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Case Report

Omental infarction found incidentally during metastatic workup: A report of 2 cases ☆,☆☆

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ABSTRACT

Omental infarction is an uncommon cause of acute abdominal pain that can occur in different several locations. We report 2 cases of omental infarction diagnosed at computed tomography (CT) scan performed as part of routine oncological surveillance, one right-sided and the other left sided. This paper illustrates the range of CT scan findings and highlights the important clinical implications of this radiological diagnosis.

Introduction

Omental infarction is an uncommon cause of acute abdominal pain that can occur in different several locations. Being the largest peritoneal fold in the abdominal cavity, it derives from the proximal duodenum and stomach, then it drapes the small intestine, passes downwards, before turns up on itself to pass upwards to the anterosuperior aspect of the transverse colon, draping most of the intestine. According to the site of omental infraction, abdominal pain can therefore develop at different locations. Depending on the occurrence site of abdominal, omental infraction must be differentiated from cholecystitis, appendicitis, diverticulitis, epiploic appendagitis, and gynecological problems [1,2]. We report 2 cases of omental infarction diagnosed at computed tomography (CT) scan performed as part of routine oncological surveillance, one right-sided and the other left sided. This paper illustrates the range of CT scan findings and highlights the important clinical implications of this radiological diagnosis.

Case report 1

A 45-year-old man, after left-sided nephrectomy for renal carcinoma, CT was performed 6 months following surgery for surveillance. The patient was asymptomatic. Hematologic tests were normal, including tumor markers. Enhanced thoraco-abdominopelvic CT revealed an oval shaped hyperdense rim with hyperattenuating streaky infiltration is seen

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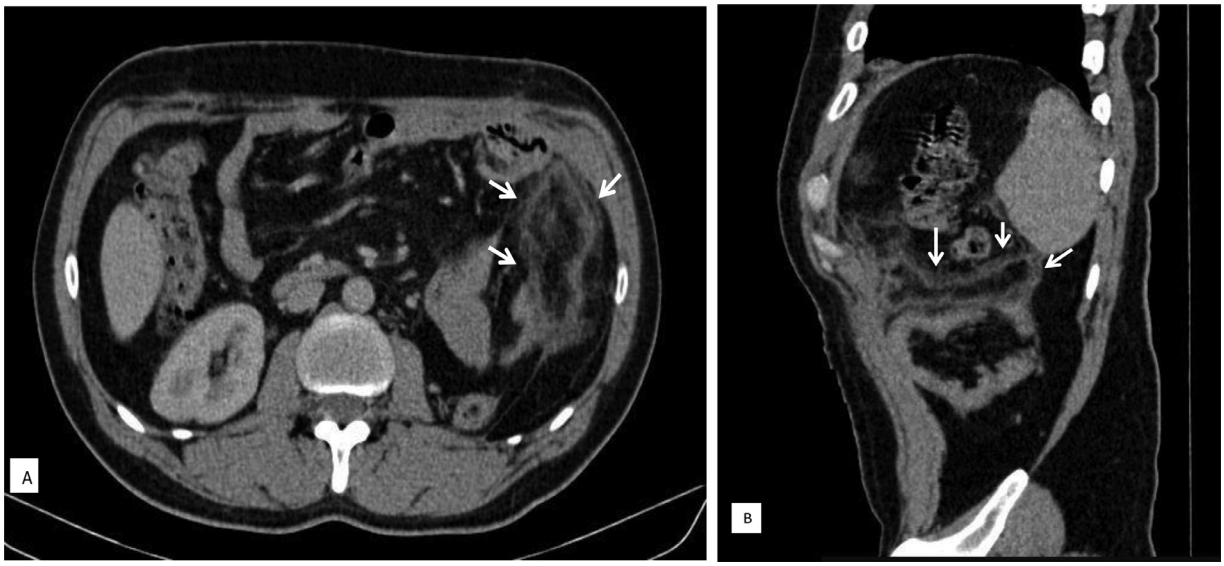

Fig. 1 – Contrast-enhanced abdominopelvic computed tomography image (A: axial, B: sagittal), showing an oval shaped hyperdense rim with hyperattenuating streaky infiltration is seen between the descending colon and the left peritoneum (white arrow).

