

CASE REPORT

## 수술 없이 치료된 구토 후 발생한 짧은 위동맥 출혈

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### Spontaneous Bleeding from a Short Gastric Artery after Vomiting Successfully Treated without Surgery

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Spontaneous bleeding from a short gastric artery in the absence of pre-disposing trauma is reported very rarely. To the best of our knowledge, the published literature includes only 14 cases. Young men comprise almost all of the patients, and were induced by vomiting or gagging. The patients usually required emergent surgery. Our patient, a 32-year-old man, was diagnosed with spontaneous hemoperitoneum due to short gastric artery tearing after a few instances of vomiting. We managed him conservatively including fluid, vitamin K and antifibrinolytic agent without surgery. (**Korean J Gastroenterol 2016;68:152-155**)

**Key Words:** Hemoperitoneum; Splenic artery; Vomiting

#### INTRODUCTION

Non-traumatic spontaneous bleeding from a short gastric artery has very rarely been reported. In a literature review, we found 14 cases since 1994.<sup>1-14</sup> The clinical characteristics were highly unusual, and the patients typically required emergent surgery. Early diagnosis would be possible if the clinician was aware of the clinical entity. Our case shared a number of characteristics with the others but was treated successfully without surgery. The patient recovered successfully with conservative treatment including fluid, vitamin K and antifibrinolytic agent. Herein, we describe our case and review the literature.

#### CASE REPORT

A 32-year-old man presented to an emergency room with left upper quadrant and epigastric pain that started six hours earlier. He drank alcohol to the point of intoxication the day before presentation. He felt nauseated and vomited several times before he began to feel abdominal pain. He denied any history of recent trauma. He did not report any diseases and was not taking any medications. He scaled his pain as an 8-10/10 on the visual analogue scale. His height was 173 cm and his weight was 71 kg. Upon admission, his vital signs were as follows: blood pressure, 120/80 mmHg; pulse rate, 90 beats/minute; respiratory rate, 24 breaths/minute; and body temperature, 37°C. His abdomen was not distended and his bowel sounds were slightly decreased. He felt tender-

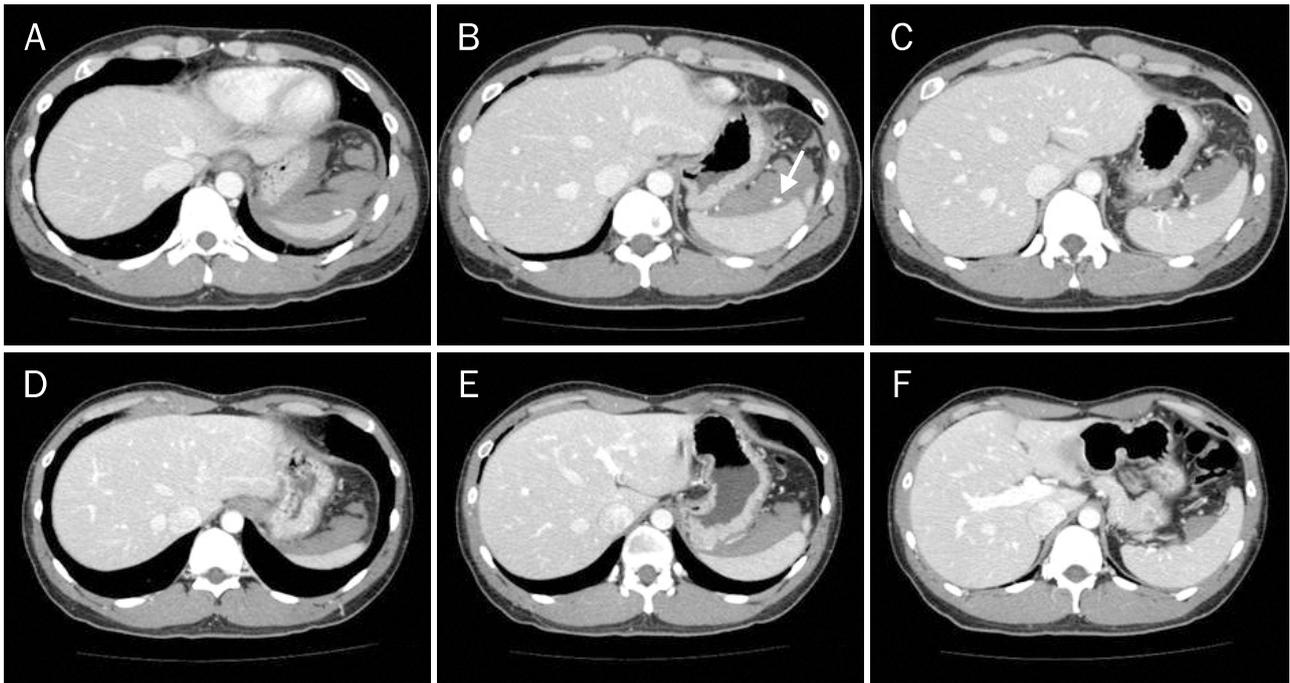
Received April 14, 2016. Revised June 23, 2016. Accepted July 15, 2016.

