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Idiopathic Omental Infarction - A Case Report and Review of the Literature

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Abstract

The idiopathic omental infarction (IOI) is a rare cause of acute abdomen. It is usually a self-limited disorder presenting with nonspecific abdominal pain that may mimic several acute abdominal conditions, such as appendicitis, cholecystitis, diverticulitis, epiploic appendagitis, and mesenteric panniculitis. In the present era, more cases of IOI are being diagnosed preoperatively by computed tomography (CT scan).If the diagnosis was made in the initial period of patient's visit, the conservative treatment is feasible and surgery can be avoided. Surgical treatment is indicated only in cases of secondary infection. Here we report a case of 28-year-old obese male (height :177.5 cm, body weight: 96 Kg, BMI 30.5kg/m^2) who represented with pain at right upper quadrant of abdomen for 3 days and it got worse upon movement of body or sitting up from the bed. Initial lab data were normal, no significant findings in abdominal ultrasound except severe fatty liver, but abdominal CT revealed omental infarction at right upper quadrant. He was discharged uneventfully after 6 days of hospitalization after conservative management with pain control and empiric antibiotics. The aim of this report is to emphasize the importance of a differential diagnosis of the acute abdomen and to discuss the management of omental infarction. In this report, we present a review of current literature on omental infarction and highlight the importance of imaging study especially abdominal CT scan in the nonoperative diagnosis and conservative management. (J Intern Med Taiwan 2020; 31: 293-297)

Key Words: Computed tomography, Idiopathic omental infarction, Fat necrosis

Introduction

The idiopathic omental infarction (IOI) is a rare cause of acute abdomen[1]. Due to its low incidence and nonspecific presentation, it is difficult for doctors to make a correct diagnosis[2]. A correct noninvasive early diagnosis is important to avoid an unnecessary surgery, because it is usually a self-limited disorder.

Treatment approaches range from conservative treatment to surgery[3]. A more common surgical pathology such as appendicitis,or cholecystitis is similar to IOI in clinical presentation[4]. It may also mimic medical conditions such as diverticulitis, epiploic appendagitis, and mesenteric panniculitis[3]. Diagnostic tools, such as ultrasonography and computed tomography (CT) imaging, serve to make an early diagnosis of omental infarction[3-8]. Early correct diagnosis promotes the clinicians making a conservative observation mostly.

Although omental infarction may be a self-limited benign condition in most patients, laparoscopic

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resection of the infarcted portion of the omentum is advocated to accelerate clinical recovery and to reduce the risk of secondary abscess formation[6-9]. We report a patient with idiopathic omental infarction, who received conservative management with uneventful course.

Case Report

This is a 28-year-old obese male who called on our out-patient department with chief complaint of right upper quadrant abdominal pain for 3 days. The pain could be triggered by movement of body or sitting up from bed. He denied any history of trauma or recent vigorous exercise. He denied fever or chillness. The appetite was still preserved. No sleep disturbance due to abdominal pain. He called on the emergency department (ER) in other hospital for the same complaint 3 days ago and the CT image of abdomen revealed no specific findings. He was discharged from the ER after medication, but the pain aggravated gradually. He called on our out-patient department (OPD) for second opinion. Abdominal sonography in our OPD revealed severe fatty change in the liver and the biliary system, pancreas and the kidneys were normal. The complete blood count, hepatic function tests, lipase, and renal function were within normal limits. Electrocardiogram showed normal sinus rhythm. Medication with tramacet (Tramadol 37.5mg+ Acetaminophen 325mg) and solaxin (Chlorzoxazone) were prescibed for pain control in the OPD, but he came back to our ER the next day for aggravation of right upper quadrant abdominalpain. Then abdominal CT was repeated in our ER and it revealed a mass-like fat stranding at the greater omentum on right side of abdomen with well- circumscribedmargins between the ventral margin of the colon and the anterior abdominal wall (Fig 1). These radiological findings were consistent with a diagnosis of OI.

