Spontaneous Pneumoperitoneum: Intraperitoneal Air without Hollow Viscus Injury

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Spontaneous pneumoperitoneum can be confusing in diagnosis of hollow viscus injury. In this report, we describe a blunt trauma patient with extraluminal intraperitoneal air in the absence of bowel perforation without a chest injury. Abdominal physical examination revealed peritoneal irritation sign. Abdominal computed tomography showed intraperitoneal air along the right perihepatic area and a right retroperitoneal hematoma. Intraoperatively, we observed a right adrenal hematoma and serosal tearing of the gallbladder and ascending colon without bowel perforation.

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Key Words: Pneumoperitoneum; Abdominal Cavity; Intestines

CASE

A 45-year-old man with cerebral palsy was involved in a traffic accident and sustained a blunt abdominal injury. On arrival, he was alert with the following vital signs: blood pressure, 118/72 mmHg; pulse, 80/min; respiratory rate, 16/min; and body temperature, 38.0°C. Physical examination of the abdomen revealed tenderness and rebound tenderness in the right upper quadrant, and diminished bowel sounds. Supine chest radiography did not show any specific findings. Abdomen computed tomography (CT) revealed a right retroperitoneal hematoma involving the right adrenal gland and perirenal space and a scanty amount of intraperitoneal air along the right perihepatic area (Fig. 1.). Exploration of the abdominal cavity revealed a right adrenal hematoma, perirenal hematoma, and serosal tearing of the gallbladder and ascending colon. There was no gastrointestinal

tract perforation. The patient resumed oral intake 3 days after cholecystectomy and right adrenalectomy without any complications.

DISCUSSION

Spontaneous pneumoperitoneum, described as the presence of air confined to the inner layer of the abdominal wall and external to the parietal peritoneum, may masquerade as true pneumoperitoneum (1), thereby representing a diagnostic pitfall. It should be recognized that extraluminal intra- or retroperitoneal air rarely occurs without gastrointestinal tract perforation. It is associated with various causes, such as mechanical ventilation and pulmonary barotrauma, peritoneal lavage before computed tomography (CT), pneumothorax, chest injury, entry of air via the female genital tract, and intraperitoneal laceration of the bladder secondary to cysto-

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Fig. 1. Abdominal computed tomography shows multifocal intraperitoneal air along the right perihepatic area (white arrows) with no definitive injury of the gastrointestinal tract and with a right retroperitoneal hematoma. (A, B) Axial view (C) Coronal view

graphy (1, 2). A repeat CT examination within 6-8 h may help determine the significance of less specific signs of bowel and mesenteric injuries, such as focal bowel wall thickening, mesenteric fat stranding with focal fluid and hematoma, and intraperitoneal or retroperitoneal fluid (3). Thus, reevaluation with additional CT findings that are indicative of gastrointestinal tract perforation may strengthen the significance of the extraluminal free air.

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

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