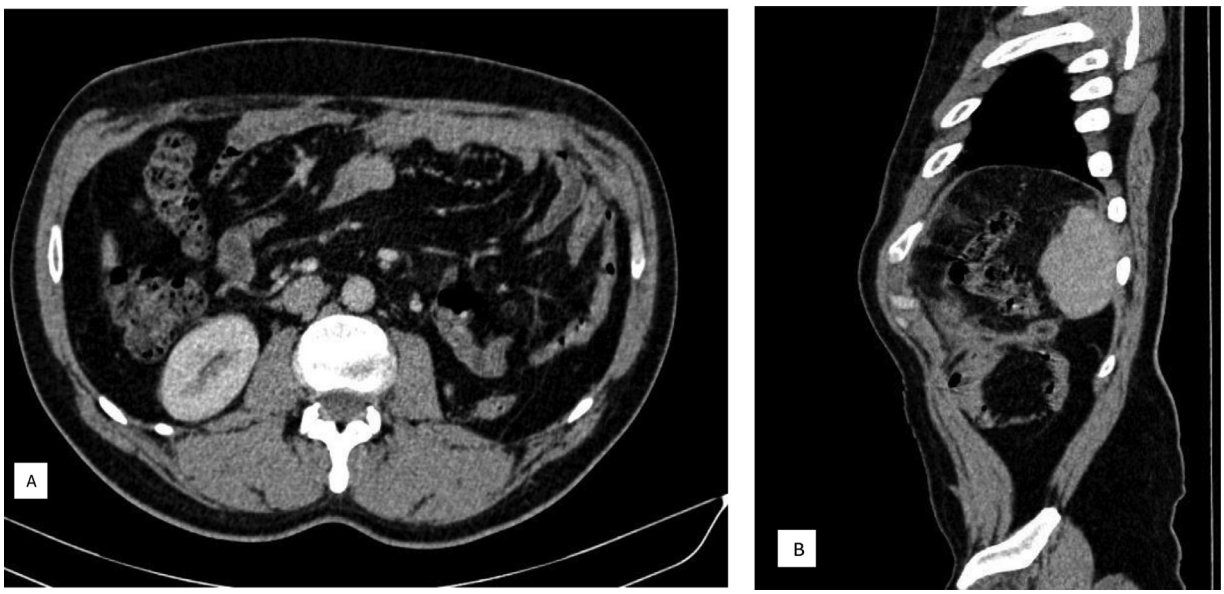

Fig. 2 – Contrast-enhanced abdominopelvic computed tomography control (A: axial, B: sagittal), showing the total regression of the omental infarction.

between the descending colon and the left peritoneum; this led to a definitive diagnosis of omental infarction (Fig. 1). The patient underwent a conservative treatment. One year later, a control scan was performed, which showed the total regression of the omental infarction (Fig. 2).

Case report 2

A 50-year-old patient, followed up for an operated small bowel adenocarcinoma, who presents a recurrence in the colon, referred to our department for a thoraco-abdominopelvic CT scan to evaluate the extension of his pathology. The patient reports recurrent moderate abdominal pain without fever, vomiting, or transit disorder. Hematologic tests were normal. The scan revealed diffusely increased fat density throughout the anterior omentum between the ascending colon and the right peritoneum (Fig. 3). The patient underwent a conservative treatment. The CT scan of the control, performed 7 months later, showed the total regression of the omental infarction with a progression of his pathology by the appearance of a large peritoneal effusion related to carcinosis (Fig. 4)

