

MR-enteroclysis in comparison with previous radiographic and endoscopic examinations

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Purpose:

To evaluate MR-enteroclysis (MRE) as a mean to supplement the clinical understanding of patients with small bowel (SB) disease.

Materials and Methods:

Between May 2002 and October 2004, 30 consecutive patients (M/F=14/17), mean age 45 years (range 19–79), with known, 26, or suspected, 5, SB disease were included in a retrospective study. MRE signs were registered and compared with those from radiographic, 56, and endoscopic, 25, examinations performed in the same patients during previous three years. Six of these latter were video-capsule-enteroscopies (VCE). A maximum volume of 1.8 liters of iso-osmotic water solution was given by mouth (n=25) or infused via a nasojejunal tube (n=6). HASTE, True FISP and post gadolinium fat suppressed 3D FLASH coronal and axial slices were acquired during apnea, completed with a MRE-motion sequence in the last four patients.

Results:

SB tumors were imaged in 6 patients, five previously unknown and two verified, a CT-suspected lipoma and the other multiple GIST-tumors, several of which were suspected on a preceding VCE. Findings in the remaining four patients comprised carcinoma of the duodenum, SB carcinoid, endometriosis, and carcinosis after surgical treatment of a rectal carcinoma.

MRE in 24 patients with diarrhea showed no SB-abnormality in six, in whom follow-up revealed pseudo-obstruction and colitis in two each. In the remaining 18 patients MRE revealed abnormal wall thickening in all, stenotic lesions with dilatations in 17, hyperemia (comb sign) in 12, fistulae in 6, fibro-lipomatous proliferation in 8, enlarged lymph nodes in 8, and gadolinium enhancement of thickened bowel wall, 7, and lymph nodes, 4, in total 80 signs. Fifty of these were not previously registered. Findings such as fistulas, enhancement of bowel wall and lymph nodes were interpreted as signs of active inflammation, 13 in total. In addition, MRE-motility studies in four patients illustrated the severity of Crohn's disease as non-peristalsis of disease segments.

Conclusions:

Our comprehensive MRE-protocol including SB-motility study provides integrated information from the small bowel lumen, wall and surrounding tissues that result in deeper understanding of the disease and/or condition of the patient. MRE is non-invasive, with no ionising radiation, and has the potential to replace traditional methods to the benefit of both the patient and her physician.

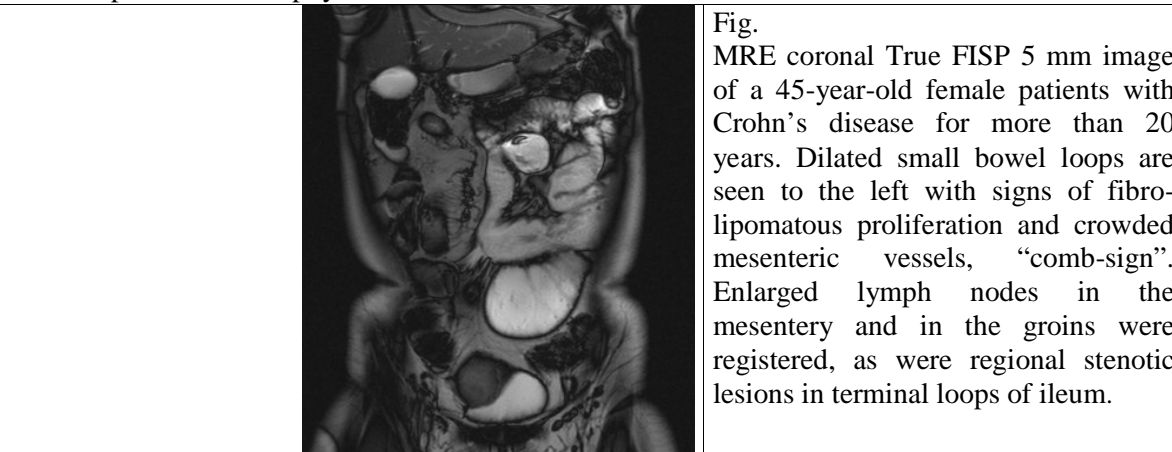


Fig.
MRE coronal True FISP 5 mm image of a 45-year-old female patients with Crohn's disease for more than 20 years. Dilated small bowel loops are seen to the left with signs of fibro-lipomatous proliferation and crowded mesenteric vessels, "comb-sign". Enlarged lymph nodes in the mesentery and in the groins were registered, as were regional stenotic lesions in terminal loops of ileum.