

The double wrinkled colon sign

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The double wrinkled colon sign, also known as jejunization of the colon, describes marked inner colonic wall redundancy with a “doubled or tripled” appearance, independent of the presence of normal haustrations (Fig 1A, B), causing the involved colon to resemble a crumpled piece of paper (Fig. 2) [1, 2]. The wrinkled colon was first described by Webb, et al. [1], exclusively in adult patients with cystic fibrosis, and occurring with an increased incidence in patients carrying the less common, non-delta F508 cystic fibrosis mutation.

Colonic mural redundancy, or wrinkling, is most commonly observed in the right side of the colon, although pan-colonic involvement may occur. In addition to the mural redundancy, thickening of the involved portions of the colon, including the cecum and appendix may be present [1, 3]. High attenuation of the colonic

wall and lumen, presumably representing inspissated material within the lumen and between the redundant folds, may be seen on unenhanced CT images [4]. Following the administration of contrast material, the colonic wall may appear hyper-enhancing and mesenteric infiltration may be seen [5]. In the absence of significant gaseous distention of the bowel, colonic wall thickening with increased luminal echogenicity and appendiceal enlargement may be seen by ultrasound [4].

Greater longevity of patients with cystic fibrosis increases the likelihood of encountering a patient with a “wrinkled” colon. As the finding of colonic wall thickening has a broad differential diagnosis, the presence of the sign should prompt a search for additional abdominal findings in the adult patient with cystic fibrosis (see Fig. 1B). The presence of associated conditions and the

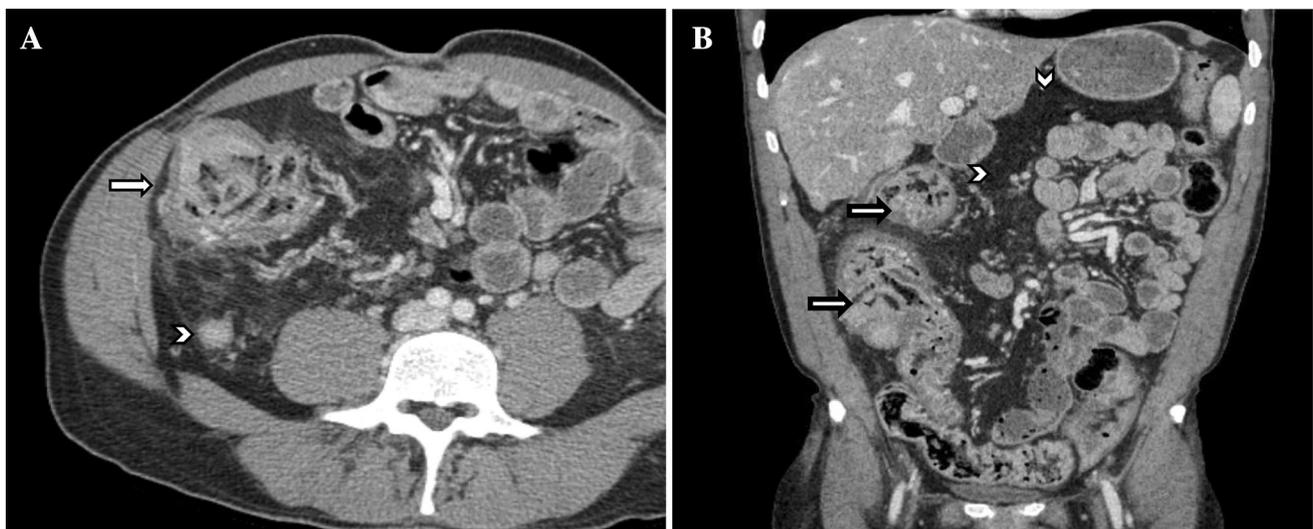


Fig. 1. **A** Axial enhanced CT of the abdomen and pelvis demonstrating a “wrinkled” appearance of the cecum with hyper-enhancement of the inner wall (arrow). The appendix appears large (arrowhead) with trace ascites present due to portal hypertension. **B** A coronally reconstructed image in the

same patient, who carries the delta F508 mutation for cystic fibrosis, shows the double wrinkled appearance of cecum and ascending colon with overlapping folds (arrows). Note additional stigmata of cystic fibrosis including changes of liver cirrhosis and complete fatty replacement of pancreas (arrowhead).



Fig. 2. A crumpled paper bag recalling the appearance of the “wrinkled” colon.

lack of resolution of the findings at follow-up imaging should serve to prevent confusion with other colonic pathology and prevent unnecessary intervention in these patients.

Compliance with ethical standards

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Conflict of interest The authors declare that they have no conflict of interest.

Research involving human and animal rights This article does not contain any studies with human participants or animals performed by any of the authors.

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