

The accordion sign in chronic alcoholic liver disease

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Section: Abdominal imaging

Area of Interest: Abdomen Colon

Imaging Technique: CT

Case Type: Clinical Cases

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Patient: 36 years, male

Clinical History:

A 36 year old chronic alcoholic male presented with worsening diarrhoea of 15 days duration. He also complained of loss of appetite, and one episode of haematemesis. There was no history of fever, melaena or vomiting. Clinical examination revealed icterus, mild pedal oedema and an enlarged spleen. Grade-1 oesophageal varices were detected at endoscopy.

Imaging Findings:

CT examination of the abdomen revealed gross fatty infiltration of the liver, mild splenomegaly and free intraperitoneal fluid. The spleno-portal venous axis was patent. There was a generalized oedematous thickening of the small and large bowel loops. The hyperaemic enhancing mucosa of the colon, stretched over the markedly thickened submucosal folds simulated the appearance of an accordion (Fig. 1-5).

Discussion:

The "accordion sign" was first described in 1991 by Fishman et al in a series of 5 of the 26 patients of pseudomembranous colitis (PMC) evaluated with CT [5]. The accordion sign is seen on abdominal CT examinations and refers to the similarity between the thickened oedematous colonic walls to that of an accordion (Fig. 6). The appearance arises as a result of positive oral contrast being trapped between oedematous haustral folds. Occasionally, even in the absence of oral contrast material, the hyperaemic enhancing mucosa stretched over the markedly thickened submucosal folds, can simulate the accordion sign.

Although initially it was described as a sign specific of PMC, it has been reported to represent diffuse colonic oedema of several other aetiologies. Accordion sign can be seen in diverse conditions such as: ischemic colitis, infectious colitis (Campylobacter, Salmonella, Shigella and Cytomegalovirus), Crohn disease, ulcerative colitis, granulomatous colitis, cirrhosis and lupus vasculitis. Amongst these, PMC produces one of the most severe degrees of wall thickening amongst all types of colitis.

Because of significant overlap of imaging findings and non-specificity of the accordion sign, the clinical details and laboratory results play a vital role in reaching a definitive diagnosis. We report a case of a patient with alcoholic liver disease, whose abdominal CT scan presented the typical accordion sign throughout the entire large bowel together with signs of liver disease. The generalized thickening of the small and large bowel loops in a chronic alcoholic

patient with deranged liver function suggested hypoproteinemia as the causative factor. Laboratory results confirmed markedly decreased serum albumin.

Differential Diagnosis List: Accordion sign in chronic alcoholic liver disease, Pseudomembranous colitis, Ischemic colitis

Final Diagnosis: Accordion sign in chronic alcoholic liver disease

References:

Macari M, Balthazar EJ, Megibow AJ. (1999) The accordion sign at CT: a nonspecific finding in patients with colonic edema. Radiology 211(3):743-6 (PMID: [10352600](#))

Thoeni RF, Cello JP (2006) CT imaging of colitis. Radiology 240(3):623-38 (PMID: [16926320](#))

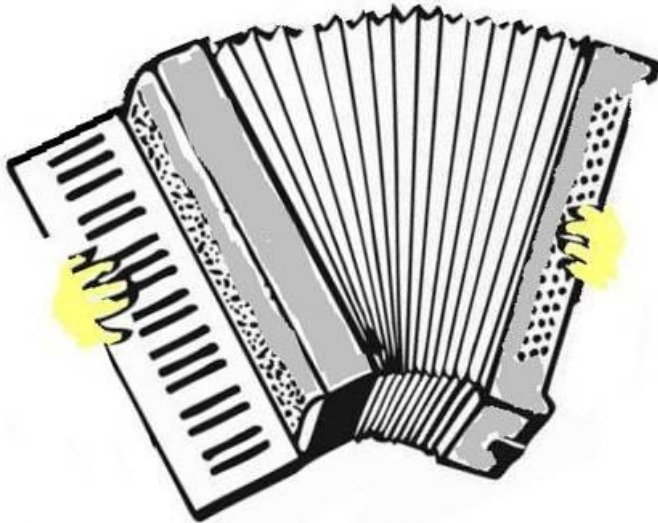
Macari M, Balthazar EJ (2001) CT of bowel wall thickening: significance and pitfalls of interpretation. AJR Am J Roentgenol 176(5):1105-16 (PMID: [11312162](#))

