

Case Report

An isolated mesenteric hematoma following blunt abdominal trauma - case report and literature review

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Introduction

A traumatic blunt hollow viscus and mesenteric injury is very rare instead of its high mortality ranging between 10 and 50 %. Its surgical indication has been evaluated by two different scoring systems [1,2]. Both are graded according to the signs on contrast-enhanced computed tomography (e-CT). The most significant issue with bowel injury from blunt abdominal trauma is bowel perforation, with a reported prevalence of 5 % and a mortality rate as high as 17.5 % [3]. Furthermore, a literature review of mesenteric hematoma revealed 20 cases for the last a quarter of century. The details are described in discussion part. The 18 cases have been treated by surgical intervention because of persistent hemorrhage leading to mechanical obstruction of the adjacent bowel, leading to bowel perforation, or their high risk. The remaining two cases treated with conservative without complications such as gastrointestinal stenosis or perforation. These could be diagnosed as isolated mesenteric hematomas. They seem to be very rare and worth reporting.

Case description

A 75-year-old man presented with an abdominal injury from being hit with the handle of a tennis racket on a summer morning. He got tennis racket injury 2 days ago with less abdominal pain. After 48 h, his abdominal pain became more severe, and he was brought by ambulance and carried to the emergency room on a stretcher. He was taking an anticoagulant (apixaban: Eliquis®) for a history of atrial fibrillation. On physical examination, he had right lower abdominal pain. His vital signs were all within normal ranges. Laboratory data showed leukocytosis with a white blood cell count of 16720 and anemia with a hemoglobin of 9.9 g/dL. E-CT obtained the same day showed mesenteric injury with extravasation from a mesenteric arterial branch (Figs. 1, 2). As the extravasation could be managed conservatively, his oral anticoagulant was discontinued for 7 days. Follow-up CT images showed that the hematoma gradually decreased in size at week 4 (Fig. 1B), week 27 (Fig. 1C), and week 51 (Fig. 1D).

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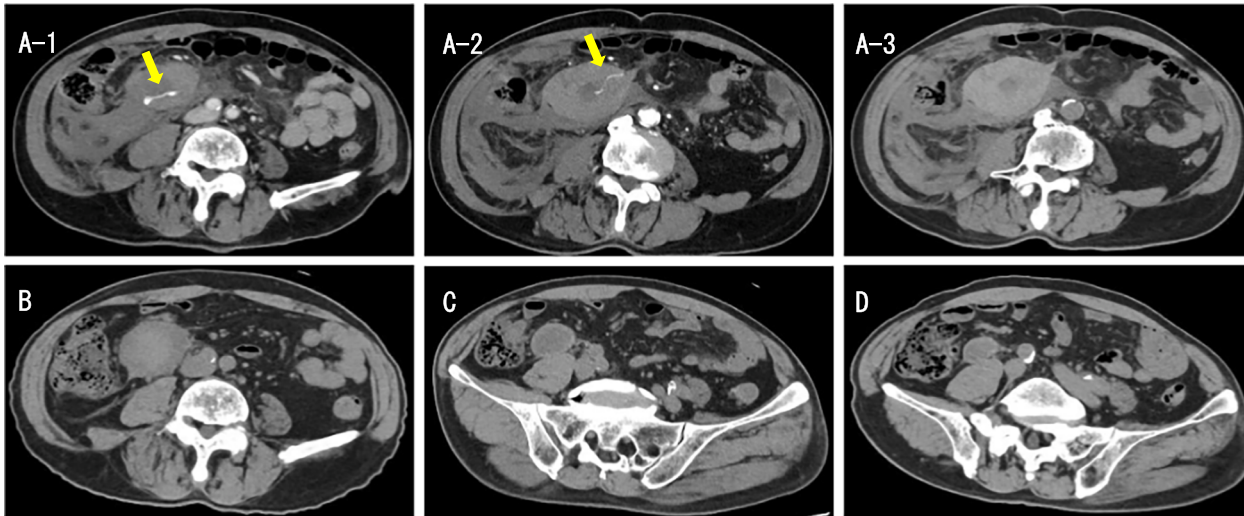


Fig. 1. Follow-up computed tomography angiography (CTA) of the mesenteric hematoma due to blunt traumatic abdominal injury

A-1 2, 3: The first contrast medium enhanced CTA.

