COMBINING ULTRA-HIGH MAGNIFICATION ENDOCYTOSCOPE WITH AUTOMATED SPATIAL MULTISPECTRAL INTESTINAL BARRIER PROTEIN IMAGING FOR ASSESSMENT OF HEALING AND OUTCOMES IN ULCERATIVE COLITIS

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Ultra-high magnification endocytoscopy with a novel scoring system correlates with tight junction expression and predicts adverse outcomes in ulcerative colitis patients, particularly those with primary sclerosing cholangitis.

KEY POINTS

- In 34 UC patients (68% with PSC) in clinical remission, a novel endocytoscope score strongly correlated with histological scores (r=0.69-0.84) and moderately with endoscopic scores (r=0.48-0.66).
- Endocytoscope scores below 5 in the colon and below 3 in the ileum predicted adverse outcomes including flare-ups, hospitalisation, colectomy and medication changes over 12 months follow-up (HR 2.35 and 5.78 respectively).
- The endocytoscope score correlated with Claudin-2 tight junction expression and cell density; combined barrier assessment by endocytoscopy and Claudin-2 significantly predicted outcomes in both colon and ileum.
- All tight junction proteins were less expressed in UC patients than healthy controls, with Claudin-2 cell density alone predicting adverse outcomes (p=0.01).
- This approach may benefit clinicians managing UC and PSC colitis by providing real-time in-vivo assessment of intestinal barrier healing to guide therapeutic decisions.

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