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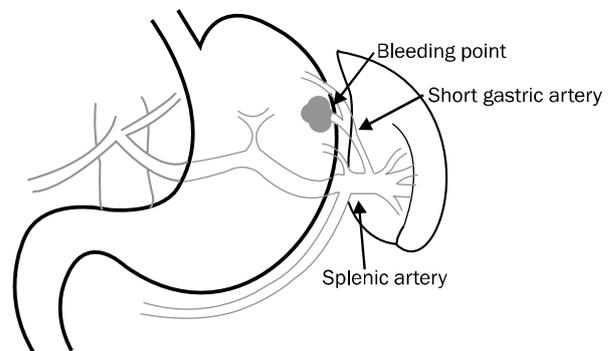
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Financial support: None. Conflict of interest: None.



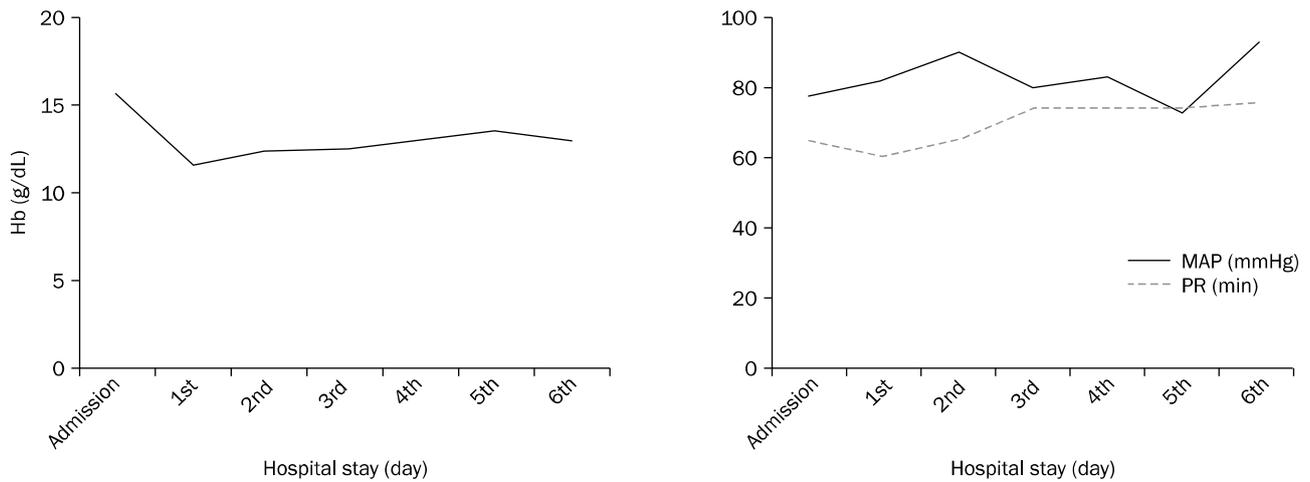
**Fig. 1.** An abdominal CT with enhancement at admission (A-C) showed a small amount of fluid in the area of the gastrosplenic ligament. White arrow (B) indicates an enhanced linear structure in the arterial phase. It was considered an injured short gastric artery with contrast extravasation. A second CT was performed six days later (D-F), revealing that the amount of fluid collection in the lesser sac was decreased and there was no sign of active bleeding.

ness and rebound tenderness in the left upper quadrant. The initial results of blood tests were as follows: hemoglobin, 15.5 g/dL; white blood cell, 11,120/ $\mu$ L; platelets, 157,000/ $\mu$ L; PT-INR, 1.02 (reference interval 0.85-1.15); and activated partial thromboplastin time, 37.7 seconds (reference interval 27.0-43.3 seconds). Abdomino-pelvic CT revealed a small amount of fluid in the area of the gastrosplenic ligament and pelvic cavity. The Hounsfield unit (HU) was 40-56 HU. In the fluid, an enhanced linear structure was observed in the arterial phase. There was no evidence of gastrointestinal perforation. The radiologic diagnosis was an injured short gastric artery with contrast extravasation (Fig. 1). The schematic revealed the bleeding point and vascular structures around the stomach (Fig. 2). His blood pressure and pulse rate were stable in the emergency room for five hours. We determined that conservative treatment would be suitable and he was admitted to the intensive care unit for monitoring. He was treated with fluid, vitamin K and tranexamic acid (antifibrinolytic agent), and we gave him a recommendation to stay in bed. He did not complain of abdominal pain and did not require analgesics. Systolic blood pressure persisted above 90 mmHg and pulse rate remained below 100



