

## Assessment of Focal Liver Lesions with Dynamic MR Imaging : Usefulness of Test-Bolus Injection for Optimization of Arterial Phase Imaging

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**Purpose:** To determine whether or not a timing examination with a small bolus of contrast agent could help to obtain proper arterial-dominant phase images during subsequent multiphase dynamic MR imaging for the assessment of focal hepatic lesions.

**Materials and Method:** A timing examination involved injecting of a 1.0-mL bolus of gadopentetate dimeglumine into the antecubital vein. The imaging delay to acquisition of the first gadolinium-enhanced image for multiphase dynamic MR imaging was set to equal the time to peak aortic enhancement during the test examination. The first contrast-enhanced images of 80 patients with 160 focal liver lesions (hepatocellular carcinoma, n = 79; cavernous hemangioma, n = 51; metastatic tumor, n = 30) were then retrospectively reviewed.

**Results:** Successful imaging of an arterial-dominant phase was possible during the first contrast-enhanced imaging in 75 (95%) of 80 patients. On the first-phase images, 74 (94%) of the hepatocellular carcinomas showed homogeneous (n = 46) or diffusely heterogeneous enhancement (n = 28). Hemangiomas showed eccentric or peripherally-globular enhancement in 40 (78%), and 23 (77%) metastases showed peripheral-rim enhancement with varying thickness. Three different lesions were well characterized and easily distinguished from each other (p < .0001) on the first-phase images.

**Conclusion:** In the majority of patients, timing examination with test-bolus injection was helpful in obtaining the arterial-dominant phase images for the characterization of various focal lesions.