O'Sullivan SG (1998) The accordion sign. Radiology 206(1):177-8 (PMID: [9423669](#))

Fishman EK, Kavuru M, Jones B, Kuhlman JE, Merine DS, Lillimoe KD, Siegelman SS (1991) Pseudomembranous colitis: CT evaluation of 26 cases. Radiology 180:57-60 (PMID: [2052723](#))

Figure 1

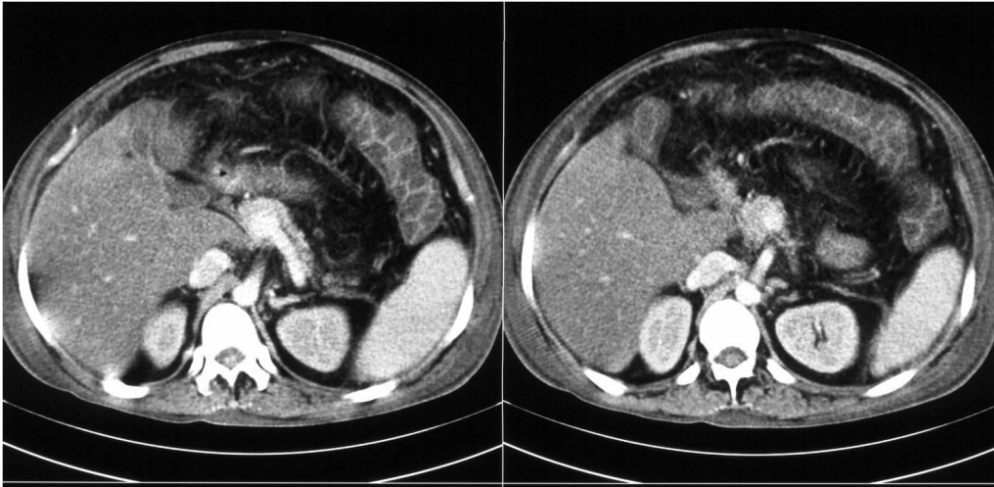
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Description: The accordion. **Origin:**

Figure 2

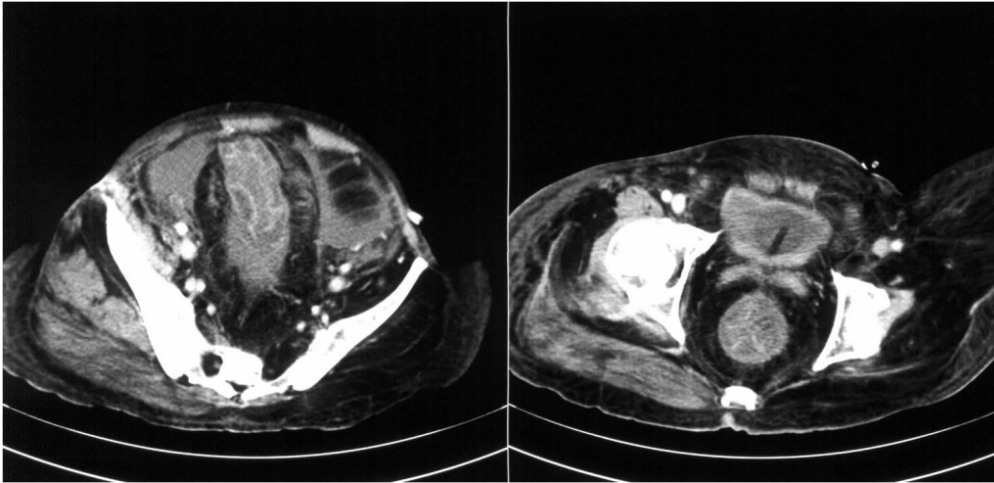
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Description: The hyperaemic enhancing mucosa of the colon, stretched over the markedly thickened submucosal folds simulates the accordion sign. **Origin:**

