



Assessment of disease activity with Magnetic Resonance Enterography in Pediatric Crohn's Disease



Giovanna Zuin, Marta Vecchi, Cecilia Mantegazza, Francesca Penagini, Giorgio Fava, Milena Meroni, Alice Munari, Marcello Napolitano

Department of Pediatrics, University of Milan, Radiology Unit, "V. Buzzi" Children's Hospital, Milan, Italy

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Background and objectives

Magnetic Resonance Enterography (MRE) is considered the imaging test of choice in children affected by Crohn's Disease (CD) in order to study the small bowel.

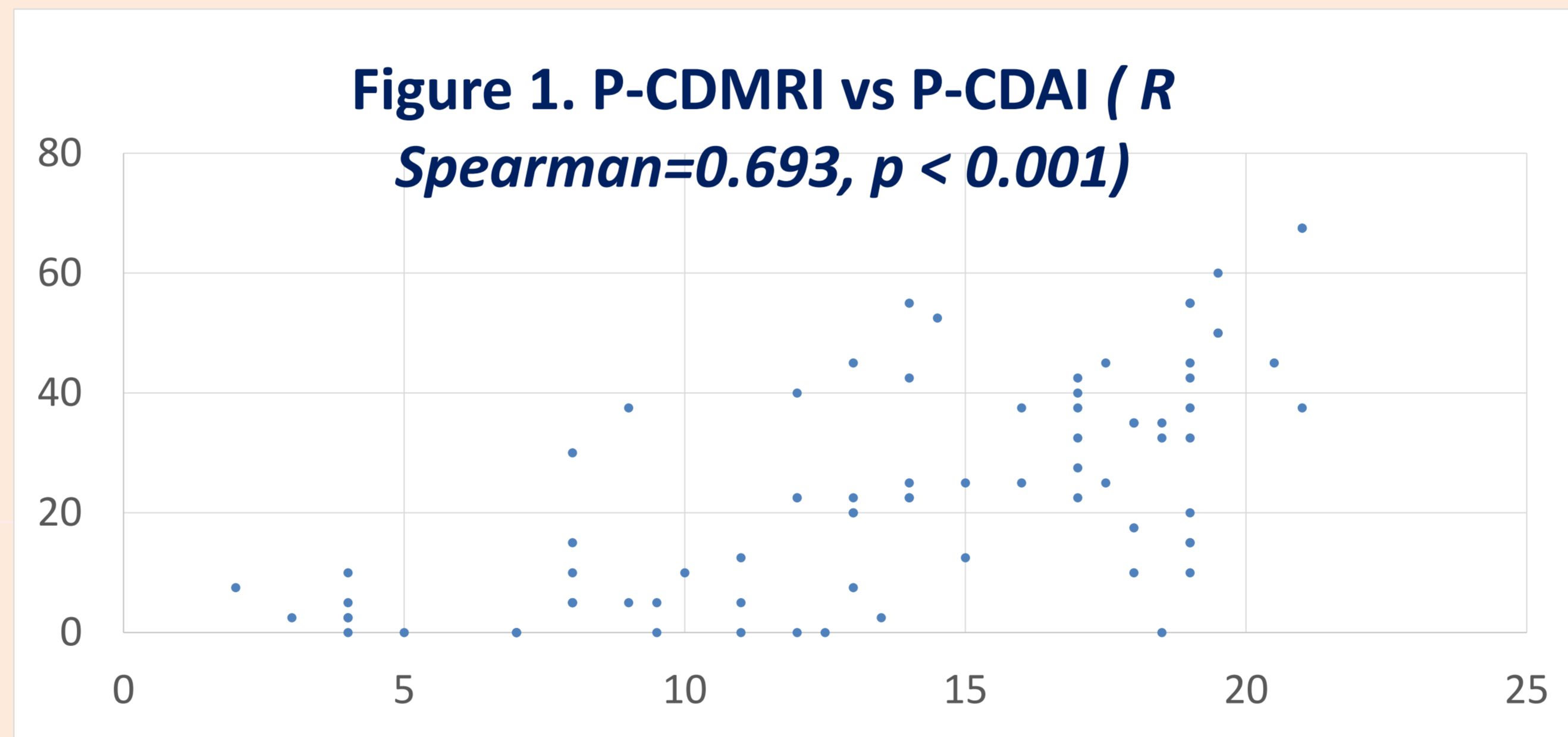
AIM: to determine whether MRE can be used to evaluate the activity of disease in a pediatric population affected by CD.

