
Probable pathogen

Case 336

4. Salmonella

[Progress]

Salmonella was detected in examination of feces and blood culture.

[Discussion]

Infectious digestive organ disease can occur in stomach, duodenum, small intestine, and large intestine. In this series, infectious bowel diseases on small bowels and large bowel are focused. They are categorized into small bowel type, ileo-cecal (perforating) type, and large bowel type (1,2).

Bowel mural composes of mucosal layer, submucosal layer, proximal muscle layer, subserosa layer, and serosa. Intrinsic inflammation expands from inside, mucosal layer through serosa, while extrinsic inflammation and vessel-related ischemia expand from outside to whole layers.

Small bowel type is subcategorized into proximal jejunum type and distal jejunum-ileum type. Proximal jejunum type inflammation is caused by toxin from food and virus such as Rota and Noro that speedily invade mucosal layer and submucosal layer (1). Distal jejunum-ileum type is caused by toxin from bacteria such as Welsh, toxic E.coli, Vibrio, Cholera, and Celes that relatively speedily invade to mucosa and/or submucosa of jejunum mural(1). Small bowel type causes vomiting, water diarrhea. Antibiotics are not always necessary to be served.

Ileocecal type, also reported as perforation type, is often associated with swollen lymph-node. Bacteria invades to mucosa, submucosa, and vessels, inducing bacteremia. As momentum bacteria, yersinia and salmonella (Salmonella Typhi, Salmonella Para-typhi) are listed (1, 2). As a result, this type causes fever, abdominal pain, and diarrhea. Antibiotics and anti-flatulent are necessary to be served.

Large bowel type is categorized into two types; continuous expanding type from cecum through transverse colon or descending colon: rectal-sigmoid type. Continuous expanding type is caused by potent bacteria such as campylobacter, salmonella, hemorrhagic E. coli and amoebiasis (1, 2). Toxin by clostridium difficile and hemorrhagic E. coli (O157) also causes continuous expanding type. Clostridium difficile infection also called pseudomembranous colitis is caused by microbial substitution due to overdose of antibiotics (3, 4). Pseudomembranous colitis and amoebiasis invade to sigmoid colon and rectum (1, 2). Large bowel type causes tenesmus with bloody and mucinous

stool, abdominal pain, and fever. Antibiotics and anti-flatulent are necessary to be served.

Besides infectious bowel diseases, bowel mural thickening can occur in ischemic vascular diseases such as ischemic colitis, IgA vasculitis, SMA embolus, SMV thrombosis, portal hypertension, and non-occlusive mesenteric ischemia (5, 6).

There are a 3 rule on imaging of large and small bowels: 3cm or greater diameter of small intestine indicates abnormal stress to small bowel indicative of passage disorder (ileus) or inflammation, 6cm or greater diameter of large intestine besides cecum and sigmoid colon intestine diameter does the same, and 9cm or greater of cecum or sigmoid colon does the same.

In real situation for interpreting imaging of digestive organ to differentiate infectious bowel diseases from ischemic bowel diseases, greater diameter with mural thickness indicates infectious bowel disease, while greater diameter with intestinal fluids and gas indicates passage disorder, ileus or small bowel obstruction. Other than CT images, clinical symptoms such as diarrhea, vomiting, abdominal pain and fever, and past history such as laparostomy, atrial fibrillation, liver disorder, autoimmune disease, and anticoagulant/antiplatelets given, are crucial to differentiate infectious bowel disease from passage disorder of ileus or small bowel obstruction.

[Summary]

We presented a thirty-three-year-old man with abdominal pain, diarrhea, and fever. Abdomen CT depict ileum end and cecum with edematous mural thickening with swollen lymph nodes. Laboratory test revealed Salmonella in blood culture and feces test. It is borne in mind that ileum end-cecum type infectious enteritis is caused by Yersinia and salmonella, small intestine proximal type infectious enteritis is caused by virus such as Norovirus or Noro and food toxin, small bowel distal type infectious enteritis is caused by toxin of potent bacteria such as Welch or toxic E.coli, and large intestine continuous expanding type infectious enteritis is caused by campylobacter, salmonella, hemorrhagic E. coli and amoebiasis, and rectum-sigmoid colon type is caused by pseudomembranous colitis or amoebiasis.

【References】

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