Annals of Medicine and Surgery 78 (2022) 103760

Contents lists available at ScienceDirect

Annals of Medicine and Surgery

journal homepage: www.elsevier.com/locate/amsu

Case Report

A challenging case of spontaneous idiopathic omental infarction in a trisomy 21 patient

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ARTICLE INFO

Keywords:
Acute abdomen
Appendicitis
Infarction

ABSTRACT

Background: Omental infarction (OI) is a rare cause of acute abdominal pain that is often missed out. Due to its non-specific presentation can mimic other commoner conditions such as acute appendicitis, acute diverticulitis, and tuberculosis abdomen.

Case presentation: We present a 42-year-old gentleman with trisomy 21 presenting right iliac fossa pain. Examination revealed tenderness in the right lower quadrant and blood parameters showed leucocytosis. With an initial impression of acute appendicitis, the patient was subjected to surgery. Intraoperatively, there were abnormalities to the omentum suggestive of OI, resulting in partial omentectomy. Symptom resolution occurred immediately and the patient was discharged early.

Conclusion: OI is a rare cause of acute abdomen that can mimic other abdominal pathologies. In trisomy 21 patients who present with acute abdomen, thorough assessments including preoperative imaging are advisable. Diagnostic laparoscopy is recommended as OI can be managed via minimally invasive surgery, hence ensuring good surgical outcomes.

1. Introduction

Omental infarction (OI) is a rare surgical entity, accounting for less than 4 for every 1000 cases of acute appendicitis [1]. The majority of the patients present with non-specific, right-sided abdominal pain and predominantly affecting men, typically young or middle-aged adults [2]. However, there are few reported cases among children and more recently in a trisomy 21 patient that was successfully treated via conservative management [3,4]. It is a clinical challenge to differentiate OI from other commoner diagnoses of acute abdomen namely acute appendicitis, acute diverticulitis or tuberculosis abdomen. OI is unusual but commonly discovered during exploratory surgery for presumed abdominal emergencies. We report an interesting case of spontaneous idiopathic OI in a trisomy 21 patient that recovered well after surgical management. This work has been reported in line with the SCARE criteria [5].

2. Case report

A 42-year-old gentleman with trisomy 21, experienced a 2-day history of worsening right lower quadrant pain that was associated with anorexia. He has neither medical nor surgical-related complications from the genetic disorder. He has no drug or food allergies. Physical examination revealed tenderness with guarding, localised in the right iliac fossa. Other systems were unremarkable. All blood and urine investigations were normal, apart from leucocytosis with predominantly neutrophilia. A chest and abdominal radiography, as well as the abdominal ultrasound, were unremarkable.

The clinical diagnosis of acute appendicitis was made and a diagnostic laparoscopy was arranged by the surgeon. Intraoperatively, a clump of inflamed, oedematous, and unhealthy greater omentum was seen adhered to the anterior abdominal wall (Fig. 1). Appendix, and the rest of the intra-abdominal organs, were normal. Partial omentectomy was followed with a thorough washout of the peritoneal cavity. In addition, the appendix was resected to avoid future diagnostic dilemmas. The postoperative period was uneventful, and he was discharged well. Histopathological examination of the specimen showed mature adipose tissue with large areas of haemorrhage, vascular dilatation, and congestion. A zone of infarction was seen, accompanied by necrosis and a focal area of saponification. These findings are consistent

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https://doi.org/10.1016/j.amsu.2022.103760
Received 30 March 2022; Received in revised form 5 May 2022; Accepted 8 May 2022
Available online 13 May 2022

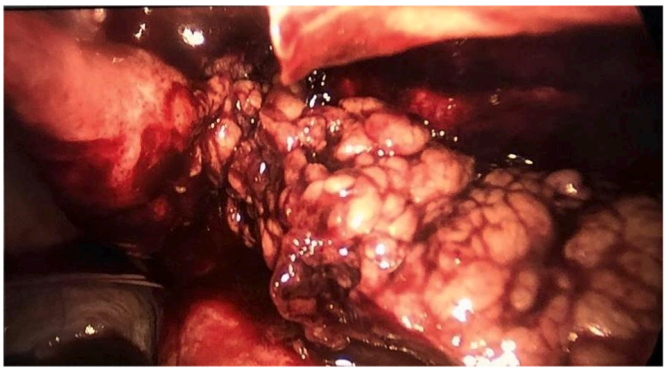

Fig. 1. Oedematous, thickened, and unhealthy omentum seen adhering to the anterior abdominal wall. Intraoperatively, there was no identifiable cause for this pathology.

with the diagnosis of spontaneous infarction of omentum with suppurative exudate. Upon follow-up at 3 months postoperatively, he was well without any complications.

3. Discussion

The OI is classified into torsion related and non-torsion related causes [6]. Traditionally, it is categorised into primary or secondary causes depending on the pathogenesis. Primary or idiopathic OI is contributed to risk factors that would bring about omental torsion such as obesity, trauma, increased abdominal pressure from coughing or excessive exercise, sudden body movement, laxative use and hyper-peristalsis; meanwhile secondary causes include hypercoagulability, vasculitis, polycythemia, cysts, tumours and adhesions [7]. It is postulated that idiopathic OI with torsion is linked to obesity due to the excess fat accumulation impeding the blood supply, particularly the distal right epiploic artery aside from its sheer mass that precipitates the torsion [7].

