Idiopathic Omental Infarction to Be a Rare Cause of Acute Abdomen: A Case Report

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Omental infarction is a rare entity, representing hemorrhagic omental necrosis as a result of impaired omental perfusion. It can occur secondary to omental torsion or inflammatory and neoplastic infiltration of the omental segment from adjacent organs. If the foregoing reasons can be excluded, omental infarction is called primary or idiopathic omental infarction. Occlusions of small omental arteries are rare and may be found in patients with thromboembolic disease, arteriolosclerosis, arteritis, or amyloidosis. The author presents a case of idiopathic omental infarction in a 66-year-old male presenting with abdominal pain. The patients underwent an emergent operation and recovered without any complication after surgery.

Keywords: Omental infarction; Laparoscopy; Atrial fibrillation; Case report

INTRODUCTION

Omental infarction is a rare disease, representing hemorrhagic omental necrosis as a result of impaired omental perfusion. It may occur secondary to omental torsion or inflammation and tumor infiltration of the omental segment in adjacent organs. If the foregoing reasons can be excluded, the omental infarction is called primary or idiopathic omental infarction. Idiopathic omental infarction is a rare cause of acute abdomen in adults, and the clinical finding can mimic acute appendicitis. Although idiopathic omental infarction is uncommon, the incidence of its detection has become more frequent as a result of advances in radiological technologies [1]. Clinical signs and symptoms may be non-specific abdominal pain to acute abdomen [2]. Ultrasound and computed tomography (CT) scan aid in the diagnosis of omental infarction. Ultrasound generally shows a moderately echogenic, solid, non-compressible, ovoid lesion in the region of maximum tenderness [3]. CT scan features are well-circumscribed mass with fat interspersed having hyper attenuating streaks in it. Although many conservative treatment options have been reported for the treatment of omental infarction, the most effective and definitive treatment is surgery.

Herein, the author reports a case of a 66-year-old male with an omental infarction, due to atrial fibrillation that was successfully treated by surgery.

CASE REPORT

A 66-year-old man has visited a regional hospital and was referred to the emergency department of Soonchunhyang University Cheonan Hospital due to abdominal pain that had developed 2 days earlier. Abdominal pain was confined to the left upper quadrant area. The patient had a medical history of myocardial infarction with coronary three-vessel disease, which was treated by percutaneous coronary intervention 7 years ago. An electrocardiogram (ECG) showed a normal sinus rhythm at the time of admission to the emergency room.

Hematologic tests revealed a white blood cell count of 13,090/mm$^3$ (neutrophil 64.8%) and C-reactive protein 44.99 mg/L (reference range, 0–5 mg/L). The other results of hematologic tests were normal. An abdominal CT scan showed a focal fat-containing mass-like lesion with fat infiltration in the greater omentum (Fig. 1).
There were no signs of inflammatory or neoplastic disease with secondary omental involvement.

As time passed, the patient’s ECG finding was changed to atrial fibrillation (Fig. 2). The patient’s abdominal pain gradually worsened, and laparoscopic exploration was immediately performed as an emergency treatment. It showed a focal area of 10 cm in diameter of thickened and hemorrhagic omental fat tissue, and we converted open surgery because omental mass adhered to the transverse colon (Fig. 3). A serosal injury of the colon was suspected, but it was difficult to accurately identify it in a laparoscopic view. After conversion to open surgery, partial omentectomy was performed, and primary repair was performed on suspicion of a serosal injury to the transverse colon (Fig. 4). The total operation time was 95 minutes and blood loss was 100 mL.

Histological examination of the excised omentum showed chronic active inflammation, fat necrosis, abscess, and fibrosis. The patient was transferred to the department of cardiology due to atrial fibrillation after surgery and was discharged on the 13th
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Hospital day. The patient provided written informed consent for the publication of clinical details and images.

**DISCUSSION**

Perfusion of the omentum is provided by numerous small vessels, which in contrast to the vascular supply of the small and large bowel have fewer collaterals [4]. Occlusions of small omental arteries are rare and may be found in patients with thromboembolic disease, arteriosclerosis, arteritis, or amyloidosis [5]. Under these circumstances, omental perfusion is not disturbed significantly if the process develops slowly, but acute occlusions of peripheral branches of omental arteries may lead to ischemic damage of the affected omental tissue [6].

In most cases, especially in adult patients, the etiology of omental infarction remains unclear. Several etiologic theories have been proposed for such primary or idiopathic omental infarction including developmental abnormalities predisposing to thrombus formation, increased gravitational pull of an excessive fatty omentum, and growth of omental tissue beyond its blood supply with resultant ischemia and necrosis [6].

Primary omental infarction (POI) has characteristic imaging findings on CT and ultrasound. CT scan is the most important technique for the diagnosis of omental infarction. The most diagnostic finding is an ill-defined heterogeneous fat density with surrounding inflammatory changes [7]. Ultrasound is specific but not sensitive for diagnosing POI; suspected imaging features include hyperechoic, incompressible, ovoid mass, and detectable in <50% of cases, even when reviewed retrospectively [8].

The best choice of treatment for POI is still controversial. Coulter and Pringot [9] reported six cases of POI. Two patients underwent surgical treatment, one because of the absence of spontaneous regression and the other because of extremely severe clinical symptoms. In the other four patients, conservative management was performed and successfully treated [9].

When the diagnosis of POI is confirmed by typical clinical signs and imaging studies, conservative treatment is the first-line therapy during the first 24–48 hours while resuscitation and antibiotics are initiated. However, if the diagnosis is uncertain or conservative treatment fails, laparoscopy should be performed immediately [10]. As in this case, it was confirmed that the patient’s ECG, which had a normal sinus rhythm at the time of admission to the emergency room, gradually changed to an atrial fibrillation pattern. In addition, the patient’s pain was not relieved after conservative treatment for about 24 hours and showed a progressive pattern. The abdominal pain of this patient changed very seriously, and when the physical examination was re-executed, it showed similar findings to panperitonitis. Impaired arterial omental perfusion due to atrial fibrillation might be responsible for certain cases of omental infarction.
CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

REFERENCES