



## Jejunioleal fold pattern reversal in celiac disease

Dario Giambelluca<sup>1</sup> · Fabio Cannizzaro<sup>1</sup> · Massimo Midiri<sup>1</sup>

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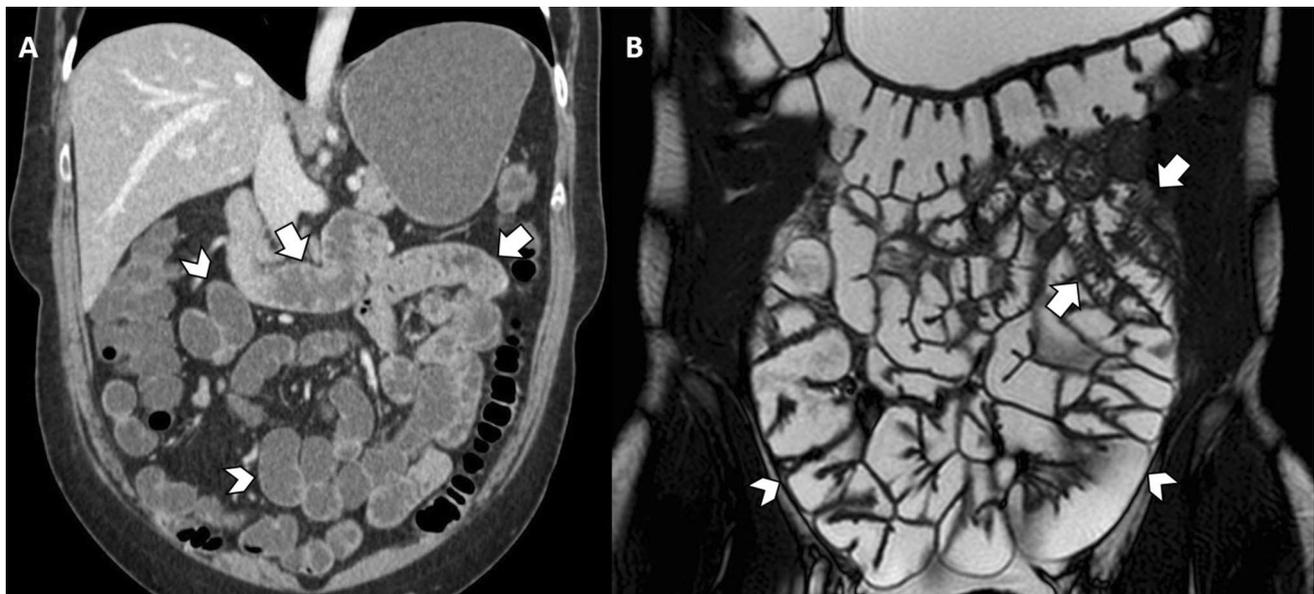
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Jejunioleal fold pattern reversal is a characteristic radiological finding described on different small bowel follow-through studies in celiac disease [1]. This appearance is generated by a decreased number of jejunal folds ( $\leq$  fourfolds/inch) and an increased number of ileal folds ( $>$  fourfolds/inch), leading to an appearance of the ileal loops similar to the jejunal loops, and vice versa (Fig. 1) [1, 2].

Celiac disease is an autoimmune inflammatory disorder of the small intestine, which occurs in genetically susceptible individuals following ingestion of gluten [1]. Although laboratory values (e.g., anti-tissue transglutaminase IgA

antibody, anti-endomysial IgA antibody, deamidated gliadin peptide IgA antibody) and biopsy confirmation are critical in celiac disease patients, imaging evaluation reveals various morphological abnormalities in the bowel wall, mesenteric vessels, lymph nodes and other extraluminal findings [1].