A-1, 2-1st day: The arterial phase of the extravasation was observed. Arrow: extravasation in hematoma.

A-3- taken on the same as A1, 2: venous phase.

B- fourth week after trauma, C- 27th week, D- 51st week, as follow-up CT images.

Discussion

The extreme rarity of injury to the mesentery in blunt abdominal trauma

In a prospective report from a high-volume tertiary care trauma center, blunt abdominal injuries were found in 465 / 6570 (7.1 %) of all trauma admissions, all of which were managed surgically [4]. In this case series, mesenteric injuries were found in only 12 of 465 patients, representing only 0.18 % (50/6570) of the total trauma injuries. All mesenteric injuries were treated with primary resection at emergency laparotomy. Another analysis reported that isolated hollow viscus and mesenteric injury (IMI) is rare, with an incidence of 1.2 % in blunt abdominal trauma and 17 % in penetrating trauma [5].

Data collection and analysis of cases with mesenteric hematoma with blunt traumatic abdominal injury

We collected case reports from PubMed to confirm the rarity of mesenteric hematoma due to blunt abdominal trauma. As a result, we were able to collect 20 cases, including this one (Table 1) [6–20]. Regarding the treatment options, surgery was chosen in all but two cases. The reason for surgery was obstruction and perforation of the adjacent gastrointestinal tract due to mesenteric hematoma. In other words, this case collection showed that it is rare that surgery is the treatment of choice and that the reason for surgery is the risk of obstruction of the adjacent gastrointestinal tract and perforation of the gastrointestinal tract.

Conclusion

We reported isolated mesenteric hematoma without intestinal complications treated with conservative option. The isolated mesenteric injuries without bowel involvement seem to be very rare and worth reporting.

Statement of ethics

There are no ethical conflicts to declare. Approval for case presentation was obtained from the Ethic Committee of the studied hospital. The approval number given by the committee is 3009, dated on 23, Apr 2024.

Informed consent

Written informed consents were obtained from the patient.

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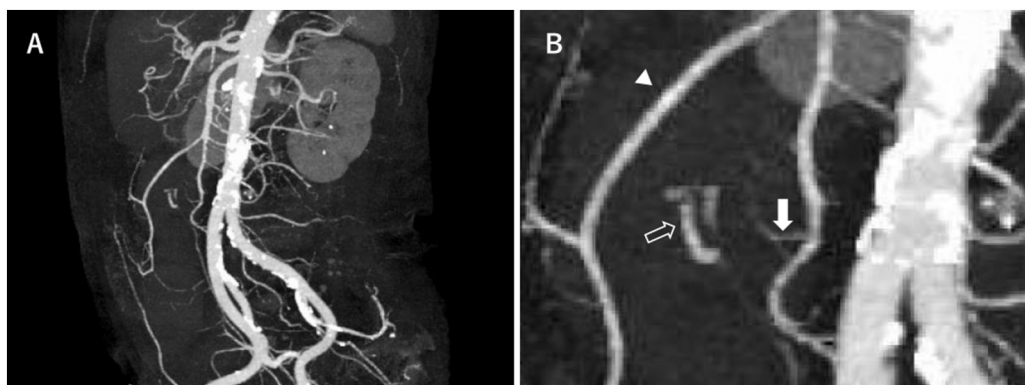


Fig. 2. The CTA image of contrast extravasation from the branch of the superior mesenteric artery shown in Fig.1, A-1,2. The contrast extravasated from the branch of the superior mesenteric artery. Arrows indicate extravasation from the superior mesenteric artery branch.

A: CTA of abdominal aorta and its branches

B: Magnified image of extravasation from the branch of the SMA portion.

