



Abdomen 2

SY05-3

## **Non-Invasive Evaluation of MASLD: Role of MRI**

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Metabolic dysfunction–associated steatotic liver disease (MASLD) is characterized by abnormal accumulation of intracellular lipid in the liver and is the most common cause of chronic liver disease, with a prevalence of 20–30%. In North America, MASLD has become the leading indication for liver transplantation in women. Because MASLD can progress to more advanced stages, including fibrosis and cirrhosis through metabolic dysfunction–associated steatohepatitis (MASH), timely detection and appropriate management are essential to prevent further hepatic injury.

Liver biopsy has long been regarded as the reference standard for evaluating MASLD. However, its invasiveness, risk of complications such as bleeding, and limitations in repeated assessments underscore the need for reliable noninvasive methods. Imaging-based evaluation has emerged as a promising alternative. Among available modalities, magnetic resonance imaging (MRI) provides the highest diagnostic accuracy. MRI-derived proton density fat fraction (PDFF) and MR spectroscopy (MRS) are considered the most accurate noninvasive tools for quantifying hepatic steatosis, while MR elastography (MRE) demonstrates the strongest performance in staging liver fibrosis. Owing to these strengths, MRI-PDFF and MRE are now widely adopted as noninvasive reference standards in clinical trials.

In this presentation, I will review noninvasive imaging approaches for MASLD, with particular focus on the role of MRI in clinical practice and research.

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