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

JSMRM-KSMRM 1

Joint01-1

Clinical Implementation of AI in Abdominal MRI: What Is Ready for Daily Practice?

Seung-seob Kim

Severance Hospital, Korea

Magnetic resonance imaging (MRI) has undergone continuous technological evolution over the past decades, driven by advances in hardware, pulse sequence design, acceleration techniques, and image reconstruction. Among these innovations, deep learning–based reconstruction (DLR) has emerged as one of the most promising developments in recent years. By effectively suppressing image noise and artifacts, DLR has enabled substantial reductions in scan time without compromising—and often improving—image quality. Consequently, DLR is rapidly being incorporated into routine clinical MRI across multiple organ systems.

However, abdominal MRI presents unique challenges that distinguish it from imaging of other body regions. Unlike relatively stationary organs, the abdomen is continuously affected by respiratory motion, cardiac pulsation, bowel peristalsis, and other physiological movements. These factors expose abdominal MRI to a wide variety of motion-related artifacts that are often unpredictable and highly variable across patients. Whether DLR can consistently maintain its expected performance under these highly heterogeneous imaging conditions—or whether it may occasionally produce unexpected reconstruction results that ultimately compromise image reliability—remains to be fully established. Nevertheless, because breath-hold duration is inherently limited in abdominal MRI, reducing acquisition time as much as possible remains a critical goal. In this regard, the abdomen may be one of the organ systems that stands to benefit the most from DLR, despite also presenting some of its greatest technical challenges.

This lecture will review the current evidence regarding the clinical implementation of DLR in abdominal MRI, with a particular focus on its performance under real-world imaging conditions. The strengths and limitations of DLR will be discussed in relation to image quality, noise reduction, motion artifacts, lesion conspicuity, and examination efficiency. Practical considerations for incorporating DLR into routine abdominal MRI protocols will also be presented, together with areas in which further technological development is still needed. By examining the current evidence, this lecture aims to provide a realistic perspective on what is ready for clinical practice today and what challenges remain for the next generation of AI-enabled abdominal MRI.

Keywords: *Abdominal MRI, Deep learning-based reconstruction (DLR), Artificial intelligence (AI), Clinical implementation*