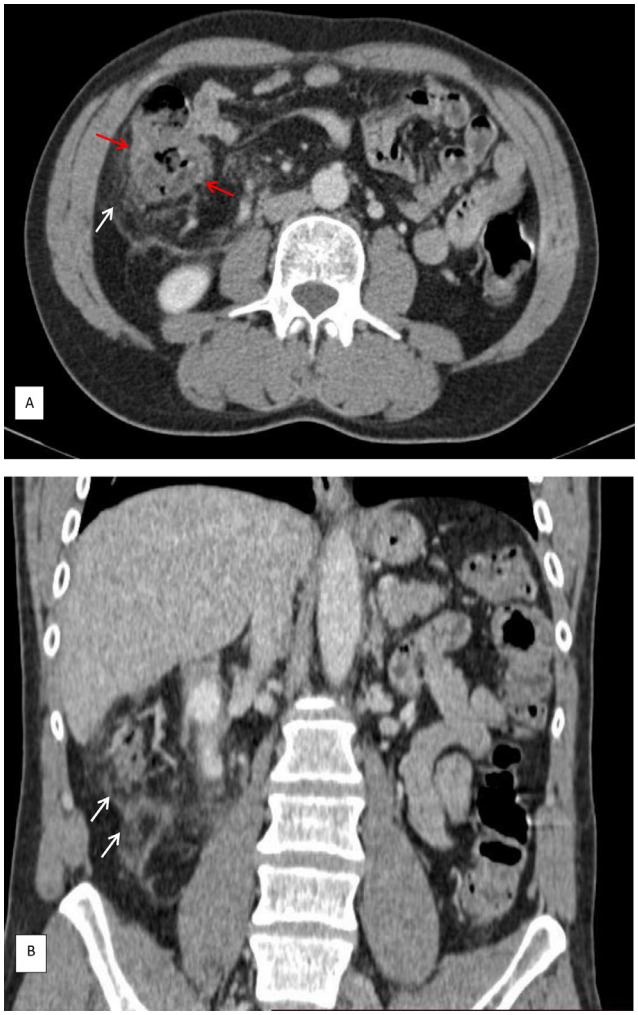

Fig. 3 – Contrast-enhanced abdominal computed tomography image (A: axial, B: sagittal), demonstrated diffusely increased fat density throughout the anterior omentum between the right peritoneum and the ascending colon (white arrow), which is the site of a parietal thickening (red arrow).

