Massive hepatic portal venous gas caused by gastric emphysema

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DESCRIPTION

A man in his 40s taking aripiprazole for schizophrenia was hospitalised for neuroleptic malignant syndrome and aspiration pneumonia. He was treated with dantrolene and antibiotics, and his temperature was improved. On the 9th day, his temperature reached 38°C, and he began to report abdominal pain. CT revealed abdominal-free gas and a duodenal perforation in the abdominal cavity. Surgical management was performed. On the 15th day, an elementary diet tube was inserted and tube feeding was started. On the 21st day, his temperature again reached 38°C, and he reported severe abdominal pain with peritoneal signs. CT revealed a massive amount of gas in the intrahepatic portal venous system and stomach wall (figure 1A, B), and exploratory laparotomy was urgently performed. Intraoperative findings revealed no necrosis of the layers of the serous membrane of the stomach, although upper gastrointestinal endoscopy during surgery revealed mucosal layer necrosis. Therefore, conservative treatment was performed. The patient’s condition improved promptly, and portal gas and gastric emphysema disappeared.

Hepatic portal venous gas (HPVG) has been mainly reported to be associated with bowel ischaemia, necrosis, diverticulitis, ulcerative colitis, intra-abdominal abscess, small bowel obstruction, etc, and has an ominous prognosis. Recently, HPVG has also been observed in patients with gastric emphysema as a complication after gastric trauma, severe vomiting, pyloric stenosis, gastric ulcers or mucosal necrosis due to caustic or toxic drugs. Although the precise pathophysiological condition remains to be determined, intragastric pressure and/or mucosal injury may cause gastric emphysema. In general, these cases are treated conservatively and demonstrate relatively good outcomes. However, in cases in which bowel ischaemia is suspicious, diagnostic endoscopy or laparotomy may be considered.

In this patient, we suspect that the gastric mucosal necrotic lesion-induced gastric emphysema, leading to massive amounts of gas in the portal venous system. To confirm the underlying disease, we performed diagnostic laparotomy and found no ischaemic or infectious lesions in the gastric serosa. HPVG due to gastric emphysema is not necessarily a surgical indication and can be managed conservatively, as in this case. The treatment depends primarily on the underlying disease status and the general condition of the patient.

Learning points

- Hepatic portal venous gas (HPVG) can be caused by various gastrointestinal diseases, such as gut ischemia, necrosis or gastric emphysema.
- Although prognosis of HPVG is generally poor, HPVG due to gastric emphysema is not necessarily a surgical indication and can be managed conservatively.

CONTRIBUTORS

SF and KS made substantial contributions to the conception and design of the work, acquisition, interpretation of the data and draft of the work. HI and IM was involved in revising it critically for important intellectual content.

Funding

The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Competing interests

None declared.

Patient consent for publication

Consent obtained directly from patient(s).

Provenance and peer review

Not commissioned; externally peer reviewed.

Case reports provide a valuable learning resource for the scientific community and can indicate areas of interest for future research. They should not be used in isolation to guide treatment choices or public health policy.

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REFERENCES
