Overall, 118 patients were prospectively included (mean $\mu = 3.25$, $\sigma = 12.7$ years, 53.4% of female, 34.7% of current smokers, 33.9% with perianal lesions and 22.9% with prior intestinal resection. Montreal classification was: L1 = 41.0%, L2 = 10.3%, L3 = 48.7%, B1 = 32.5%, B2 = 40.1%, B3 = 27.4%. The patients were treated with anti-TNF (90.0%), thiopurines (39.0%), methotrexate (8.5%), and/or steroids (17.8%). The median values of CDAI, CRP and Fcal were 170 [82–246], 5.9 mg/l [2.3–20.4], and 598 µg/g [139–1800]. The correlation was moderate between Fcal and total MaRIA or total Clermont score ($r = 0.40$ for both). The correlation between Fcal and MaRIA or Clermont score, respectively, were $r = 0.39$ ($p = 0.006$) and $r = 0.38$ ($p = 0.007$) in patients with isolated ileal location and $r = 0.42$ ($p = 0.001$) and $r = 0.45$ ($p < 0.001$) for patients with ileocolonic location. The correlation was almost perfect between MaRIA and Clermont score ($r = 0.96$; $p < 0.0001$). Overall, 25 patients (21.2%) achieved transmural healing. The median value of Fcal was significantly lower in patients with transmural healing (284 µg/g [100–931] vs. 620 µg/g [191–1800], $p = 0.023$). Using a ROC curve, Fcal < 400 µg/g was the best cut-off value to detect transmural healing (AUC = 0.64; Se = 0.68; Sp = 0.63; PPV = 0.33; NPV = 0.88; accuracy = 0.64).

Conclusions: Our data demonstrate that type XVI collagen can be quantified in serum from CD patients. The biomarker C16-C was significantly associated with stricturing disease phenotype, indicating that this biomarker might be a biomarker for intestinal fibrosis in CD, and may predict intestinal fibrosis development in CD.

**P304**

*Faecal calprotectin as surrogate marker of transmural healing assessed using MRI in patients with Crohn’s disease*

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**Background:** Mucosal healing (MH) is to date the most validated target in Crohn’s disease (CD). However, its use is limited by the low acceptability of repeated endoscopies. In this context, faecal calprotectin (Fcal) is a more convenient tool to monitor MH. Recently, transmural healing assessed using MRI was associated with sustained clinical remission and lower risk of surgery. We aimed to assess the performances of Fcal to assess transmural healing in CD.

**Methods:** We included consecutively and prospectively all CD patients requiring MRI. MRI was performed with injected and diffusion-weighted sequences with no bowel cleansing and no rectal enema. The bowel was divided into five segments to be analysed (ileum, right colon, transverse colon, left/sigmoid colon, and rectum). MRI quantitative parameters such as apparent diffusion coefficient (ADC) or relative contrast enhancement (RCE) were assessed. Clermont score and Magnetic Resonance Index of Activity (MaRIA) were also calculated. Transmural healing was defined as previously published (no segmental Clermont score > 8.4 or MaRIA > 7 with no stricture and no fistula).