The CT scan performed 3 days ago in other hospital was reviewed and it revealed similar findings, but the infarction area was smaller and less obvious (Fig. 2). He was admitted to our ward under the impression of idiopathic omental infarction with secondary infection due to elevated CRP 4.26 mg/dl. After antibiotics (ertapenem 1g IV QD) and tramacet (Tramadol 37.5mg+ Acetaminophen 325mg) treatment, he was discharged 5 days later with improvement of abdominal pain. Repeated CT scan of abdomen after 3 months demonstrated a markedly smaller circumscribed area of fat stranding (Fig. 3). There was no more abdominal pain after serial follow up in the out-patient department without any medication.

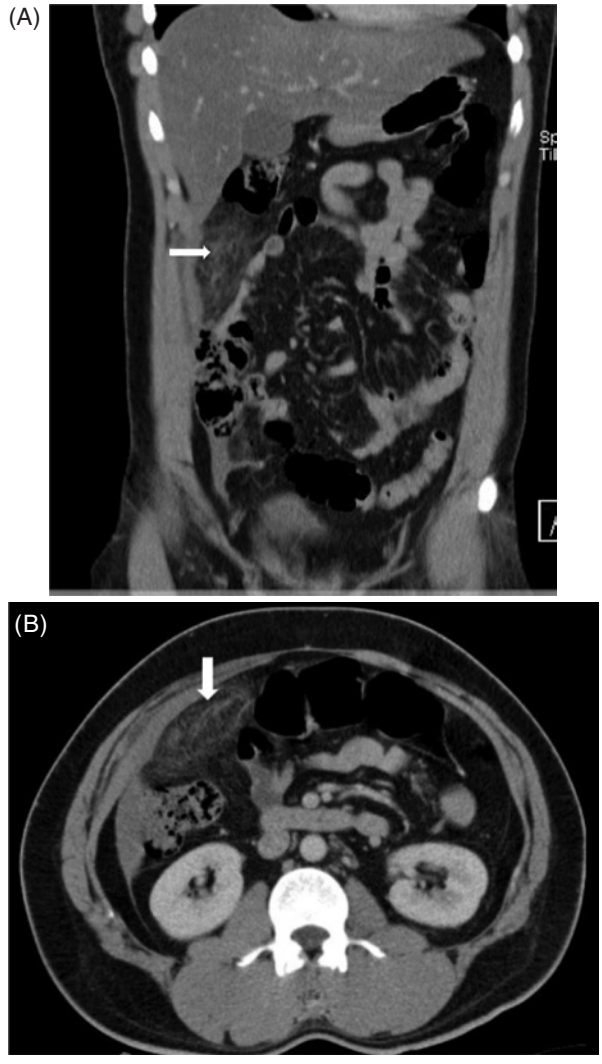

Figure 1. Axial contrast-enhanced CT image of the abdomen and pelvisshowedfocal mass-like fat stranding atthe greater omentumon right side of abdomen (white arrow).

Discussion

Intraabdominal fat may undergo necrosis through a number of mechanisms and it may cause abdominal pain, mimicking presentations of acute abdomen, or be asymptomatic[5]. Common causes of fat necrosis include torsion of an epiploic appendage, infarction of the greater omentum, and fat necrosis related to trauma or pancreatitis[3,4].