Marks: closed triangle: ileocolic artery, open and closed arrows: extravasation from the branch of SMA.

Table 1

Case collection of mesenteric hematoma due to traumatic blunt abdominal injury in the literature and this case presentation.

No.	Year	Age	Sex	Cause	Symptoms	Treatment	Time of surgery after trauma	Reference number
1	2000	37	Male	Blunt trauma	Abdominal cramping pain	Laparotomy with ileocolic resection	0 day	[6]
2	2002	33	Male	None	Abdominal pain	Laparotomy: ileus, hard mass in the region of the terminal ileum (histologically, necrosis)	ND	[7]
3	2008	17	Male	Direct blow to the abdomen rugby scrum	Abdominal pain	Laparotomy with pancreatectomy for mesenteric hematoma, pancreatic injury	1 day	[8]
4	2009	47	Male	Automobile accident	Abdominal pain	None	3 months	[9]
5	2013	5	Male	Physical abuse.	Abdominal distension and tenderness	Laparotomy with mesenteric hematoma and a thick-walled stenosis in the adjacent intestine	2 days	[10]
6	2013	13	Male	Kicked the right abdomen by a friend	Anorexia, nausea, intermittent bilious vomiting	Laparotomy with mesenteric hematoma and stenotic ileum	0 day	[10]
7	2013	5	Female	Collapsing heating radiator	Lower abdomen tenderness and distension	Laparotomy with mesenteric hematoma, intestinal injury, and bladder laceration	7 h	[10]
8	2015	51	Male	Motor vehicle accident	Abdominal pain, vomiting	Laparotomy: ileus, bleeding from the omentum	ND	[11]
9	2015	68	Male	Hit by a bale of straw	Shock status	Laparotomy for segmental jejunectomy and mesenteric hematoma	0 day	[12]
10	2016	54	Male	Slip down	Abdominal pain		12 days	[13]
11	2016	32	Male	Motorcycle accident	Multiple trauma	Laparotomy with small intestinal resection	6 weeks	[14]
12	2017	33	Male	Car accident	Tibial fracture	Laparotomy with small bowel ischemia-necrosis and perforation	0 day	[15]
13	2018	37	Male	Motor vehicle collision, 20 years earlier	Cramping epigastric abdominal pain, nausea	Laparotomy: omental adhesiotomy	0 day	[16]
14	2020	32	Male	Motor vehicle collision	Nausea, vomiting	Laparotomy: bowel resection	ND	[17]
15	2020	18	Male	Traffic accident	Abdominal pain, vomiting	Laparotomy: bowel resection	21 days	[18]
16	2022	30	Male	Motor vehicle accident	Abdominal pain, abdominal distension	Laparotomy: s-colon perforation, mesenteric hematoma	3 days	[19]
17	2022	22	Male	Motor vehicle accident	Shock status	Laparotomy: s-colon perforation, mesenteric hematoma	3 days	[19]
18	2022	64	Male	Fall from height	Lower abdominal pain	Hartman procedure for s-perforation	4 days	[19]
19	2022	21	Male	Basketball two days ago	Colicky pain in the right-hypochondrium	None (12 weeks)	2 days	[20]
20	2024	75	Male	Tennis racket hit	Abdominal pain	None	51 weeks	Present case

For the last quarter century since 2000, 20 cases of mesenteric hematoma due to traumatic blunt abdominal injury, including our case, were found in the literature. Of these, 18 required surgical intervention and only two, including our case, received conservative therapy. Two cases, case 4 and 20, were treated conservatively. These two could be diagnosed isolated mesenteric hematoma.

Abbreviation, ND: not described.

CRedit authorship contribution statement

Kimihiro Yonemitsu: Writing – original draft, Data curation, Conceptualization. **Yasuhiko Fujita:** Writing – review & editing, Formal analysis, Data curation. **Teruyoshi Amagai:** Writing – review & editing, Conceptualization.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this article.

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