

Imaging diagnosis

Case 441

4. Non-strangulation ileus

【Progress】

He received ileus tube whose tip was advanced to the occlusive transposition as close as possible, inducing pain relief. Several days after, he was discharged with no symptoms.

【Discussion】

When you encounter CT images of ileus, it is imperative to differentiate strangulation ileus from non-strangulation ileus, because the management is different, laparotomy or endoscopically surgery for strangulation ileus, while ileus tube for non-strangulation ileus. It is reported that whirl sign, beak sign, small bowel feces sign, mesentery edema, ascites and more than 3cm of small bowel diameter are useful findings for diagnosis of small bowel obstruction (1-6).

These signs are useful to find out the presence of ileus, but not always useful to differentiate strangulation ileus from non-strangulation ileus (5).

Macroscopic view of strangulation ileus reveals that closed loop plus mesentery enter the crevice in the peritoneal space whose size is too narrow to escape and falls into ischemic change, leading necrosis. In this situation, there forms two occlusive transition points: one knot is formed by the dilated oral small intestine and the dilated oral-sided closed loop while another knot is formed by dilated anal-sided closed loop and constrictive anal-sided small intestine. The presence of these two occlusive transposition sites indicates the possibility of becoming strangulation ileus. I call two occlusive transition points two-beak sign or two-knot sign. These are the more important sign than others because these signs reflect the direct presence of closed loop, even if the whole images of loop sign were unclear. In fact, it is difficult to depict the real whole closed loop on abdomen CT. These signs indicate the possibility to grow the strangulation ileus. Then, when ileus was suspicious on abdomen CT: the diameter of dilated small bowel 3cm or greater, I usually look for the occlusive transposition site. When one occlusive transposition site can be identified, another occlusive transition point near the first one is searched. Two occlusive transition points should be present in close. Two occlusive sites equal to the points of double beak sign or double knot sign. I usually try to interpret whether strangulation ileus is present or not.

However, in our case with two-beak sign, I make a report to the possibility of strangulation ileus. But, in a real clinical situation, ileus tube was inserted, inducing abdominal pain relief indicative of non-strangulation ileus. The retrospective findings demonstrate that one occlusive transposition site indicates to have the sharp beak at the edge and tight knot, but another site indicates to have the dull edge and relatively loose knot. Further, CT two days after ileus tube, demonstrate two dull beaks and two loose knots at the occlusive transition sites. Hence, when two beak sign or two knot sign is found out, it should be interpreted whether the both edges of the beaks are sharp or not, or whether the both knots are tight or loose for differentiation strangulation ileus from non-strangulation ileus.

【Summary】

We presented sixty-three-year-old male presented with abdominal pain. Double beak sign or double knot sign is depicted on abdomen CT, suspicious of strangulation ileus. In fact, he was managed with ileus tube, inducing pain relief, leading discharge, indicative of non-strangulation ileus. Retrospectively, the edge of beak was dull and one knot was relatively loose. Then, when two beak sign is associated with sharp beak or two knot sign is associated with strong tightness, diagnosis of strangulation ileus is reasonable, while either edge of beak is dull or either knot is loose, diagnosis of non-strangulation ileus might be probable.

【References】

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