Idiopathic omental hemorrhage: A case report and review of the literature

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A B S T R A C T

INTRODUCTION: Omental hemorrhage results from rupture of the omental vessels. There are many causes of omental hemorrhage including trauma, aneurysm, and vasculitis. Idiopathic omental hemorrhage is a rare cause of an acute abdomen, which is potentially life-threatening. We report a patient with idiopathic omental hemorrhage, which may have been caused by overeating.

CASE PRESENTATION: A 29-year-old man without a history of trauma, bleeding disorders, or other significant medical history, presented with left upper quadrant pain, which began after overeating the previous evening. The pain worsened and he presented to the emergency department. On physical examination, his BP was 111/69 mmHg and pulse 71 and he reported tenderness and involuntary guarding in the left upper quadrant on palpation. Contrast enhanced computed tomography scan revealed intraperitoneal fluid collection with intra-omental extravasation. Significant intraperitoneal hemorrhage was suspected and emergency laparotomy was performed. On exploring the abdominal cavity, a hematoma was found in the greater omentum, adjacent to the right gastroepiploic artery. No active bleeding was seen, and partial omentectomy was performed. There were no obvious lesions suggestive of malignancy or aneurysm, supporting the diagnosis of idiopathic omental hemorrhage. On postoperative day six, the patient developed a wound dehiscence, which was surgically closed. The subsequent postoperative course was uneventful and he was discharged on fifth day after the second operation.

CONCLUSION: Idiopathic omental hemorrhage is a rare cause of an acute abdomen, which may develop after eating. Omentectomy is preferred to ligation or transcatheter arterial embolization to rule out an underlying malignancy or aneurysm.

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1. Introduction

Rupture of visceral arteries can lead to symptoms of an acute abdomen, which is potentially life-threatening. There are many causes of intraperitoneal hemorrhage including trauma, aneurysm [1,2], or vasculitis [3]. Most patients with rupture of visceral arteries have vascular diseases, such as hypertension [4] and arteriosclerosis. It is reported that weakness of the tunica media may lead to vascular rupture with an abrupt increase in pressure. However, the exact mechanism is still obscure [5]. We report a patient with idiopathic omental hemorrhage.

2. Presentation of case

A 29-year-old man came to the emergency department complaining of left upper quadrant pain after eating dumplings too much in the previous evening. He had no significant past medical histories. He also denied any trauma or bleeding disorders in the past. The symptom gradually worsened over the night and he came to the emergency department. On physical examination, his BP was 111/69 mmHg, pulse 71 and his abdomen was flat but rigid. There were tenderness and involuntary guarding in the left upper quadrant on palpation. Laboratory studies showed a hemoglobin level of 12.8 g/dl, white blood cell count of 10,600/μl, platelet count of 23.6 × 10^9/μl, international normalized ratio of prothrombin time of 1.25, activated partial thromboplastin time of 30.4 second and C-reactive protein level of 0.32 mg/dl. An enhanced abdominal computed tomography scan revealed a large intraperitoneal fluid collection in the left upper quadrant and extravasation adjacent to the stomach (Fig. 1a,b). Significant intraperitoneal hemorrhage was suspected and laparotomy was performed urgently.

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An upper midline incision was made, and on exploring the abdominal cavity, a large amount of intraperitoneal blood was found, with no active bleeding. There was a hematoma attached to the greater omentum around the right gastroepiploic artery (Fig. 2). We performed partial omentectomy including the right gastroepiploic vessels. There was no evidence of malignancy or aneurysm on palpation. Histopathologic examination of the resected omentum showed no abnormalities (Fig. 3). The diagnosis of idiopathic omental hemorrhage was confirmed.

On postoperative day six, a wound dehiscence was found, which was repaired surgically. The remainder of the postoperative course was uneventful, and he was discharged on the fifth day after the closure of the dehiscence.

3. Discussion

Omental hemorrhage can be associated with trauma, malignancy [6], omental torsion [7], aneurysm, vasculitis, varix, or anticoagulant therapy [8]. However, there are few reports of idiopathic omental hemorrhage [5,9–11]. In the present patient, there is no history of trauma, coagulopathy, or comorbidities. Pathological examination of the specimen revealed hemorrhage, but there was no evidence of thrombosis, vasculitis, or malignancy.

