

# Imaging technology might help doctors determine best treatment for Crohn's disease patients

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It's difficult for doctors to tell whether a patient with Crohn's disease has intestinal fibrosis, which requires surgery, or inflammation, which can be treated with medicine. A new imaging method might make that task easier, according to a U-M-led study.

Ultrasound elasticity imaging, or UEI, could allow doctors to noninvasively make the distinction between inflammation and [fibrosis](#), allowing patients to receive more appropriate and timely care. The study was published in the September edition of *Gastroenterology*.

Crohn's disease patients suffer from [chronic inflammation](#) of the intestines, which over time can cause scar tissue to form, resulting in intestinal fibrosis.

Patients with [intestinal inflammation](#) usually are treated with medicines that suppress their immune system, while patients with fibrosis are treated surgically. Because current diagnostic tests, including CT scans and MRIs, cannot detect the difference between the two conditions, many patients with fibrosis are often initially treated with immune system-suppressing drugs, which are expensive and are unlikely to help.

"These therapies are potent, costly and carry risk," says Ryan Stidham, M.D., clinical lecturer in the Department of Internal Medicine. "And for patients with fibrosis, such treatment might be for naught."

Inflamed [intestinal tissue](#) is softer than fibrotic tissue, which is hard and thick. The new method uses ultrasound to measure the relative hardness and thickness of tissue inside the body, potentially allowing doctors to differentiate between the two conditions without performing surgery. In animal models, UEI was able to accurately tell the difference between inflamed tissue and [scar tissue](#).

"The goal of this study is to have technology that can make the distinction between fibrosis and inflammation," says Stidham, the lead author of the study. "We want to know if it's worth it to push [medical therapy](#), or if a person is destined for surgery."

The researchers also found that UEI was capable of differentiating between fibrotic and unaffected intestine in a pilot human study. Patients already scheduled for surgical treatment underwent UEI assessment prior to surgery, and fibrotic strictures were identified in each case.

Stidham says the next step in the group's research is a long-term human clinical trial, beginning this winter. If UEI is able to accurately assess a patient's condition, doctors will be able to more efficiently treat Crohn's disease patients suffering from inflammation or fibrosis.

"UEI has great potential to provide a clear measurement that helps clinicians judge whether medical or surgical management is best for the individual patient earlier in their disease course." Stidham says.

**More information:** *Gastroenterology*,  
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"Ultrasound Elasticity Imaging for Detecting Intestinal Fibrosis and Inflammation in Rats and Humans With Crohn's Disease"

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