**Fig. 2.** Schematic of the bleeding point and vascular structures around the stomach.

beats/minute after admission. Serial checks revealed a decreased level of hemoglobin during the first two days, with a slow increase afterward (Fig. 3). He did not receive a blood transfusion, and was transferred to the general ward two days after admission. For three days after admission, he was *nil per os*, then received a soft diet. Six days after admission, another abdominal CT showed decreased fluid collection in the lesser sac and pelvic cavity and no sign of active bleeding (Fig. 1). He was discharged seven days after admission. He had no problems related to his hemoperitoneum during the



**Fig. 3.** Change in (A) hemoglobin (Hb) levels, (B) mean arterial pressure (MAP) and pulse rate (PR) during conservative treatment without transfusion.

**Table 1.** Literature review of spontaneous bleeding from a short gastric artery

Author	Gender	Age (yr)	Predisposing symptom	Hypotension <sup>a</sup>	Treatment
Hayes et al. <sup>1</sup>	Male	21	Vomiting	Present	Ligation of bleeder
Williams et al. <sup>2</sup>	Male	23	Vomiting	Present	Ligation of bleeder
Kaplan and Hausmann <sup>3</sup>	Male	26	Vomiting	Absent	Ligation of bleeder
Rodero et al. <sup>4</sup>	Female	26	Vomiting	Absent	Ligation of bleeder
Sun <sup>5</sup>	Male	20	Absent	Absent	Ligation of bleeder
Piccagliani et al. <sup>6</sup>	Male	25	Vomiting	Absent	Ligation of bleeder
Byer and Witt <sup>7</sup>	Male	16	Vomiting	Absent	Ligation of bleeder
Ho et al. <sup>8</sup>	Male	21	Vomiting	Present	Ligation of bleeder
Jabr and Skeik <sup>9</sup>	Male	36	Gag and nausea	Absent	Ligation of bleeder
García-García et al. <sup>10</sup>	Male	25	Vomiting	Present	Ligation of bleeder
Rege and Bhat <sup>11</sup>	Male	14	Vomiting	Absent	Ligation of bleeder, splenectomy
Faraj et al. <sup>12</sup>	Male	17	Vomiting	Absent	Ligation of bleeder
Abbas <sup>13</sup>	Male	24	Vomiting	Absent	Ligation of bleeder
Osunkunle and Al-Shoek <sup>14</sup>	Male	23	Absent	Absent	Ligation of bleeder
Present case	Male	32	Vomiting	Absent	Conservative treatment

<sup>a</sup>Systolic blood pressure < 90 mmHg.

two years following discharge. He did not have endoscopic evaluation during that period.

## DISCUSSION

Non-traumatic spontaneous bleeding from a short gastric artery has very rarely been reported. To the best of our knowledge, 14 cases have been described in the literature.<sup>1-14</sup>

We review the clinical characteristics of the 15 cases, including ours, in Table 1. No case reported a history of trauma. Fourteen patients were male and the only female patient was a 23-year-old pregnant woman. The youngest patient was 14 years old and the oldest was 36 years old with a median age

of 23 years. Most patients had predisposing events, vomiting in 12 patients and nausea and gagging in one patient. Only two patients had no predisposing events. Some authors<sup>1,8,9,12</sup> proposed that stomach stretching induced by vomiting or gagging might pull on the short gastric arteries and cause tearing. The reason that the overwhelming majority of patients are male and young is not known. We suppose that the larger stomach volumes of males and the high elasticity of the stomach in youth might make the stomach more expandable, increasing the likelihood of a short gastric artery tear.

Emergent surgeries were performed for the other 14 cases. Of those 14, four patients had hypotension<sup>1,2,8,10</sup> and

two cases needed a preoperative transfusion.<sup>6,10</sup> Ligation of the bleeding artery was the common method of surgery in most cases. In one case, splenectomy was performed (Table 1). In our case, the patient's vital signs were stable and his hemoglobin level did not drop below 11 g/dL. We speculate that the extent of injury in this case might be less than in other cases and early diagnosis and management were crucial to the success of conservative treatment in this case.

In conclusion, rare cases of spontaneous bleeding from a short gastric artery overwhelmingly occur in young males and may be induced by vomiting or gagging. Conservative treatment is possible if the patient's vital signs are stable and close monitoring is possible. We suggest that spontaneous bleeding from a short gastric artery should be considered as the cause of non-traumatic hemoperitoneum if observed in young male patients with recent experiences of vomiting and gagging.

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