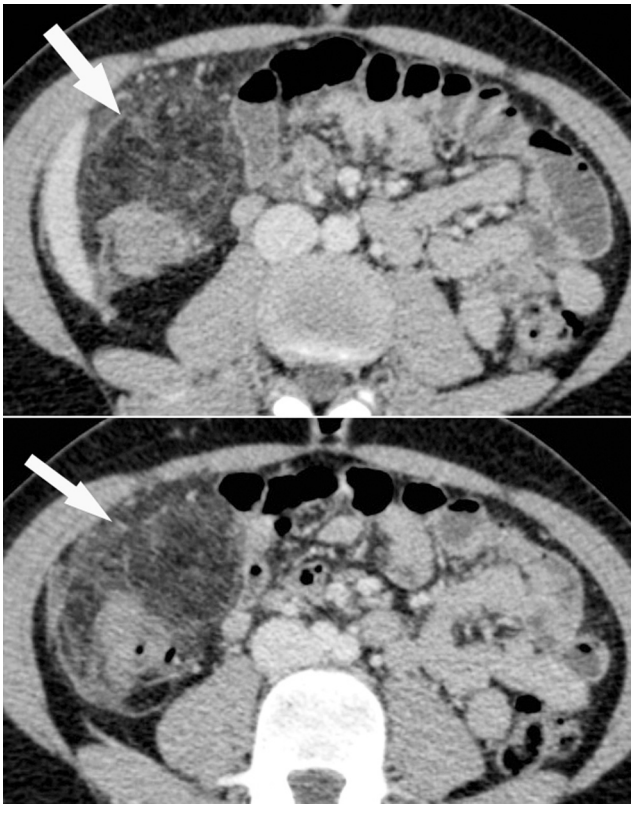

Figure 2. Heterogeneous fatty mass containing linear structures representing dilated thrombosed veins. The right colon is thickened because of extension of the inflammation.