Methods

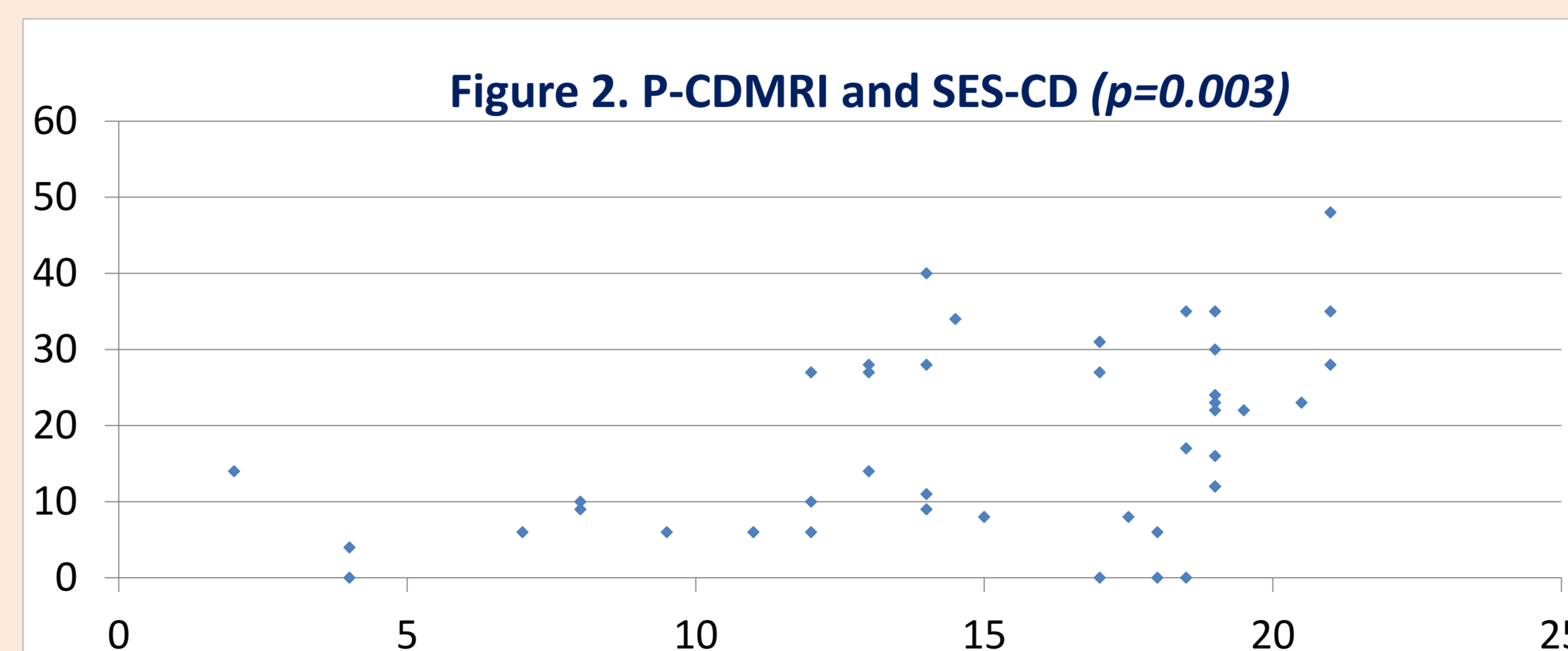
We recruited 39 CD pediatric patients who underwent 79 MRE at the time of diagnosis or during follow-up. At the same time of MRE, serum C-reactive protein (CRP), fecal calprotectin (FC) and the clinical activity index for pediatric CD (PCDAI) were performed. To evaluate the correlation of these parameters with disease activity on MRE, we created a Pediatric Magnetic Resonance Index of activity, called P-CDMRI. Forty-five MRE performed within two months from a full endoscopic examination were used to evaluate the concordance on disease location and activity as detected by the two methods. The Simplified Endoscopic Score for Crohn's disease (SES-CD) was used to evaluate endoscopic activity.

Results

In the total of 79 MRE a statistically significant correlation was found between P-CDMRI and PCDAI (Figure 1). A significant correlation was also observed between P-CDMRI and FC ($R=0.390$, $p=0.008$) and between P-CDMRI and CRP ($R=0.436$, $p<0.001$).