Torsion happens when the redundant omentum rotates around the long axis resulting in vascular compromise and impairing the blood supply that eventually will progress to necrosis of the omentum [8]. This suggests that although the presentation is non-specific, the majority of the cases present with right-sided abdominal pain as the right half of the omentum consists of anatomically altered vasculature that is less tolerant to spontaneous venous stasis and thrombosis secondary to stretching of the omental veins [7]. The temperature may be raised and is rarely associated with other gastrointestinal symptoms [6]. There is usually tenderness on the right side of the abdomen with elevated acute phase reactants and white cell counts. Hence, it is difficult to differentiate OI from other surgical conditions such as acute appendicitis clinically [6]. However, it is still possible to have pain and tenderness in other parts of the anterior abdomen as the greater omentum can irritate the parietal peritoneum at multiple sites, which further leads to a diagnostic dilemma [7].

With the advancement of radiological techniques, OI can be accurately diagnosed preoperatively. Abdominal ultrasound may be used to exclude acute conditions and it usually shows moderately hyperechoic, solid, non-compressible, ovoid or cake-like lesions that correspond to the spot of maximum tenderness [8]. However, ultrasonography is operator dependent, non-specific and may misinterpret the infarcted lesion as normal intraabdominal fat [8]. Therefore, computed tomography (CT) scan is the preferred diagnostic method and is considered the gold standard for patients presenting with acute abdomen [9]. The sensitivity of CT in OI is reported as 90%, much higher than ultrasound [9]. Classical features seen in CT include (i) fat density lesion with mass effect on adjacent intraabdominal structure, (ii) a mesenteric vascular swirl sign indicative of torsion with surrounding fat stranding, (iii) hyper attenuated streaky infiltrates and (iv) thickening of the visceral peritoneum [10]. Recognition of omental pathology on CT can avoid exploratory surgery and subsequently, conservative management can be carried out. It is warranted for patients with trisomy 21 to do a CT scan as they are at higher risk of other gastrointestinal abnormalities, especially acute malrotation.

To date, there are no guidelines to suggest the best treatment modality for OI. There are controversies regarding the decision for conservative or surgical management in cases of OI. Many authors argued that OI is self-limiting and favours conservative management [7]. It can only be done if the diagnosis is made via a CT scan before any exploratory surgery. We believe that patients with an acute abdomen should be subjected to a CT scan for diagnosis. The non-operative management of OI is an acceptable option that is self-limiting based on a consensus supported by a follow-up study utilising CT imaging data for 1–3 years and avoiding surgical complications following an explorative surgery [9]. If the condition does not resolve, we recommend operative measures through laparoscopic approach as it is both diagnostic and therapeutic with low morbidity, allowing for complete abdominal exploration and omental necrosectomy and the benefits of minimal access surgery [11].

In conclusion, OI is a rare cause of acute abdomen that can mimic other abdominal pathologies. In trisomy 21 patients who present with acute abdomen, thorough assessments including preoperative imaging are advisable. Diagnostic laparoscopy is recommended as OI can be managed via minimally invasive surgery, hence ensuring good surgical outcomes.

Patient's perspective

I am happy that the pain has gone off.

Ethical approval

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Sources of funding

None.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Authors' contributions

AR – manuscript preparation, JJM – Involvement in managing the patient, TA – involvement in managing the patient, AM – literature search, FH – final review.

Research registration

None.

Guarantor

Firdaus Hayati.

Provenance and peer review

Not commissioned, externally peer-reviewed.

Declaration of competing interest

None.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.amsu.2022.103760.

References

[1] E. Itenberg, J. Mariadason, J. Khersonsky, M. Wallack, Modern management of omental torsion and omental infarction: a surgeon's perspective, J. Surg. Educ. 67 (1) (2010) 44–47.
[2] A. Khairuddin, W.W. Teng, N. Azizan, F. Hayati, N.A. Sahid, F. Kadir Spontaneous omental infarction, An unusual etiology of abdominal pain, Kathmandu Univ. Med. J. 17 (4) (2019) 347–349.
[3] A. Rimon, A. Daneman, J.T. Gerstle, S. Ratnapalan, Omental infarction in children, J. Pediatr. 155 (3) (2009) 427–431.
[4] S. Alrashidi, Omental infarction in a Down syndrome patient: conservative management, Int. J. Health Sci. 6 (2) (2019) 210–213.
[5] R.A. Agha, T. Franchi, C. Sohrabi, G. Mathew, A. Kerwan, SCARE Group, The SCARE 2020 guideline: updating consensus surgical CAse REport (SCARE) guidelines, Int. J. Surg. 84 (2020) 226–230.
[6] R. Soobrah, M. Badran, S.G. Smith, Conservative management of segmental infarction of the greater omentum: a case report and review of literature, Case. Rep. Med. 2010 (2010) 765389.
[7] K.P. Barai, B.C. Knight, Diagnosis and management of idiopathic omental infarction: a case report, Int. J. Surg. Case. Rep. 2 (6) (2011) 138–140.
[8] G.N. Bachar, G. Shafir, V. Postnikov, A. Belenky, O. Benjaminov, Sonographic diagnosis of right segmental omental infarction, J. Clin. Ultrasound 33 (2) (2005) 76–79.
[9] A.K. Singh, D.A. Gervais, P. Lee, S. Westra, P.F. Hahn, R.A. Novelline, et al., Omental infarct: CT imaging features, Abdom. Imag. 31 (5) (2006) 549–554.
[10] E. Yoo, J.H. Kim, M.J. Kim, J.S. Yu, J.J. Chung, H.S. Yoo, et al., Greater and lesser omenta: normal anatomy and pathologic processes, Radiographics 27 (3) (2007) 707–720.
[11] N.A. Medina-Gallardo, Y. Curbelo-Peña, T. Stickar, J. Gardenyes, S. Fernández-Planas, P. Roura-Poch, et al., Omental infarction: surgical or conservative treatment? a case reports and case series systematic review, Ann. Med. Surg. (Lond). 56 (2020) 186–193.