A Comparison of CT Imaging and Endoscopic Findings
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Purpose
Computed tomography (CT) is a widely used diagnostic study for patient’s presenting to our emergency department for various complaints from abdominal pain(AP), diarrhea, to gastrointestinal (GI) bleeding. Based on CT scan, GI consultations are often placed to further evaluate abnormalities found on this imaging modality.

Methods
We performed a computer search of our endoscopy center’s procedure logs, from 1/1/2007 to 12/31/2013 for any colonoscopy performed with an indication “Abnormal CT.” A total of 1090 patients were found with this indication. The CT scan and a colonoscopy report of each patient was reviewed. We included any patient who had abnormal findings of “thickened colonic wall” or “colitis,” and excluded if there was a mass. In the end, we had a total of 511 patients who had an abnormal CT scan and a colonoscopy.

Results
Of the 511 patients, 45.6% of them were male, ranging from 18 to 94 years old. 78 (15.2%) of patients had multiple areas read as abnormal on CT scan. Of the 589 “abnormal” areas, 344 (58.3%) of them were normal endoscopically. The most common indication to get a CT scan was AP (86.3%) followed by diarrhea (51.02%) and then GI bleeding (26.3%). The abnormal findings were broken down into left, right, transverse, terminal ileum and pancolitis. The majority of abnormal findings were found in the left side of the colon, 36.2%, and the least common location of abnormality was in the transverse colon, 6.5%. The most common correct correlation between CT and endoscopic findings was with pancolitis, 64.3% were abnormal on colonoscopy. When more than one area on CT was noted to be affected, the endoscopic findings correlated greater than 50% of the time. But when just one area of the colon was abnormal on CT scan, less than 40% of the time an abnormality was found on colonoscopy. Additionally when GI bleeding was part of the patient’s complaint, there would be a strong relationship between CT and endoscopic findings. Also, it was noted that women presented more often, but were found to have abnormal endoscopic findings less often (39%).

Conclusion
In conclusion, abnormal CT findings are a common reason for GI consultation and more often than not are normal on colonoscopy. Endoscopic findings were more likely to reflect CT findings when multiple regions of the colon were involved. When GI bleeding was the primary indication for obtaining the CT scan, there is a stronger association between the CT and endoscopic findings. Further investigation is still needed to see which patients can forgo endoscopic evaluation when there is an “abnormal CT” finding.


Figure 1: For the patients we studied, the indications for obtaining a CT of the abdomen included abdominal pain (509 patients total, 86.27%), diarrhea (301 total patients, 51.02%), and bleeding (155 total patients, 26.27%)

Figure 2: Location, Symptom (Total, abnormal). Upon examination of symptoms reported and abnormalities on endoscopy, bleeding had the strongest association overall, with specific exception in pancolitis or Ti inflammation reported on CT. Diarrhea is not demonstrated in this graph, but showed similar percentages to abdominal pain in each location.

Figure 3: This shows that the only accurate correlation between imaging findings and endoscopic findings was when pancolitis was pancolitis.

Figure 4: We separated endoscopic abnormalities based on location and symptoms reported to demonstrate a higher percentage of abnormalities in pancolitis, and higher percentage of abnormalities in that group when all three symptoms were reported, as opposed to just two.