In the total of 45 MRE compared to full endoscopies, a statistically significant correlation was found between P-CDMRI and SES-CD (Figure 2).



CONCORDANCE ANALYSIS		Endoscopic localization			
		Ileum	Colon	Ileo-colonic	Total
MRE localization	Ileum	6	0	5	11
	Colon	0	4	1	5
	Ileo-colonic	0	2	19	21
	Total	6	6	25	37

Table 1 shows concordance of disease localization evaluated on MRE and full endoscopies (K Cohen =0.630, $p < 0.01$).

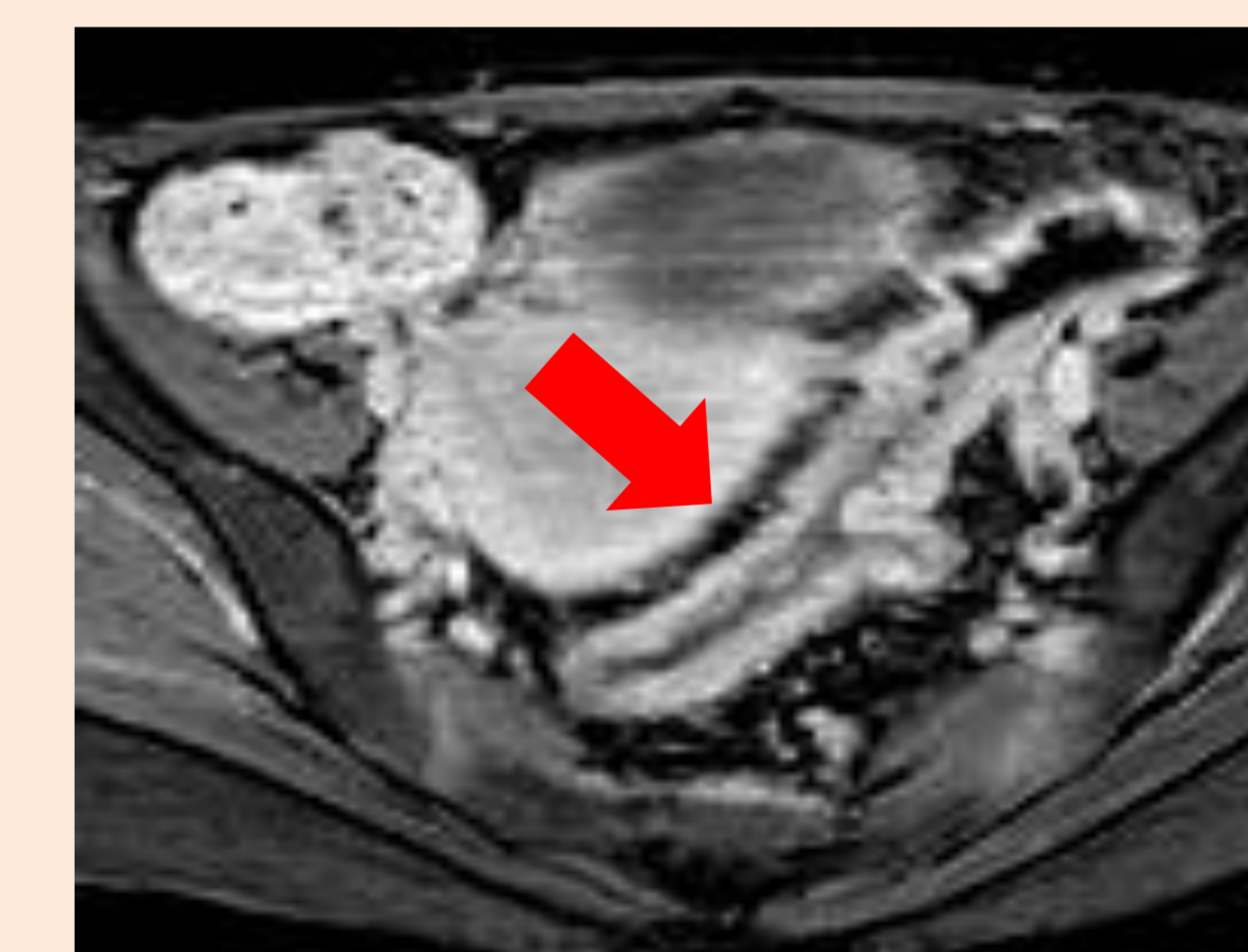


Figure 3

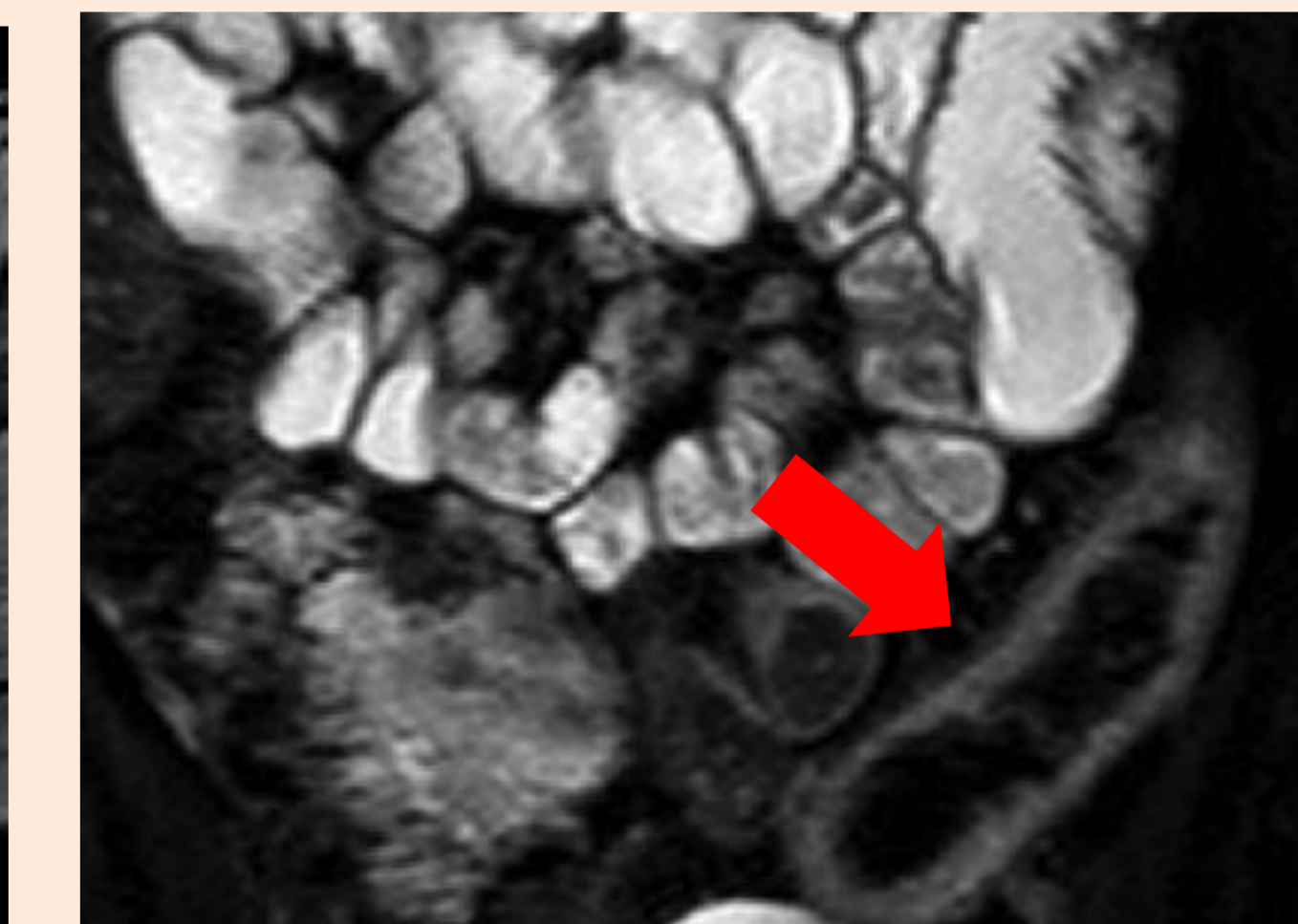


Figure 4

Figures 3 and 4 show contrast enhancement and wall thickening on MRE respectively.

Conclusions

The proposed MRE index is a good indicator of disease activity in pediatric CD: it is significantly correlated with the most commonly used clinical, laboratory and endoscopic parameters used to assess clinical activity.

Conflicts of interest: none declared