Case 16717

Eurorad

Small bowel adenocarcinoma developed in a patient with Crohn’s disease

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Section: Abdominal imaging
Area of Interest: Abdomen Small bowel
Procedure: Colonography CT
Imaging Technique: CT-Enterography
Case Type: Clinical Cases
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Patient: 41 year, female

Clinical History:

A 41-year-old female suffered from periumbilical paroxysmal colic after eating without obvious inducement 8 years ago. Unfortunately, the abdominal pain was recently becoming more frequent. In addition, she suffered from weight loss and asthenia. Then she was admitted to our hospital. Laboratory tests showed a slight anaemia (Hb9.9g/dL) and high inflammatory indicators. The hypersensitive C-reactive protein was 33.15 mg/L What's more, the result of faecal occult blood test was positive.

Imaging Findings:

Contrast-enhanced CT images of the pelvis demonstrate a narrowing segment of the distal ileum. There is abnormal bowel wall thickening and a mild degree of bowel wall enhancement (Figure 1a). Multiple masses with ring enhancement were seen around the lower abdominal ileum with gas in them, and multiple enlarged lymphoid nodules around them (Figure 1b). The intestinal segment (arrow) in which adenocarcinoma and abscess exist could be seen with stranding of the surrounding mesenteric fat (Figure 1c).

Discussion:

Adenocarcinoma of the small intestine occurs very rarely in the general population. Previous studies have shown that the patients with Crohn's disease are six times more likely to develop small intestinal adenocarcinoma than the general population. Spontaneous adenocarcinoma of the small bowel (not related to Crohn's disease) occurs most commonly in the duodenum and proximal jejunum, whereas small bowel adenocarcinoma associated with Crohn's disease occurs more commonly in the distal jejunum and ileum [1]. Spontaneous adenocarcinoma of the small bowel usually has three manifestations on CT: annular lesion, discontinuous nodular mass or ulcerative lesion [2]. In our case of Crohn's disease, we carefully analysed the intestinal segment in which the adenocarcinoma exists after surgery and found that the adenocarcinoma appeared in the area with the most severe inflammation and bowel stenosis (Fig. 1c). And the intestinal wall around the carcinoma was obviously thickened, at both the mesentery and the opposite mesentery, which is different from the typical thickening of the intestinal wall at the mes enteric margin in Crohn's disease. In addition, typical mural stratification associated with inflammatory bowel disease was seen proximal and distal to the adenocarcinoma. This mural stratification, also referred to as the “target” or “halo” sign, has been recognised as a very specific sign for benign bowel wall thickening [3]. Loss of mural stratification has been associated with transmural fibrosis in the cicatrising phase of Crohn's disease [4] and tumour [5].

According to their study of patients in whom adenocarcinoma of the small bowel developed as a rare complication of Crohn's disease, Kerber [6] and Frank [7] concluded: (1) the development of adenocarcinoma is more likely to occur in patients with longstanding disease, such as Crohn's disease and ulcerative colitis; (2) classical radiographic appearance of carcinoma may not be seen; (3) aprogressive change in radiographic appearance over time with the development of masses, fistulas, strictures and obstruction should raise the suspicion of coexisting carcinoma; (4) malignancy should be considered when there is a chronic quiescent disease activity followed by a relapse with concurrent radiographic changes; and (5) fistulas may be associated with carcinoma in two forms: a mass produced by carcinoma or carcinoma arising in chronic fistulas from Crohn's disease.

Written informed patient consent for publication has been obtained.

Differential Diagnosis List: Crohn's disease with Small bowel adenocarcinoma., Crohn's disease with simple abscesses, small intestinal stromal tumour, Crohn's disease with simple internal fistula

Final Diagnosis: Crohn's disease with Small bowel adenocarcinoma.

References:

