Imaging diagnosis is

Case 301

3.Strangulation hernia

【Progress】

She was transported to university hospital where emergent intraperitoneal laparostomy was served. Later, intraperitoneal reports sent to us said strangulation hernia of small intestine with localized small bowel necrosis and bloody fluids of small volume via slit between ascending colon and adhesive omentum (Fig. 5).

【Discussion】

When small bowel dilatation of 3 cm or greater is encountered on CT, it is important to find whether it is mechanical obstruction or not (1-3). Non-mechanical food passage disorder is called ileus, while mechanical passage disorder is called small bowel obstruction.

Ileus (non-mechanical obstruction) is cased by several factors and situations that are largely categorized into blood components, blood flow and bowel stimulation (1-3). As blood components, drugs of opioids, mental illness medicines, hyponatremia, sepsis are listed. As blood flow, congestive heart failure and mesentery ischemia are listed. As bowel stimulation, abdominal surgery, peritonitis trauma and hematoma are listed.

Small bowel obstruction (mechanical obstruction) is caused by intraluminal obstruction and extraluminal obstruction. As intraluminal obstruction, colon cancer, intussusception and ingestion content hard to absorb are listed (4-9). As extraluminal obstruction, adhesive chord making slit space irrespective of post-surgery or non-surgical inflammation, congenital foramen and foramen by weakened barrier as age advanced. Post-surgery chord formation is widely recognized for reparative mechanism (4-9), while non-surgery adhesion inducing small slit is present by unknown origin.

In our case, she had no history of intraperitoneal surgery. The cause of adhesion between omentum and ascending colon, forming slit space is unknown.

For interpretation of CT images, it is important to recognize whether small bowel dilatation is 3 cm or greater or not because enteritis induces edematous swollen, needed to differentiate each other. In case of 3 cm or greater, next step is to find the presence or absence of obstruction site, namely, non-mechanical ileus or mechanical small bowel obstruction. In case of being able to find obstructive sites of small bowel, third step is to find whether obstructive site is single or double, namely possibly strangulate or not. Double beak signs are considered to reflect the strangulation small bowel obstruction, reliable findings to recommend the application to surgical treatment irrespective of intraperitoneal or endoscopic. One beak sign does not always indicate strangulation, possibly reversible irrespective of whirl sign or not. Double beak signs are demonstrated most in coronal images but not always. In case of no delineation of double beaks sign, double knot sign should be explored. Double knot sign in coronal image is demonstrated in case of double obstructive sites emerging perpendicularly to coronal cross section.

Mesenteric edema and ascites indicate the disorder of mesenteric circulation. They are probable negative findings to small bowel obstruction but not definitely for surgical repair.

【Summary】

We presented ninety four-year-old female who was transported by ambulance car to our hospital for repeatedly rectal bleeding and vomits with decreased SpO2. Axial and sagittal images of abdomen CT depict double beak sign, while coronal images depict double knot sign because two obstructive sites situate perpendicularly to coronal slice section. Intraperitoneal laparoscopy revealed strangulation small bowel obstruction entering slit space between ascending colon and adhesive omentum whose origin was unknown since she had no history of intraperitoneal surgery. It is borne in mind that double beak sign or double knot sign is the most reliable finding for strangulation small bowel obstruction to applicate surgical treatment. Double beaks sign can be demonstrated most in coronal CT images. Double dots sign appears obstructive sites emerges perpendicularly to cross section. Then, in case of no delineation of beak signs, double dots sign should be explored, although constructive colon or small bowel should be excluded.

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