Figure 3

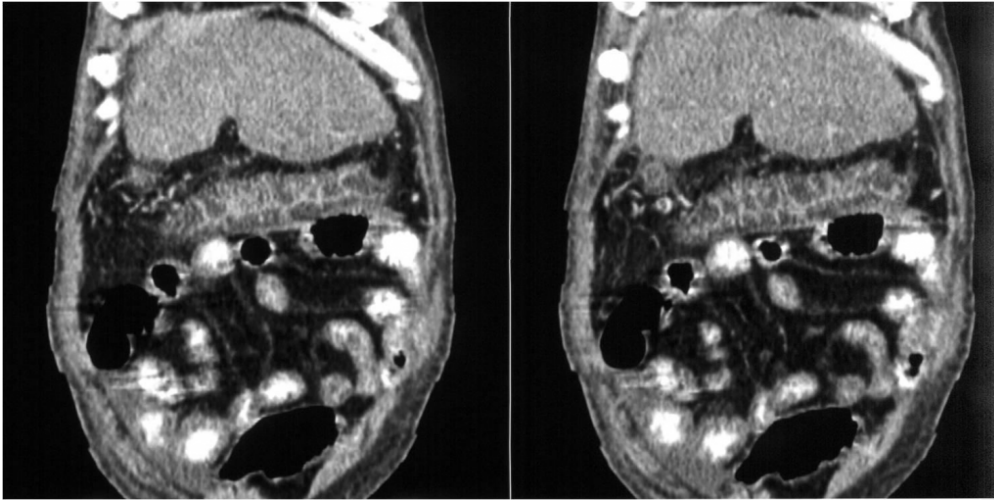
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Description: The entire large bowel was involved in a contiguous fashion extending from the rectum up to the cecum. **Origin:**

Figure 4

a



Description: Visualization of the accordion sign in the transverse colon. **Origin:**

Figure 5

a

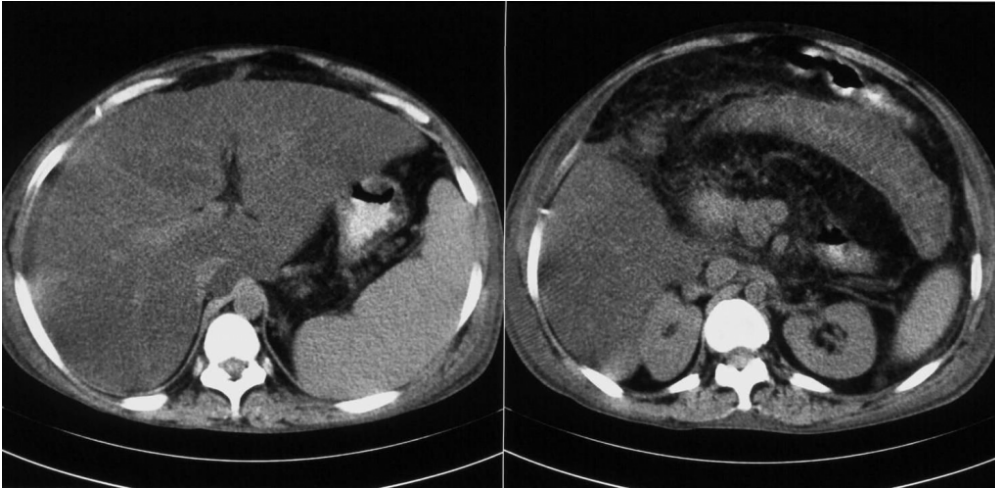


Description: Accordion-like appearance of the ascending, descending and the transverse colon.

Origin:

Figure 6

a



Description: Gross fatty infiltration of the liver, mild splenomegaly and mild perihepatic fluid. Also seen is diffusely edematous large bowel. **Origin:**