Does virtual colonography reveal relevant pathologies in patients with incomplete endoscopy?

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INTRODUCTION:

Conventional colonoscopy is considered the gold standard for the detection of colonic pathologies including bowel wall inflammation as well as tumor disease (1). However, several issues may limit patients' acceptance, such as procedure-related pain and risk of perforation. Furthermore, the entire colon cannot be assessed in a relevant number of cases because of non-passable (post) inflammatory or tumorous strictures, elongated colonic segments or patients' discomfort. MRI of the colon (MRC) has the potential to overcome these limitations. The technique is based on the rectal administration of liquid or gaseous media for bowel distension and the acquisition of fast MR sequences. Found to be highly accurate regarding the detection of colonic diseases (2), MRC provides excellent patients' acceptance due to the non-invasive character. Furthermore, all colonic segments can be displayed even in the presence of high-grade stenoses. Aim of this study was to assess whether relevant pathologies, which potentially influence therapeutic concepts, may be detected by means of MRC in patients with incomplete endoscopy.

METHODS:

Between August 2002 and August 2003 37 patients with incomplete colonoscopy were included in this study. Subjects had been referred because of different indications, such as suspected colitis, diverticulits, a positive fecal occult blood test or previous history of colorectal cancer. Reasons for incomplete endoscopy included the presence of non-passable stenoses (n=21), elongation of the sigmoid colon (n=10) and severe pain (n=6). All patients underwent MRC on the same day of the endoscopic examination. MRC was performed on a 1.5 T MR system (Magnetom Sonata, Siemens Medical Solutions, Erlangen, Germany) in patients' prone position. After the placement of a rectal tube, the colon was filled with approximately 2000ml of warm tap water using hydrostatic pressure. To minimize bowel peristalsis and to reduce colonic spasms, 20 mg of scopolamine (Buscopan; Boehringer Ingelheim, Germany) was administered intravenously. Paramagnetic contrast was intravenously administered at a dosage of 0.2 mmol/kg Gd-BOPTA and a flow rate of 3ml/s. A T1w 3D gradient echo data set was collected in coronal plane in a single breathhold before and 75s after intravenous gadolinium administration. All MR data sets were assessed regarding the presence of colonic pathologies.

RESULTS:

By means of endoscopy five polyps were detected in the fully assessable bowel segments. Presence of all polyps was confirmed by subsequent MRC. Furthermore, MR imaging correctly displayed all colonic stenoses, which were the reason for incomplete endoscopy in 21 subjects. Stenoses were rated as tumor-related (n=12) or inflammation-related (n=9). However, several additional pathologies were displayed in the bowel segments not been reached by endoscopy: colonic polyps (n=5; fig 1), colonic carcinomas (n=2; fig 2) and inflammatory lesions (n=4). In addition, extra-colonic findings were seen, such as hepatic metastases in three patients.

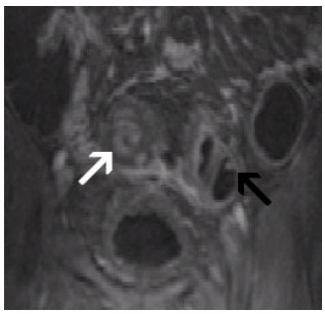

Fig 1: patient with incomplete endoscopy due to stenotic inflammaory lesion in sigmoid colon (white arrow). MRI revealed colonic polyp (black arrow) in a more proximal bowel segment, which could not be assessed by endoscopy.

DISCUSSION:

The presented data indicate that MRC is a useful tool for the assessment of the entire colon. In our trial, two colonic malignancies and nine minor findings were detected, which had been initially missed because of incomplete endoscopy. Thus, we recomment the application of MRC in all patients with previous incomplete colonoscopy.

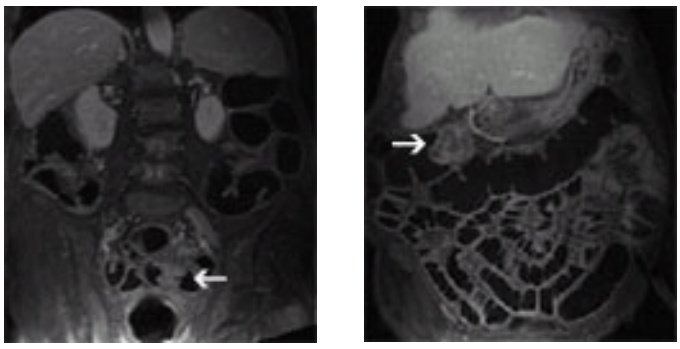

Fig 2: patient with carcinoma in sigmoid colon (left). Additional carcinoma was detected close to right colonic flexure (right).

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