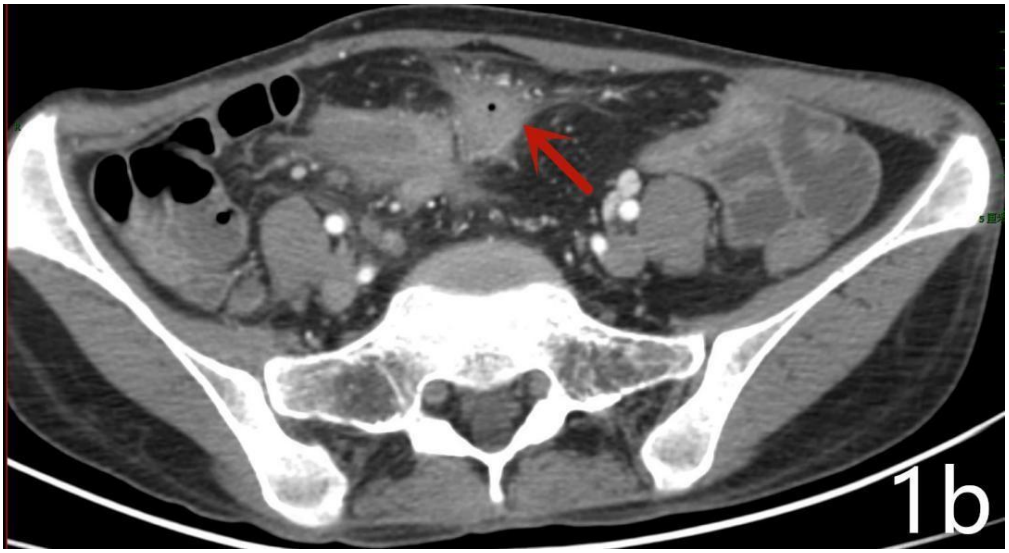
Bernstein D, Rogers A (1996) Malignancy in Crohn's disease. Am J Gastroenterol 91:434–440 (PMID:8633487)
Buckley JA, Fishman EK (1998) CT evaluation of small bowel neoplasms: spectrum of disease. Radiographics 182:379–392 (PMID: 9536485)
Harisinghani MG, Wittenberg J, Lee W, et al. (2003) Bowel wall fat halo sign in patients without intestinal disease. AJR 181:781– 784 (PMID: 12933481)
Gore R, Balthazar E, Ghahremani G, et al. (1996) CT features of ulcerative colitis and Crohn's disease. AJR 167:3–15 (PMID: 8659415)
Macari M, Balthazar EJ (2001) CT of bowel wall thickening: significance and pitfalls of interpretation. AJR 176:1105–1116 (PMID: 11312162)
Kerber GW, Frank PH. (1984) Carcinoma of the small intestine and colon as a complication of Crohn disease: radiologic manifestations. Radiology; 150: 639-645 (PMID: 6695061)
Frank JD, Shorey BA. (1973) Adenocarcinoma of the small bowel as a complication of Crohn's disease. Gut ; 14: 120-124 (PMID: 4696534)

Figure 1

a

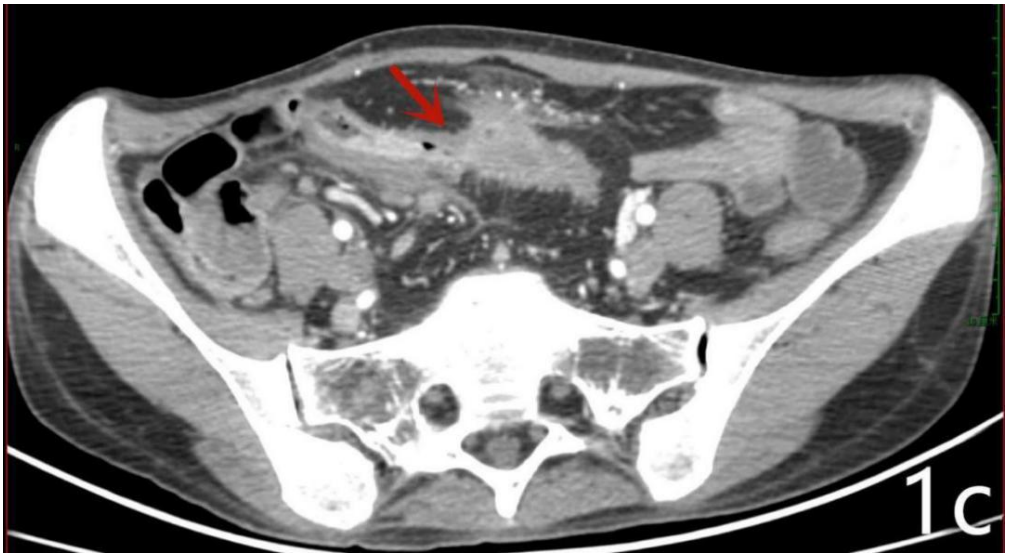
Description: Contrast-enhanced CT image of the pelvis demonstrates a narrowing segment of the distal ileum. There is abnormal bowel wall thickening and a mild degree of bowel wall enhancement.
Origin: © Department of Radiology, The First Affiliated Hospital of Anhui Medical University, 2018.

b



Description: Multiple masses with ring enhancement were seen around the lower abdominal ileum with gas in them, and multiple enlarged lymphoid nodules around them. **Origin:** © Department of Radiology, The First Affiliated Hospital of Anhui Medical University, 2018.

c



Description: The intestinal segment in which adenocarcinoma and abscess exist could be seen with stranding of the surrounding mesenteric fat. **Origin:** © Department of Radiology, The First Affiliated Hospital of Anhui Medical University, 2018.