

Clinical diagnosis

Case 288

5. Sigmoid colon perforation

【Progress】

She underwent emergent surgical laparotomy at that day. It revealed sigmoid colon perforation and feces were wrapped in sigmoid mesentery but not existed in intraperitoneal cavity.

【Discussion】

Sigmoid colon is enwrapped with sigmoid mesocolon while descending colon in anterior half surface is enwrapped with descending mesocolon and in another posterior half surface is fixed to retroperitoneum. Sigmoid colon initiates from the end of ascending colon and ends to sacrum promontory (upper margin of sacrum (S1)). The colon from upper margin of sacrum promontory (S1) to lower edge to S2 is termed as recto-sigmoid colon which enwrapped with sigmoid mesocolon. Rectum initiates from S2 lower level and end to anus. Rectum is divided as Ra, from S2 lower level to peritoneum reflection and as Rb from peritoneum reflection to anus.

Sigmoid colon wall microscopically composes of 5 layers: mucosa, submucosa, proper muscle, subserosa and serosa. Serosa implies mesentery itself. Mesentery is essential to sigmoid colon for enough oxygen and nutrient via circulation of artery, portal vein and lymphatic channel.

Colon perforation occurs more often in sigmoid colon rather than cecum (1-3). There are three factors for perforation to occur in sigmoid colon; sigmoid-rectal portion is a watershed area between inferior mesenteric artery and internal iliac artery; sigmoid-rectal portion has an abrupt steep angle which emerges uneven intraluminal pressure: feces become more solid in sigmoid colon rather than in cecum (1-3).

The causes of sigmoid colon perforation are hard feces, diverticulitis and cancer (4, 5). In either case, CT image of sigmoid colon perforation can differ by with or without serosa blockade. The typical image of sigmoid colon perforation includes free air surrounding sigmoid colon, subphrenic free air, and ascites. This image arises in case of serosa blockage. Another image includes free air surrounding sigmoid colon and retroperitoneal free air. This image occurs when sigmoid colon wall is perforated with preservation of serosa. Free air collection surrounding sigmoid colon and further, flow in retroperitoneal space via root of sigmoid mesocolon which buds from retroperitoneum (6, 7). The third one includes feces itself come out from sigmoid colon wall without free air. This situation occurs in case of preservation of serosa and sigmoid surroundings are covered with feces.

In our case, CT depict feces come out of sigmoid colon with no free air in peritoneal space and retroperitoneal space, implying no damage of serosa and feces collect and accumulate in subserosa space. She was 100 year-old and in a state of constipation, indicative of suspicion of fragile wall and hard feces causing perforation of sigmoid colon.

【Summary】

We presented a one hundred-year-old female for bloody vomiting. Massive feces come out of sigmoid colon to outside the lumen but no free air existed on abdomen CT. Laparotomy revealed feces were present in sigmoid mesentery but not in peritoneal cavity, implying that feces existed in the subserous space. It is borne in mind that colon perforation occur in sigmoid colon more often rather than cecum, because sigmoid-rectal portion is a watershed area between inferior mesenteric artery and internal iliac artery, implying to fall in ischemia; sigmoid-rectal portion has an abrupt steep angle which emerges uneven intraluminal pressure: feces becomes more solid in sigmoid colon rather than in cecum. There are three image types of sigmoid colon perforation; the first type, free air, ascites in peritoneal space; the second type, free air in retroperitoneum space: the third type feces surrounding sigmoid colon. The first type occurs in case of perforation with blockade of serosa, the second and third types occur in case of preservation of serosa.

【References】

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