The clinical characteristics of IOI is acute onset

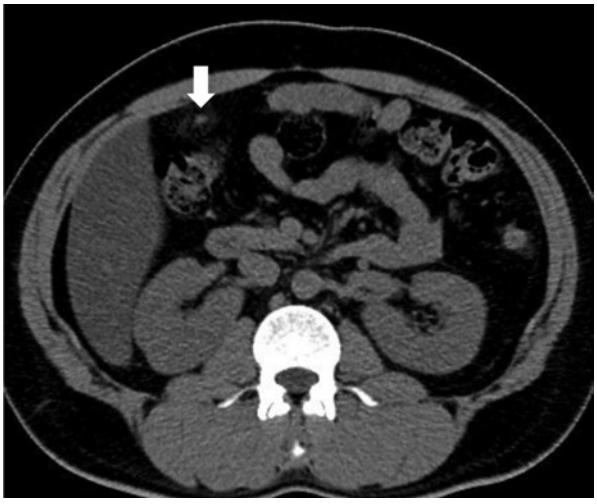

Figure 2. Axial contrast-enhanced CT image of the abdomen and pelvis showed initial less obvious infarct area at the greateromentum (white arrow) (in first hospital).

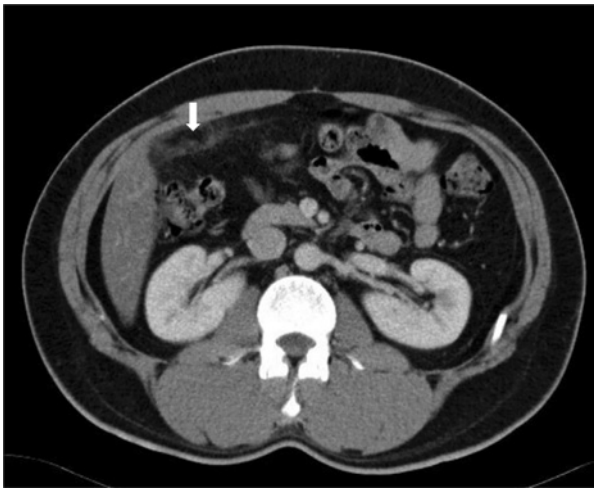

Figure 3. Axial contrast-enhanced CT image of the abdomen and pelvis showedfocal mass-like fat stranding at the greater omentumon right side of abdomen (white arrow) improved after 3 months.

free edge of the omentum has a more tenuous blood supply than the rest of the omentum. It is hypothesized that this tenuous blood supply renders the right inferior portion of the omentum more vulnerable to infarction[5].

Another hypothesis for the predisposition of the right-sided omental infarction is related to the greater length and mobility in the right side omentum[10], which leaves it more prone to twist itself along its long axis, leading to compromise of the vascularity.

The right-sided abdominal pain in omental infarction must be differentiated from both acute appendicitis and acute cholecystitis[1].

In general, ultrasonography and CT imaging may help make an early diagnosis of omental infarction. On abdominal ultrasound, a hyperechoic, solid, non-compressible, ovoid or cake-like lesion[5] that corresponds to the spot of maximum tenderness may be seen. However, ultrasonography is operator-dependent, as in this case, ultrasound missed the diagnosis. Therefore, an abdominal CT scan is useful in establishing an accurate diagnosis, which generally shows a mass containing fat and streaky soft tissue, with densities and margins of the lesion well circumscribed between the ventral margin of the colon and the anterior abdominal wall[3-8,10].

The differential diagnosis of IOI in CT scan included acute appendicitis, acute diverticulitis, epiploic appendagitis, and mesenteric panniculitis[10,11].

In IOI, the CT scan revealed the fat stranding is often disproportionately greater than the degree of wall thickening.In the appendicitis and diverticulitis,the degree of bowel wall thickening typically exceeds the degree of associated fat stranding in CT scan[10].

Differential diagnosis between omental infarction and epiploic appendagitis may be difficult in CT scan. The ovoid area of thickened hyperattenuating fat necrosis is greater than the degree of the colonic wall thickening in both IOI and epiploic appendagitis, but fat stranding is usually larger in

size in omental infarcts (typically over than 3 cm in diameter) and more separated from the colon. The fat necrosis in epiploic appendagitis is abut to the colon[3-5,10].

CT sensitivity for IOI is reported as 90% and much higher than ultrasound[11,12].