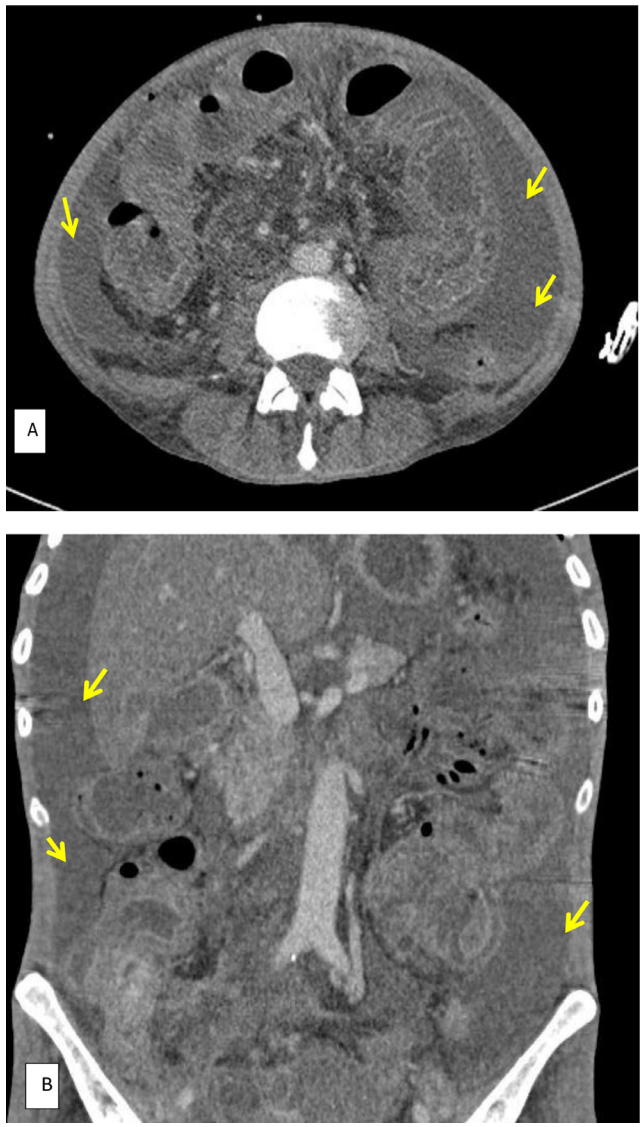

Fig. 4 – Contrast-enhanced abdominopelvic computed tomography control (A: axial, B: sagittal), showing the total regression of the omental infarction, with the appearance of a large peritoneal effusion related to carcinosis (yellow arrow).

Discussion

Omental infarction is an uncommon cause of acute abdominal pain. More than 300 cases have been published since the first one was described by Eitel in 1899. Although approximately 400 cases of omental infarction have been reported so far, its accurate incidence has not yet been determined [1], it occurs mainly in people in their fourth and fifth decades, men are affected twice as frequently as women and about 15% of patients are children [3,4]. Omental infarction has been reported to occur more frequently on the right side. This can be explained by the fact that the omentum on the right side is longer and more mobile than on the left. Rarely, it has been reported to occur on the left side or at the epigastric region [1].

In 1952, Leitner et al. classified omental infarction into primary (idiopathic) and secondary types, and it may occur with and without torsion [1]. Although the cause of primary segmental infarction, with or without torsion, has not been identified, but many documented reports suggest the presence of anatomic variations, such as bulky bifid or accessory omentum, abnormal vascular blood supply to the omentum, vascular kinking, or irregular omental fat distribution, mostly in obese patients. Segmental infarction of the omentum occurring without torsion may be secondary to a hypercoagulable state or vascular abnormality predisposing to thrombosis or to a congestion of mesenteric veins caused by right-sided heart failure. Scars, inflammation, cysts, tumors, hernias, and other abdominal pathologies that might cause adhesion can

all cause secondary omental torsion of the omentum. Precipitating factors resulting in displacement of the omentum may include sudden increase in abdominal pressure after heavy meals, a sudden change in body position, overexertion, sneezing or coughing, abdominal trauma, or recent abdominal surgery [2]. Nevertheless, regardless of the types, histological observations show comparable patterns of progression from edema and congestion due to venous stasis and thrombosis to hemorrhagic necrosis and extravasation of serosanguineous peritoneal fluid [1,3]. In our cases, both patients were being followed for malignancy, so we were dealing with 2 cases of secondary omental torsion [4].

Omental infarction has a number of clinical peculiarities that have been described. Patients typically complain of sudden onset, gradually increasing acute abdominal pain without any accompanying gastrointestinal symptoms including nausea, vomiting, anorexia, or bowel dysfunction. They are constitutionally well and without fever. In our cases, the 2 patients had no definite symptoms .Focal tenderness with varying degrees of guarding is found on physical examination. The white blood cell count, erythrocyte sedimentation rate, and C-reactive protein may be increased [4]. In our cases, the 2 patients had a history of recurrent moderate abdominal pain during the few months after surgery. An explanation for this result could be that acute abdominal symptoms by omental infarction might be masked by postoperative pain or concealed by analgesics for postoperative pain.

