

Basics of MR Enterography & Rectal MRI

SY17-1

MR enterography and Rectal MRI: Scan techniques

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With recent advances in magnetic resonance imaging (MRI) software and hardware, and increasing expertise among technologists and radiologists, MR techniques have come to the forefront of imaging patients with known or suspected bowel pathology. MRI provides several advantages over more conventional techniques for imaging the bowel. Superior tissue contrast and lack of ionizing radiation are its major advantages over computed tomography (CT) and fluoroscopy.

Two major applications of MRI for bowel imaging are small bowel imaging (MR enterography) and rectal imaging. First, MR enterography (MRE) are uniquely suited for imaging Crohn's disease, as its early age of onset and its waxing and waning nature require repeat imaging to detect complications or assess response to treatment, sparing patients potential exposure to high lifetime doses of radiation. Second, rectal MRI is the modality of choice for staging rectal cancer to assist surgeons in obtaining negative surgical margins. MRI facilitates the accurate assessment of mesorectal fascia and the sphincter complex for surgical planning. Multiparametric MRI may also help in the prediction and estimation of response to treatment and in the detection of recurrent disease.

It is essential to obtain high quality images for evaluating bowel pathology. However, unlike other organs, peristalsis is present in non-obstructed bowel and bowel lumen is usually collapsed. Therefore, these characteristics of bowels should be considered to obtain high quality bowel images.

In this lecture, basic techniques of MR enterography and rectal MRI including as patient preparation, essential MR sequences, scan planes, and scan timing will be discussed.

Keywords : MR enterography, Rectal MRI, Technique

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MR enterography: Interpretation

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This lecture will address the following issues using multiple pictorial examples. Of different inflammatory bowel diseases (IBDs), this lecture will focus on Crohn's disease.

1. Typical MR enterography (MRE) image/sequence set for clinical examination

2. Individual MRE findings of active inflammation

- Imaging finding definitions according to SAR consensus

3. Pitfalls in MRE interpretation

4. Synthesis of imaging findings

- Presence vs. absence of bowel inflammation

- Severity of inflammation:

a. Relative severity

b. Absolute severity: various severity scores

- Complications: stricture, penetration, free perforation

- Changes during follow-up

5. Case discussion

- Consolidation and summary of key lecture points through a brief case workshop

Keywords : MR enterography, Crohn's disease

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Rectal MRI: interpretation

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Rectal MRI plays a key role in evaluating rectal cancer by providing multiple prognostic findings and imaging features that guide proper patient management. Quality reporting is critical for accurate effective communication of the information among multiple disciplines, for which a systematic structured approach is beneficial. The Korean Society of Abdominal Radiology (KSAR) study group for rectal cancer has developed an expert consensus recommendation regarding essential items for structured reporting of rectal cancer MRI using a modified Delphi method. This recommendation aims at presenting an up-to-date, evidence-based, practical, structured reporting template. In this lecture, I will introduce components of the structured report format and discuss its application to our daily practice.

Keywords : Rectal cancer, MRI, KSAR, Structured report