**Results:** Overall, 118 patients were prospectively included (mean age = 25.9 ± 12.7 years, 53.4% of female, 34.7% of current smokers, 33.9% with perianal lesions and 22.9% with prior intestinal resection. Montreal classification was: L1 = 41.0%, L2 = 10.3%, L3 = 48.7%, B1 = 32.5%, B2 = 40.1%, B3 = 27.4%. The patients were treated with anti-TNF (90.0%), thiopurines (39.0%), methotrexate (8.5%), and/or steroids (17.8%). The median values of CDAI, CRP and Fcal were 170 [82–246], 5.9 mg/l [2.3–20.4], and 598 µg/g [139–1800]. The correlation was moderate between Fcal and total MaRIA or total Clermont score ($r = 0.40$ for both). The correlation between Fcal and MaRIA or Clermont score, respectively, were $r = 0.39$ ($p = 0.006$) and $r = 0.38$ ($p = 0.007$) in patients with isolated ileal location and $r = 0.42$ ($p = 0.001$) and $r = 0.45$ ($p < 0.001$) for patients with ileocolonic location. The correlation was almost perfect between MaRIA and Clermont score ($r = 0.96$; $p < 0.0001$). Overall, 25 patients (21.2%) achieved transmural healing. The median value of Fcal was significantly lower in patients with transmural healing (284 µg/g [100–931] vs. 620 µg/g [191–1800], $p = 0.023$). Using a ROC curve, Fcal < 400 µg/g was the best cut-off value to detect transmural healing (AUC = 0.64; Se = 0.68; Sp = 0.63; PPV = 0.33; NPV = 0.88; accuracy = 0.64).

**Conclusions:** Fcal was moderately correlated with transmural healing in patients with CD. These two tools could be complementary to monitor patients with CD.

**P305**

*Intra-cavitary contrast-enhanced ultrasound: A novel radiation-free method to detect abscess associated internal fistulas in Crohn’s disease*

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**Background:** Internal penetrating disease is a common condition complicating Crohn’s disease (CD). Establishing the presence of a fistula and the anatomical definition of the fistulous tract are essential for deciding on appropriate treatment strategies. We aimed to assess the diagnostic accuracy of intra-cavitary contrast-enhanced ultrasound (IC-CEUS) for the detection of internal penetrating disease associated with abscesses in CD patients and compared it to CT/MR enterography (CTE/MRE), using surgical findings as the reference standard.

**Methods:** In this prospective cohort study, consecutive CD patients with suspicion for an intra-abdominal abscess, who were referred for US-guided aspiration followed by surgical intervention were recruited. IC-CEUS was performed by injecting diluted contrast agent (Sonovue) into the abscess cavity immediately following the ultrasound-guided needle abscess aspiration and drainage. Diagnostic accuracy of IC-CEUS in demonstrating the correct anatomy of fistulous tracts was compared with CTE/MRE in the same patient vis-à-vis surgery findings as the gold standard.
Results: In the 34 patients undergoing IC-CEUS, 31 patients who underwent subsequent surgery were included in the final analysis: 15 cases with fistulous tracts on CTE/MRE and 16 without fistulous tracts on CTE/MRE. All 31 patients were found to have fistulous tracts on surgical exploration. Overall, IC-CEUS demonstrated fistulous tracts in 26 of 31 participants with sensitivity and specificity of 86.7% and 100%, respectively, compared with surgical evaluation as the gold standard. Moreover, IC-CEUS correctly demonstrated fistulous tracts in 13 participants with negative findings on CTE/MRE. Combining IC-CEUS and CTE/MRE, the fistula tract was clearly demonstrated in 29 patients (93.5%, 29/31). The mean duration of the IC-CEUS procedure was 8.6 min (range 5.0–12.0 min). No severe adverse events occurred during IC-CEUS procedure.

Conclusions: In this pilot study, IC-CEUS accurately detected intraluminal fistulous tracts associated with intra-abdominal abscesses in CD patients with definite fistula confirmed at surgery. IC-CEUS correctly delineated fistula anatomy. As a radiation-free and safe technique, IC-CEUS may be used as an alternative/adjunctive method to CTE/MRE for detecting internal penetrating disease in patients with CD.

P306 Faecal calprotectin is highly effective to detect endoscopic ulcerations in Crohn’s disease regardless of disease location

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Background: As the reliability of fecal calprotectin (Fcal) remains debatable to detect endoscopic ulcerations in patients with isolated ileal Crohn’s disease (CD), we aimed to compare its performance to those observed in patients with colonic or ileocolonic location.

