varying degrees of vascular flow signals. Additionally, in 8 patients Bauhin’s valve edema was visible. In 16 children, inflammatory infiltration of the perirectal fat around the affected segment of the intestine was found. In all patients a mesenteric lymphadenopathy in the short axis of 10-15 mm was visible. MRE confirmed the presence of the confirmed ideal lesions and Bauhin’s valve edema in all 36 children. In addition, in 4 patients small intestine fistulas were found whereas abscess was observed in another 4 patients. In contrast-enhanced images, a vivid enhancement of the affected bowel section was revealed and in 10 children inflammatory reactions of peri-intestinal fat was demonstrated.

Conclusion: US and MRE are reliable tools in diagnosis of enteric inflammatory disease of the small intestine, evaluation of disease activity and assessment of potential complications. They are complementary elements in diagnostics of Crohn’s disease.

P057 WIRELESS ELECTRODE PATCHES SHOW INTRAPATIENT REPRODUCIBILITY IN A LONGITUDINAL STUDY OF PATIENTS WITH CROHN’S DISEASE IN REMISSION

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Background: Crohn’s disease (CD) patients would benefit from a non-invasive indicator of gut function to better predict changes in disease state, such as the onset of flare. A study of CD patients using non-invasive wireless electrode patches (G-Tech Medical, Mountain View, CA) that read myoelectric signals from the gut over 3 days is underway at Stanford University’s IBD center. The study will include 40 patients presenting in flare and 30 in remission to be tested at t=0, 1, 3 and 6 months. In addition, one-time tests will be performed on 20 healthy controls.

Aims: Herein, we report on the first 6 CD patients tested at t=0 and 1 month while in remission.

Methods: Each patient wore 3 abdominal patches (each 2.7” diameter) for 3 consecutive days while pursuing regular daily activities and meals (Figure 1). Each patch recorded 4 channels of myoelectric activity from the stomach, small intestine and colon, and transmitted the raw data to an iPod Touch, which relayed the data to a secure cloud server. Data were later downloaded and processed to remove artifacts, create frequency spectra, and search them for peaks representing rhythmic motor activity. We find that, nominally, stomach activity appears at 3 cycles/minute (cpm), small intestine at 6–12 cpm, and colon at 12–25 cpm.

Results: Figure 2 shows peak spectra for the 6 patients at t=0 and t=1 month. Individual peaks represent motor activity at a specific frequency associated with the stomach, small intestine, or colon. Each patient has a unique overall pattern, or GutPrint, reflecting the frequencies and levels of activity of their GI motility. The GutPrint for each individual reproduces well at the second test and is easily recognizable for each subject. Although the peak amplitudes may vary, virtually all of the peaks that appear at specific frequencies at t=0 are also present at 1 month representing a quantifiable signature that reflects each patient’s unique motility.

Conclusion: The G-Tech patch system provides a practical and noninvasive, physiologic means of measuring motor activity of the gut over multiple days. Its intra-patient reproducibility allows for the possibility of measuring changes to gut performance over time, whether naturally- or drug-induced, showing promise in CD monitoring.