Redefining MRI:
From Image to Insight

ICMRI 2026
THE 14th INTERNATIONAL CONGRESS ON MRI
& 37th ANNUAL SCIENTIFIC MEETING OF KSMRM

AUGUST 27 - 28, 2026
Grand Walkerhill Seoul, Seoul, Korea
https://icmri.ksmrm.org/2026m

Abdomen 2

SY24-3

Advanced MR Enterography Techniques for Small Bowel Imaging

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Crohn's disease is a chronic and progressive inflammatory disease that requires reliable assessment of disease activity, complications, and treatment response. MR enterography (MRE) is a noninvasive, radiation-free technique that enables evaluation of the small bowel and extraintestinal abnormalities.

MRE is technically challenging because bowel gas, peristalsis, and respiratory motion can cause artifacts. Advanced techniques such as parallel imaging and compressed sensing can reduce scan time while maintaining image quality. Deep learning-based reconstruction may further improve image quality and reduce acquisition time.

Cine MRI provides dynamic information on bowel motility and distensibility. It may help evaluate reduced peristalsis, functional obstruction, and bowel strictures. Artificial intelligence may also support automated segmentation, detection of active inflammation, and quantitative analysis of disease activity.

This lecture will review the technical principles and clinical applications of recent advances in MRE, with emphasis on accelerated imaging, cine imaging, deep learning-based reconstruction, and emerging AI applications.

Keywords: *MR enterography, Crohn's disease, Accelerated imaging, Artificial intelligence*