Since improvement of CT imaging and availability of laparoscopy[6], increasing reports of IOI has triggered a debate about how it is best managed. Conservative treatment without antibiotic therapy is advocated by some authors if an accurate diagnosis has been established[12]. Conservative treatment is feasible to this reported case. He recovered uneventfully after pain control.

However, the infarcted omentum may undergo necrosis with progressive fibrosis that results in prolonged pain, ileus, fever and hospital day. Without necrosectomy, pain can persist for an average of 13.5 days[2]. Omental necrosectomy reduces the duration of abdominal pain, speeding up a patient's discharge and return to normal activity[9]. Although idiopathic omental infarction is usually a self-limited condition that may resolve spontaneously, necrosis associated with secondary infection and abscess formation may develop occasionally[4]. We advocate that conservative treatment with pain control is the first choice in the treatment of IOI. Antibiotics can be used in case of suspicious secondary infection. Surgery with necrosectomy is indicated only in necrosis associated with secondary infection and abscess formation.

Obesity is a known risk factor of IOI [13].Our patient was an obese, young male (height: 177.5 cm, body weight: 96 Kg, BMI 30.5 kg/m^2). It was obvious that obesity was the most possible risk factor for developing IOI in this young man. Omental infarction has also been reported in the healthy marathon runners[5] and is thought to be related to a state of low blood flow to the omentum, a result of physiologic shunting and splanchnic vasoconstriction resulting from elevated levels of epinephrine, norepinephrine, vasopressin, and angiotensin II.

Secondary omental infarction may be due to vasculitis, or thrombophilia[8], or traumatic injury (such as surgical trauma) or abdominal pathology (such as hernial sacs)[10]. Often, a secondary infarction is near to the surgical or pathological site rather than in the right lower quadrant[5,10].

Conclusion

In conclusion, idiopathic omental infarction is rare in young patient but can be presented as acute abdomen with differential diagnosis of other life threatening diseases. It was obvious that obesity was the most possible risk factor for developing IOI in our young male patient.Imaging studies with abdominal contrast CT can even equivocal on initial presentation and repeated imaging study is necessary for confirmation of diagnosis, as in our case. In general, ultrasonography and CT imaging may help make an early diagnosis of omental infarction, but CT sensitivity is much higher than ultrasound.If the early diagnosis was made in the initial period of patient's visit, the conservative treatment is feasible and surgical necrosectomy is indicated only in cases of secondary infection with abscess formation.

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特發性大網膜梗塞：病例報告及文獻回顧

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摘　要

特發性大網膜梗塞（Idiopathic Omental Infarction, IOI）是急性腹痛的罕見原因。它通常是一種自限性疾病，以非特異性腹痛為初始表現，與其他幾種急性腹痛疾病的症狀類似，例如闌尾炎，膽囊炎，大腸憩室炎，腸脂垂炎和腸系膜脂肪炎。目前因為電腦斷層掃描的廣泛使用，大網膜壞死在發病的早期就得到正確的診斷，因此避免了不必要的外科手術。此疾病目前絕大部分只要保守治療就可完全康復，只有少數病人因併發次發性感染而必須行外科治療。本文報告一例28歲的肥胖男性(BMI 30.4kg / m^2)，病患主訴右上腹痛3天，腹痛隨著運動而惡化。初始的各種抽血檢查結果(包含肝腎胰功能及白血球、紅血球、血小板)均正常。腹部超音波檢查顯示嚴重脂肪肝，其他無異常發現，但腹部電腦斷層顯示右上腹大網膜梗塞。經入院保守治療(疼痛控制和經驗性抗生素治療)，6天後穩定出院。本報告的目的是為了強調大網膜梗塞在急性腹痛進行鑑別診斷時的重要性及討論大網膜梗塞的處理方式。本文亦針對有關大網膜梗塞的文獻進行匯整，並強調腹部影像學檢查(比如電腦斷層)在早期診斷和保守治療的重要性。