The age for occurrence of idiopathic omental hemorrhage ranges widely from children to octogenarians. It occurs more frequently in men than in women [5,9,10,12–15]. Omental hemorrhage generally presents with epigastric pain and occasionally involves other abdominal symptoms such as nausea, vomiting or diarrhea. Ultrasonography, computed tomography scan, and paracentesis may be useful to establish the diagnosis [15]. However, omental hemorrhage is rare and the patient’s condition is often unstable. Emergency operation is required for definitive diagnosis and treatment [1,15]. One patient was reported with rebleeding after non-operative management, so definitive treatment may be preferred in many patients [15]. Definitive treatment has been described using transcatheter arterial embolization [16], laparotomy or laparoscopy with omentectomy or simple ligation of the artery. In recent years, minimally invasive interventions, such as transcatheter arterial embolization or laparoscopic surgery, have been used more often [5,12,16].
Table 1
Idiopathic omental hemorrhage in Japan.

| Patient | Year | Age(y) | Gender | Chief Complaint | Preoperative diagnosis | Time Pain Begins | Therapy | Site of Bleeding |
|---------|------|--------|--------|----------------|------------------------|-----------------|---------|-----------------|
| 1       | 1987 | 70     | M      | diarrhea, abdominal pain | cystic lesion or old hematoma | – | hematomas removal | R |
| 2       | 1988 | 68     | M      | abdominal pain | abdominal aortic aneurysm | waking up | partial omentectomy | – |
| 3       | 1993 | 71     | F      | dyspnea | intraperitoneal hemorrhage | – | partial omentectomy | – |
| 4       | 1996 | 22     | M      | abdominal pain | omental hemorrhage | – | partial omentectomy | L |
| 5       | 1996 | 20     | M      | upper abdominal pain | omental hemorrhage | – | partial omentectomy | L |
| 6       | 1998 | 53     | M      | abdominal pain | omental cyst or carcinomatosa by ovarian cancer | night | partial omentectomy | R |
| 7       | 2001 | 65     | M      | Epigastric Pain | intraperitoneal hemorrhage | – | partial omentectomy | Omental bursa |
| 8       | 2002 | 25     | M      | upper abdominal pain, nausea, vomiting | omental hemorrhage | – | partial omentectomy | L |
| 9       | 2003 | 30     | M      | abdominal pain | omental hemorrhage | after dinner | partial omentectomy | L |
| 10      | 2003 | 40     | M      | upper abdominal pain | omental hemorrhage or abscess | – | partial omentectomy | L |
| 11      | 2004 | 30     | M      | upper abdominal pain | intraperitoneal hemorrhage | night | partial omentectomy | middle body of stomach |
| 12      | 2005 | 20     | M      | abdominal pain, diarrhea, vomiting | partial omentectomy | AM0:00 | partial omentectomy | L |
| 13      | 2005 | 27     | M      | abdominal pain | gastrointestinal perforation | – | partial omentectomy, gastrectomy | partial omentectomy |
| 14      | 2006 | 36     | M      | abdominal pain, back pain, left shoulder pain | gastrointestinal perforation | after lunch | partial omentectomy | L |
| 15      | 2006 | 30     | M      | right lower quadrant pain | appendicitis | after lunch | partial omentectomy | R |
| 16      | 2006 | 37     | M      | abdominal pain | omental hemorrhage | – | preservation – partial omentectomy | – |
| 17      | 2007 | 44     | F      | right flank pain | intraperitoneal hemorrhage | – | laparoscopic partial omentectomy | R |
| 18      | 2007 | 51     | M      | abdominal pain | omental hemorrhage | after dinner | laparoscopic partial omentectomy | R |
| 19      | 2008 | 47     | F      | right lower quadrant pain | appendicitis | – | partial omentectomy | L |
| 20      | 2008 | 31     | M      | Epigastric Pain | perforation due to gastric ulcer | PM7:00 | partial omentectomy | L |
| 21      | 2009 | 58     | M      | left upper abdominal pain | omental hemorrhage | PM7:00 | arterial embolization | R |
| 22      | 2009 | 16     | M      | Epigastric Pain | omental hemorrhage | after handball | preservation | – |
| 23      | 2009 | 32     | M      | left upper abdominal pain | omental hemorrhage | after dinner | partial omentectomy | R |
| 24      | 2009 | 61     | M      | left upper abdominal pain, abdominal fullness | omental hemorrhage | AM2:00 | partial omentectomy | R |
| 25      | 2010 | 55     | F      | vomiting, upper abdominal pain | intraperitoneal hemorrhage | after lunch | laparoscopic ligation | L |
| 26      | 2012 | 54     | M      | upper abdominal pain | omental hemorrhage | AM | arterial embolization – partial omentectomy | R |
| 27      | 2013 | 21     | M      | whole abdominal pain, abdominal bloating | intraperitoneal hemorrhage | After large meal | laparoscopic partial omentectomy | – |
| 28      | 2013 | 22     | M      | Epigastric and left shoulder pain | omental hemorrhage | waking up | laparoscopic partial omentectomy | L |
| 29      | 2014 | 62     | M      | Epigastric Pain | omental hemorrhage | AM | partial omentectomy | L |
| 30      | 2016 | 29     | M      | left upper abdominal pain | intraperitoneal hemorrhage | After large meal | partial omentectomy | R |