Methods: Using a prospectively maintained database, we analysed all CD patients with Fcal measurement and ileocolonoscopy performed within one month with no therapeutic intervention during this interval. ROC curves were used to determine the best fecal calprotectin threshold to detect endoscopic ulcerations or lesions taking into account the clinical relevance and usual recommended indices (Youden, Liu and efficiency). Sensitivity, specificity, positive (PPV), and negative predictive values (NPV) were presented with 95% confidence intervals for each estimated threshold. The ROC curves were compared using DeLong et al. method. Sensitivity, specificity, PPV, NPV, and accuracy were compared two by two using test of proportions.

Results: In total, 123 patients with CD were included. The baseline characteristics of the patients are presented in Table 1 according to Crohn’s disease location (40 patients in the L1 group and 83 in the L2−L3 group).

Table 1. Baseline characteristics of the Crohn’s disease patients enrolled in this study (n = 123).

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>L1 (n = 40)</th>
<th>L2–L3 (n = 83)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age at diagnosis</td>
<td>29.1 ± 5.5 years</td>
<td>21.2 ± 3.1 years</td>
<td>0.001</td>
</tr>
<tr>
<td>Female gender, n (%)</td>
<td>29 (72.5)</td>
<td>56 (67.5)</td>
<td>0.46</td>
</tr>
<tr>
<td>Smoking status</td>
<td>12 (30.0)</td>
<td>42 (50.6)</td>
<td>0.025</td>
</tr>
<tr>
<td>Previous surgery, n (%)</td>
<td>27 (67.5)</td>
<td>49 (59.0)</td>
<td>0.26</td>
</tr>
<tr>
<td>Disease duration</td>
<td>10.8 ± 10.4 years</td>
<td>11.6 ± 11.8 years</td>
<td>0.73</td>
</tr>
</tbody>
</table>

The mean Fcal level was significantly higher in patients with endoscopic ulcerations in the L1 group (p = 0.025) and the L2-L3 group (p = 0.001). Using ROC curves, Fcal >200 μg/g and Fcal >250 μg/g were the best thresholds to detect endoscopic ulcerations in the L1 group (sensitivity = 75.0% [47.6–92.7], specificity = 87.5% [67.6–97.3], PPV = 80.0% [51.9–95.7] and NPV = 84.0% [63.9–95.3]) and in the L2-L3 group (sensitivity = 84.1% [69.9–93.4], specificity = 74.4% [57.9–97.0], PPV = 78.7% [64.3–89.3] and NPV = 86.0% [64.0–91.8]), respectively. We compared the AUC between L1 and L2-L3 groups and we did not show any difference (0.89 vs. 0.84, respectively, p = 0.46). We also compared two-by-two sensitivity, specificity, PPV, NPV, and accuracy and we did not observe any significant difference (Table 2).

Table 2. Performance of fecal calprotectin to detect endoscopic ulcerations according to Crohn’s disease location (ileal vs. colonic or ileocolonic).

<table>
<thead>
<tr>
<th>Disease Location</th>
<th>Number of patients</th>
<th>Sensitivity (95% CI)</th>
<th>Specificity (95% CI)</th>
<th>PPV (95% CI)</th>
<th>NPV (95% CI)</th>
<th>AUC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ileal CD</td>
<td>40</td>
<td>75.0% (69.0–80.0)</td>
<td>87.5% (77.0–92.0)</td>
<td>80.0% (63.9–93.4)</td>
<td>84.0% (63.9–95.3)</td>
<td>0.89</td>
</tr>
<tr>
<td>Colonic or ileocolonic CD</td>
<td>83</td>
<td>84.1% (78.0–88.7)</td>
<td>78.7% (60.6–96.7)</td>
<td>86.0% (64.0–91.8)</td>
<td>88.0% (63.9–95.3)</td>
<td>0.84</td>
</tr>
</tbody>
</table>

Conclusions: Fcal is highly effective to detect endoscopic ulcerations regardless of CD location, but requires a lower cut-off value in patients with pure ileal involvement.