Body MRI Approach: Guide for Common Indications

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See the slide presentation here.

Body MRI provides a powerful means to assess various conditions affecting the abdomen and pelvis. Interpretation can be daunting because the relevance of key clinical parameters may be unknown, the importance of certain sequences may be unclear, and search pattern establishment may be hindered by the unfamiliarity of sequences, especially those specific for a given disease. To aid in the use of body MRI, the accompanying slide presentation discusses the general body MRI sequences, explains key clinical factors for the most encountered clinical questions, and describes the application of body MRI for the most common body MRI indications accounting for the underlying pathologic findings.

The slide presentation provides a general overview of the standard body MRI sequences and their use, including pre- and postcontrast T1-weighted imaging, T2-weighted imaging, chemical shift imaging, and diffusion restriction. General strategies are discussed, including practical ways to identify and characterize pathologic findings (Fig 1). Subsequent sections provide more disease-specific clinical and imaging considerations for tackling the most encountered entities at body MRI and highlight how the underlying pathologic findings relate to imaging patterns (Fig 2). Organ- and disease-specific sections include liver fibrosis, liver lesions, hepatocellular carcinoma (Liver Imaging Reporting and Data System [LI-RADS]), renal masses, adrenal imaging, pancreatic masses and cystic lesions, pancreatic ductal pathologic conditions, inflammatory bowel disease and enterography, biliary disease and MR cholangiopancreatography, gynecologic pathologic conditions, rectal cancer, prostate adenocarcinoma (Prostate Imaging Reporting and Data System [PI-RADS]), and appendicitis in pregnancy.

The image-rich guide contains diagrams highlighting scoring paradigms for LI-RADS and illustrations that describe classic appearances of the most encountered liver, renal, adrenal, and pancreatic masses. Understanding the fundamentals of the body MRI approach equips the radiologist with the knowledge to understand the most encountered pathologic conditions and serves as a framework for less common conditions.

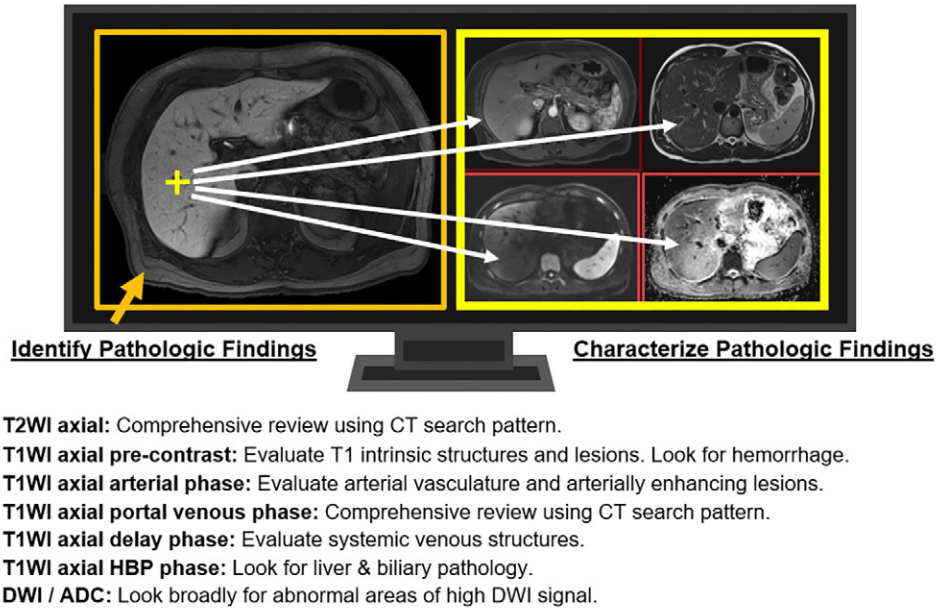

Figure 1. Approach to body MRI interpretation. Understanding the elements of specific sequences can aid in the practical identification of pathologic findings, which allows further characterization. *ADC* = apparent diffusion coefficient, *DWI* = diffusion-weighted imaging, *HBP* = hepatobiliary phase, *T1WI* = T1-weighted imaging, *T2WI* = T2-weighted imaging.

Slide Presentation

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TEACHING POINTS

- Understanding the pathologic findings of interest and the clinical question is critical for accurate interpretation of MR images and use of appropriate sequences.
- Effective identification and characterization of pathologic findings requires a basic knowledge of the sequences used in standard and specific protocols.
- Clinical information combined with understanding of disease-specific scoring paradigms allows accurate reporting with body MRI.

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Suggested Readings

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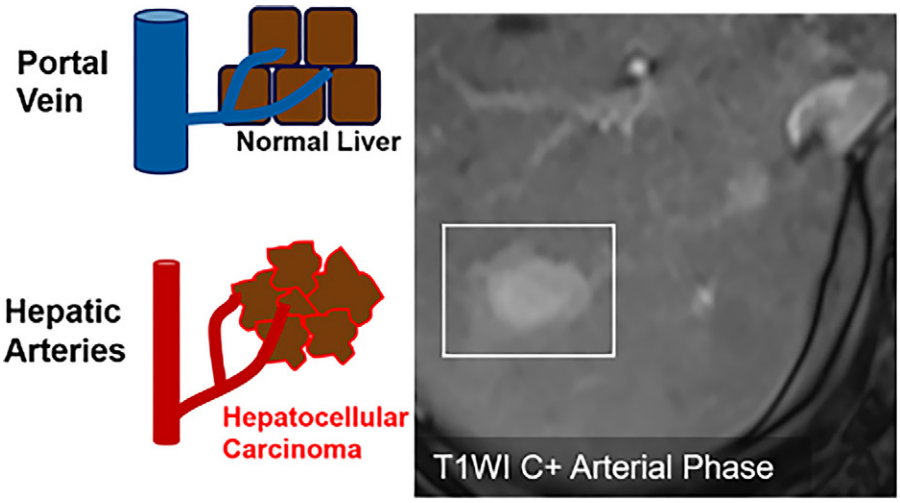

Figure 2. Knowledge of disease pathologic findings assists with body MRI use. Various findings are seen with specific MRI sequences. For example, understanding that hepatocellular carcinoma tends to preferentially obtain vascular supply from the systemic arteries highlights the importance of arterial phase imaging. *C+* = postcontrast, *T1WI* = T1-weighted imaging.