In the past, omental infarction was diagnosed intraoperatively, but with new advances in imaging technology, it has become more readily diagnosed outside the surgical theatres. CT is the imaging modality of choice [5] and may assist in the exclusion of various other conditions presenting a similar clinical manifestation [4]. When infarction occurs without torsion, a CT scan shows a fatty mass with linear structures that correspond to dilated thrombosed veins and/or sheets of fibrosis. The masses are often deeply localized in front of the colon and adhering to the parietal peritoneum. After contrast injection, peripheral enhancement can occasionally be detected, and the parietal peritoneum is frequently inflamed, enhanced, and thickened. A small free peritoneal effusion and moderate thickening of the gastro-intestinal tract walls may be seen as a result of local extension of the inflammation. In addition to these findings, the “whirl sign’’ and “vascular pedicle sign’’ are described if torsion is present [6–9]. These reflect the same effect: torsion of a portion of the omental fat accompanied by its vessels around an enhanced vascular pedicle which is enlarged in relation to the fixed point around which it has twisted [6]. In addition to CT, ultrasound can equally diagnose omental infarction through the appearance of a hyperechoic, noncompressible, ovoid mass [3]; however, it remains the investigation of choice in pediatric abdominal emergencies and, most importantly, can exclude a clinically obvious cause [7]. MRI appearance has been rarely described, it shows a fat mass containing linear structures which are hyperintense on weighted T1 sequences with hypointense linear structures inside the mass (that correspond to the congested mesenteric vessels with reduced flow or sheets of fibrosis) and hyper intense on T2 sequences because of venous congestion and edema [6].

On a CT scan, omental infarction can be easily differentiated from acute appendicitis [10] and cholecystitis by showing a normal appearing, uninflamed appendix and gallbladder, respectively. CT findings suggestive of diverticulitis that include the visualization of inflamed diverticula, marked bowel wall thickening, and paracolic abscess are usually not found in omentum infarction. Despite this, several earlier investigations have described the presence of mild bowel wall thickening also in omental infarction, probably resulting from a local spreading of the inflammation [4]. Despite the fact that appendagitis is more challenging to differentiate from, since both show a fatty mass on CT, the main difference is the size of the lesion, typically in acute epiploic appendagitis a less than 5 cm in diameter, whereas the lesion in omental infarction is larger [4]. A fatty mass within the omentum is also described in benign and malignant conditions, such as lipoma, angiomyolipoma, teratomas, mesenteric lipodystrophy, peritoneal pseudomyoma, liposarcoma, and peritoneal mesothelioma or in peritoneal metastases (usually following ovarian cancer). In addition, primary benign or malignant neoplasms such as lipoma, angiomyolipoma, teratoma, mesenteric lipodystrophy, peritoneal pseudomyxoma, liposarcoma, and peritoneal mesothelioma, as well as metastatic peritoneal seeding, may present with CT findings of a fatty mass in the omentum. All of these conditions clearly present in a different clinical setting, so that diagnostic confusion is unlikely. The differential diagnoses in children also include Meckel’s diverticulitis and mesenteric lymphadenitis [4].

No definite guidelines exist for management [10], there are 2 approaches to managing omental infarction: conservative medical treatment and early laparoscopic surgical intervention [5,6,11]. Conservative treatment for omental infarction varies among physicians and includes all or part of the following: oral analgesics, anti-inflammatory drugs, and prophylactic antibiotics. Complications of conservative management include abscesses and adhesions induced by the persistence of necrotic tissue in the abdomen. More importantly, a missed diagnosis of acute appendicitis could have disastrous consequences [3].

CT is useful as follow-up imaging method for omental infarction, showing a progressive reduction in size of the mass, like in the 2 cases. Imaging features correlate with clinical improvement are useful to confirm resolution. Surgical treatment results in a much faster recovery and pain control, and it may prevent complications such as spontaneous bleeding, adhesions, or abscesses. The laparoscopic approach is efficient and safe for the resection of the necrotic portion of the omentum [4].

Conclusion

Omental infraction can be symptomatic or present as an incidental CT finding on surveillance imaging. In the oncological context, it is important for radiologists to be aware of the range of CT appearances, primarily because failure to consider a diagnosis of omental infarction as an alternative to recurrent malignancy could commit the patient to further unnecessary

investigation and even inappropriate treatment. Furthermore, although spontaneous resolution is to be expected in the majority of cases, secondary infection may necessitate radiological or surgical intervention.

Patient consent

Written informed consent for publication was obtained from patient.

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