Abdominal compartment syndrome and intrahepatic portal venous gas: a possible complication of endoscopy

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Sirs: Abdominal compartment syndrome (ACS) is recently recognized fatal consequence following intra-abdominal hypertension in traumatic and surgical patients [1]. We described the first case of ACS with intrahepatic portal venous gas (IHPVG) after gastrointestinal endoscopy.

A 53-year-old man was first admitted to another hospital with a depression. He had suffered from chronic alcoholism. After vomiting a lot of coffee-ground gastric contents, the patient developed hypotension requiring hemodynamic supports. The patient was transferred to our emergency room with suspicion of upper gastrointestinal bleeding. When the patient arrived in our emergency room, he was hypovolemic shock. With massive infusion, the patient regained consciousness and his blood pressure was restored. An upper gastrointestinal endoscopy was performed, and a congested gastric wall with oozing was observed. We could not find any ulcerative lesions or ruptured varices. No therapeutic intervention was employed. The patient developed marked abdominal distention with disappearance of bowel sounds and tachypnea after the endoscopy. X-ray showed an enormous quantity of gas in his gastrointestinal tract with a marked elevation of the bilateral diaphragms. Non-contrast-enhanced computed tomography (CT) showed massive gas in the gastrointestinal tract, IHPVG and pneumatosis cystoides intestinalis (Fig. 1). These findings suggested severe intra-abdominal

hypertension. A few hours later, the patient complained of dyspnea and exhibited severe cyanosis. His blood pressure continuously decreased and anuria was developed. The time course of symptoms and the laboratory data indicated the clinical signs of ACS. Nasoenteric suction was initiated with a small bowel decompressive tube. Despite intensive treatments, the patient developed multiple organ dysfunction. Abdominal decompression using a nasoenteric tube and dinoprost were performed. Following drug therapy and good positioning of the nasoenteric tube, the gross bowel distension was improved. The abdomen became soft, and the patient's condition improved. The resolution of IHPVG and pneumatosis cystoides intestinalis was confirmed on abdominal CT. The patient was discharged from the ICU in good condition.

The abdominal distension, the massive gas in the gastrointestinal tract, the bilateral diaphragm elevation and the collapse of the inferior vena cava are good evidence of intra-abdominal hypertension [1]. Multiple organ dysfunction following this intra-abdominal hypertension is called ACS. IHPVG is a rare condition associated with bowel necrosis or intra-abdominal infection [2]. The mechanisms of IHPVG without bowel inflammation are mucosal damage due to increased pressure in the bowel or ischemia [3]. Elevated pressure and bowel ischemia following intra-abdominal

hypertension by endoscopy allow gas to diffuse into the submucosa and subsequently into the venous circulation, which may explain the presence of pneumatosis cystoides intestinalis and IHPVG in our patient [4,5]. Early decompressive laparotomy with the maintenance of an open abdomen has been the standard management of ACS [1]. The presence of IHPVG frequently mandates an exploratory laparotomy and portends a poor clinical outcome [2]. Although our patient showed multiple organ dysfunction caused by ACS and IHPVG, he did not require surgical intervention.

We present the first report of a patient complicated with ACS associated with IHPVG after upper gastrointestinal endoscopy. Our report provides a possibility of severe complication after endoscopy.

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