

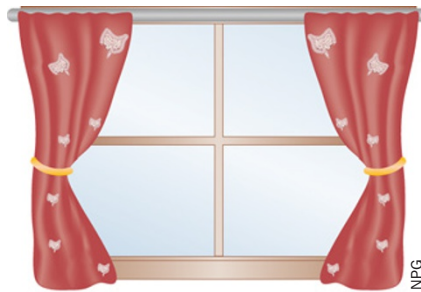
ENDOSCOPY

A window into the gut—real-time visualization of the effects of food intolerance using confocal laser endomicroscopy

Confocal laser endomicroscopy (CLE) can be used to monitor the immediate effects of food antigens on the gut mucosa in patients with IBS who have suspected food intolerance, according to new research published in *Gastroenterology*. “CLE allowed the establishment of a diagnosis in real-time within minutes,” write the study authors. As such, CLE could be used to dynamically monitor altered mucosal barrier function.

IBS is a common gastrointestinal disorder, with some patients perceiving that certain foods seem to be a trigger of IBS symptoms. In their pilot feasibility study, Fritscher-Ravens *et al.* aimed to use CLE to visualize the pathophysiological processes that occur in response to food antigens *in vivo*, in real time, at a microscopic level in patients with IBS who had suspected food intolerance.

Diluted food antigens (such as wheat) were administered directly to the duodenal mucosa of study participants via the



working channel of the endoscope. The gut mucosa of the 36 patients with IBS who had suspected food intolerance and 10 patients with Barrett oesophagus (without IBS symptoms) as controls was then assessed by CLE using fluorescein as a contrast agent.

Real-time responses to the food antigens could be monitored by CLE in 22 of 36 patients; no responses were observed in the controls. Moreover, compared with baseline levels, exposure to these candidate food antigens caused immediate breaks (within 5 min) in the gut epithelia,

increased numbers and widening of intervillous spaces, and a substantial increase in the numbers of intraepithelial lymphocytes in the affected area.

Importantly, upon implementation of a diet that excluded the triggering food antigen (according to CLE findings), symptom scores improved by >50% in patients with positive CLE findings (19 of 22; six had complete cessation of symptoms) after 4 weeks, with improvements increasing to 74% after 6 months of the diet.

The authors postulate that CLE could also be used to verify hypersensitivity reactions to food antigens when conventional testing fails. Further studies are needed to verify and validate the findings.

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Original article Fritscher-Ravens, A. *et al.* Confocal endomicroscopy reveals food-associated changes in the intestinal mucosa of patients with irritable bowel syndrome. *Gastroenterology* doi:10.1053/j.gastro.2014.07.046