R, right omental; L, left omental.
We reviewed 30 patients with spontaneous rupture of the omental artery reported from 1987 to 2016 in Japan (Table 1). All patients complained of abdominal pain. Eight of 30 patients noticed the symptom just after eating. Eleven patients had no description of the meal. Other patients had no description about the onset of symptoms. The reason why hemorrhage occurs after a meal may be explained by increased blood flow to the viscera after eating [17]. A large meal may result in more flow in the vessels and result in rupture.

Of the 30 patients reviewed, 26 underwent surgery. Twenty-three patients underwent omentectomy, one patient had only removal of the hematoma, and two had ligation, all of which achieved hemostasis. Three patients were managed non-operatively, but one patient subsequently needed surgery because of rebleeding. In patients with omental hemorrhage, pathological examination is necessary because some patients have bleeding secondary to malignancy [6] or an aneurysm [1,2].

There are five reported patients with omental hemorrhage related to malignancy (Table 2). Four of these were diagnosed at the time of operation or autopsy. Two patients, who underwent operation, had a good postoperative course. It is difficult for omental malignancy to be diagnosed preoperatively. Omentectomy is useful for therapeutic diagnosis. Therefore, omentectomy is preferred to ligation, transcatheter arterial embolization, or observation.

Outside of Japan, there are only five patients reported with idiopathic omental hemorrhage (Table 3). As with patients in Japan, it likely occur in men, and young to elderly patients had this disease. All patients complained of abdominal pain and underwent laparotomy. Four patients underwent omentectomy, and only one patient had ligation. Their postoperative courses were uneventful. There were more reports of idiopathic omental hemorrhage in Japan than in other countries. Although the reason for that was unknown, idiopathic omental hemorrhage may occur more frequently in Japanese patients.

This patient highlights two important points. First, idiopathic omental hemorrhage can occur after a meal. We should consider omental hemorrhage in patients with symptoms of an acute abdomen if the symptoms started after eating. Second, omentectomy is preferred to ligation or transcatheter arterial embolization to rule out underlying malignancy or vascular disease. Omentectomy, as definitive therapy, should eliminate rebleeding in these patients.

4. Conclusion

Idiopathic omental hemorrhage can occur after eating. Omentectomy is preferred to ligation or transcatheter arterial embolization to exclude the diagnosis of malignancies or aneurysms.

Conflict of interest

No conflict of interest.

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Ethical approval

No approval is required for this case report.

Consent

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

Author contribution

JK drafted the manuscript. HK and AL revised the manuscript. KO performed the operation. KM and TK participated in the operation. All authors read and approved the final manuscript.

Guarantor

Dr. Jiro Kimura.

