

Clinical diagnosis

Case 317

3.Sigmoid colon perforation

【Progress】

He received surgical management. Sigmoid colon adhered to lower abdominal wall and its surroundings of small intestine and greater omentum. Separation of adhesion induced leakage of abscess. The adhesion between small intestine and sigmoid colon was too fixed for endoscopic approach alone to manage. Then, laparotomy with median incision was conducted. Sigmoid colon and small intestine were separated. Small intestine adhered to sigmoid colon, trying to cover the perforated site of sigmoid colon.

【Discussion】

Peritoneum is present as parietal peritoneum and visceral peritoneum which are continuous together (1, 2). Visceral peritoneum which extends and encloses bowels is called mesentery, indicating it fixes bowels to abdominal wall. Extended visceral peritoneum is called mesentery. Mesentery is categorized into mesentery proper, transverse mesocolon, sigmoid mesocolon, appendix mesocolon (3). Mesenteries are double layers of peritoneum and enclose bowels. Mesenteries function to carry artery, portal vein, lymphatics and nerves, and stock fat.

Bowel wall composes of mucosa, submucosa, muscle layer and serosa. Serosa indicates mesentery itself or visceral peritoneum itself. In other words, serosa implies wrap of mesentery. However, the inner side of bowel wall obtaining vessels which adhere mesentery with stocked lipid, is not enclosed by serosa (1-3). The inner side without serosa finally folds together and connect to abdominal wall. The outer side with serosa wrapping bowel faces abdominal cavity.

Sigmoid perforation can occur in various causes of diverticulitis, ulcer, cancer and hard stool (4-6). Radiologically, presence of free air implies perforation. In case of sigmoid colon perforation, free air is found in three patterns; free air in abdominal cavity; free air in retroperitoneum: free air in sigmoid mesocolon. Free air in abdominal cavity indicates the lesion causing perforation exists at serosa side of sigmoid colon wall. Free air in retroperitoneal space such as peri-great vessels, indicates the lesion exists at mesentery side of sigmoid colon (4-6). Free air in sigmoid mesocolon indicates the lesion exists at mesentery side but free air does not move to retroperitoneal space or intraperitoneal space, probably because mesentery mesothelium is preserved and fluid retention or fibrosis in the mesentery block air to move to retroperitoneal space.

In our case, air collection and fluid retention are found in sigmoid mesentery with dirty sign. Free air in abdominal cavity can occur in case of sigmoid mesentery being destructed. Laparoscopic findings revealed the adhesion among sigmoid colon, small intestine and greater omentum. The destruction of mesentery might be covered by adhered small intestine, indicating to block free air of sigmoid mesocolon entering abdominal cavity.

The learning points from this case, are as follows; first, that the lesion of sigmoid colon irrespective of diverticulitis or colon cancer should be imagined the lesion occurs at the serosa side or mesentery side to differentiate; second, that free air can be found in both lesions of serosa side and mesentery side: third, mesentery side lesion is associated with dirty mesentery fat sign.

【Summary】

We presented a forty-five-year-old male for persistent lower abdominal pain. Laboratory test elevation of white blood cells count and CRP values. Abdomen CT depict free air collection and fluids retention localized in sigmoid mesocolon with dirty fat sign but no free air in abdominal cavity and retroperitoneal space. Laparoscopic findings revealed that rigid adhesion among sigmoid colon, small intestine and greater omentum was found and abscess fluids were excreted during separation of the adhesion.

It is borne in mind that sigmoid mesocolon dirty sign indicates infiltration of inflammation or tumor invasion, indicative of the lesion existing in the mesentery side of the bowel and the presence site of free air also implies the site of the lesion exists mesentery side or serosa side. Retroperitoneal free air indicates the lesion arising from the mesentery side, abdominal cavity free air indicates the lesion exists at the serosa side of sigmoid bowel or at the mesentery side associated with destruction of mesentery, free air located in sigmoid mesocolon probably associated with dirty fat sign that the lesion exists at the mesentery side or with adhesive small intestine to block free air entering abdominal cavity.

【References】

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