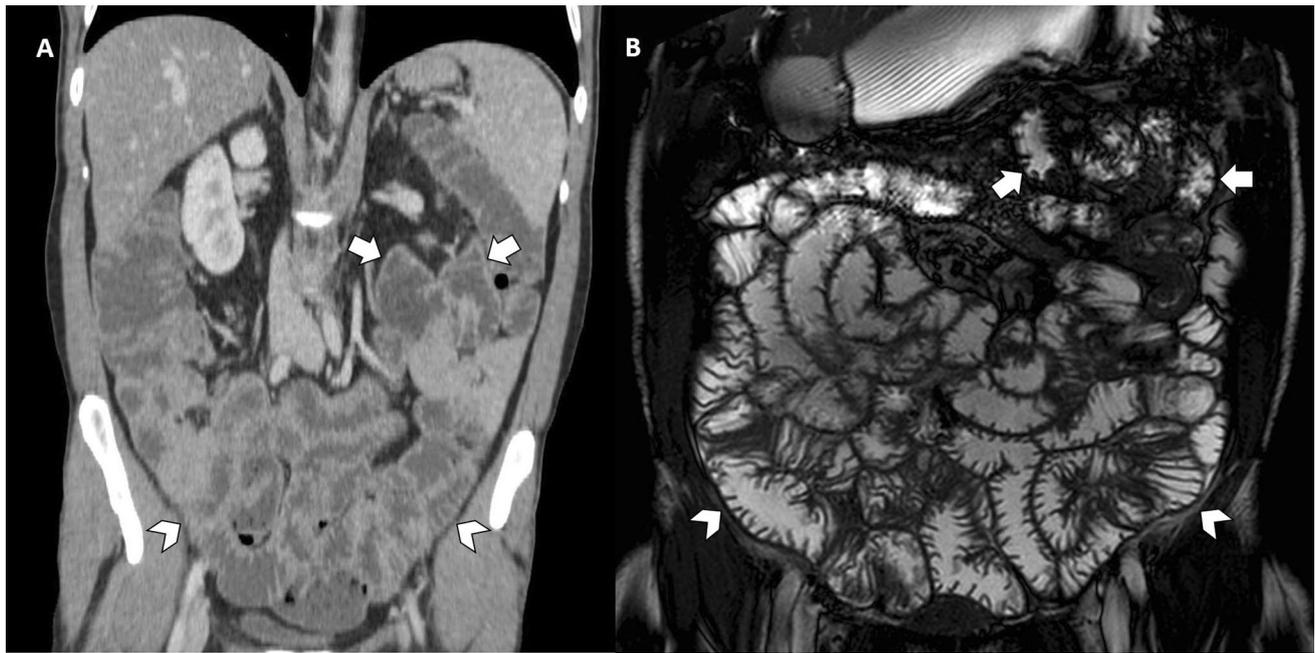
Jejunioleal fold pattern reversal is the most specific sign for the diagnosis of celiac disease, with a specificity of 100% and a sensitivity of up to 86% [1, 3, 4]. It has been described on small bowel imaging with conventional enteroclysis, CT, CT enterography and MR enterography (Fig. 2) [2–4]. Pathologically, jejunioleal fold pattern reversal typically implies



**Fig. 1** Normal fold pattern of jejunum (arrows) and ileum (arrowheads) on coronal CT enterography (a) and coronal MR enterography (b)

✉ Dario Giambelluca  
dariojambo@hotmail.it

<sup>1</sup> Section of Radiological Sciences, Bi.N.D., University of Palermo, Via del Vespro 129, 90127 Palermo, Italy



**Fig. 2** Jejunoileal fold pattern reversal on coronal CT enterography (a) and coronal MR enterography (b) in two different patients with active celiac disease. The jejunum (arrows) shows a decreased num-

ber of folds, while the ileal loops (arrowheads) demonstrate prominent folds and a feathery appearance

chronic disease, resulting in jejunal villous inflammation and destruction, while the increased number of ileal folds represents a compensatory adaptation of the ileum to the reduced absorptive capacity of the jejunum, to improve the absorptive capacity of the small bowel [1].

Other imaging features of celiac disease include: small bowel fold thickening, vascular engorgement in intestinal circulation, mesenteric lymph node prominence, mesenteric inflammation and splenic atrophy [1].

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### Compliance with ethical standards

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

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

**Informed consent** Statement of informed consent was not applicable since the manuscript does not contain any patient data.

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