References

[1] R. Borioni, M. Garofalo, P. Innocenti, D. Fittipaldi, P. Tempesta, L. Colagrande, et al., Hemoperitoneum due to spontaneous rupture of an aneurysm of the left gastroepiploic artery. J. Cardiovasc. Surg. 40 (February 1) (1999) 63–64.
[2] N. Bettini, Y. Goueffic, D. Marret, M.F. Heymann, A. Costargent, P. Patra, et al., Hemoperitoneum due to rupture of an omental arterial aneurysm. J. Chir. 144 (Nov–Dec (6)) (2007) 544–545.
[3] E.J. Kroot, C.L. Mak, R.U. Boelhouwer, M.P. Middelkoop, A. Dees, Involvement of the omentum in Wegener’s granulomatosis, Ann. Rheum. Dis. 62 (December (12)) (2003) 1238–1239.

[4] S.R. Carr, R.C. Dinsmore, N.W. Wilkinson, Idiopathic spontaneous intraperitoneal hemorrhage: a clinical update on abdominal apoplexy in the year 2001, Am. Surg. 67 (April (4)) (2001) 374–376.

[5] T. Matsumoto, T. Yamagami, H. Morishita, S. Iida, J. Tazoe, S. Asai, et al., Transcatheter arterial embolization for spontaneous rupture of the omental artery, Cardiovasc. Intervention. Radiol. 34 (Suppl (2)) (2011) S142–S145.

[6] A.Y. Dixon, J.S. Reed, N. Dow, S.H. Lee, Primary omental leiomyosarcoma masquerading as hemorrhagic ascites, Hum. Pathol. 15 (March (3)) (1984) 233–237.

[7] Z. Nihei, K. Kojima, K. Uehara, S. Sawai, M. Kukihana, R. Hirayama, et al., Omental bleeding with spontaneously derotated torsion—a case report, Jpn J. Surg. 21 (November (6)) (1991) 700–702.

[8] M.I. Adelman, P. Gishen, P. Dubbins, R.S. Mibashan, Localised intramesenteric haemorrhage–a recognisable syndrome in haemophilia? Br. Med. J. 15 (September (2)) (1979) 642–643.

[9] H. Takahashi, Y. Adachi, Y. Kasahara, J. Maruyama, S. Maeda, H. Kitagishi, et al., Case reports Two cases of spontaneous omental hemorrhoma, Acta Med. Kinki Univ. 21 (September (3)) (1996) 255–261.

[10] A.A. Ghiatas, R. Fisher, CT of spontaneous haematoma of the omentum, Eur. Radiol. 4 (5) (1994) 474–475.

[11] L.E. Schottenfeld, H. Rubinstein, Hemorrhage and thrombosis of the omentum, Am. J. Surg. 51 (February (2)) (1941) 449–451.

[12] R. Tsuchiya, S. Takahashi, T. Takao, Y. Mineoka, N. Nakabe, N. Sakamoto, et al., A case of idiopathic omental bleeding treated successfully with transarterial embolization, Jpn J. Gastro-enterol. 106 (April (4)) (2009) 554–559.

[13] H. Hosokawa, H. Tanemura, M. Sato, A case of a ruptured left gastroepiploic artery aneurysm, diagnosed on mdct angiography and treated by transcatheter arterial embolization, J. Jpn. Pract. Surg. Soc. 70 (September (9)) (2009) 2844–2848.

[14] R. Yasuoka, S. Nishino, S. Ogino, Y. Sonoyama, H. Fujiki, S. Morita, et al., A case of the greater omental hemorrhage due to segmental arterial mediolysis, Jpn. J. Gastroenterol. Surg. 41 (January (1)) (2008) 46–51.

[15] T. Ishii HY, A. Hosokawa, N.A. Kitagawa, Case of idiopathic omental bleeding, J. Mitoyo Gen. Hosp. 27 (2006) 86–88.

[16] M. Takahashi, Y. Matsuoka, T. Yasutake, H. Abe, K. Sugiyama, K. Oyama, Spontaneous rupture of the omental artery treated by transcatheter arterial embolization, Case Rep. Radiol. 2012 (2012) 273027.

[17] T. Nagata HO, N. Murase, R. Kime, T. Katsumura, Determining effect of food intake on comprehensive abdominal-pelvic visceral blood flow by Doppler ultrasound, J. Tokyo Med. Univ. 73 (January (1)) (2015) 35–44.

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