

**Gd-BOPTA-enhanced liver MRI in patients with extrahepatic abdominal cancer:
Value of hepatobiliary-phase images for differentiation metastasis
from focal eosinophil infiltration (FEI)**

박미숙, 김명진, 임준석, 차승환, 유형식, 김기황
연세대학교 의과대학 영상의학과

Purpose: To evaluate the ability of Gd-BOPTA-enhanced MRI to differentiate small-size metastasis from FEI and the value of hepatobiliary-phase images.

Materials and methods: The data of 55 small (< 20mm) lesions (35 metastases and 20 FEI in final diagnosis) in 23 patients (15 metastases and 8 FEI) were retrospectively reviewed. MRI with Gd-BOPTA was performed including precontrast, dynamic, and hepatobiliary (2-3 hours) phases. Images were divided into two sets: one set of precontrast with dynamic phase and another set of precontrast with dynamic and hepatobiliary-phase. Two radiologists independently interpreted these images to differentiate metastasis from FEI in each section into five grades. Area under the ROC curve (Az) was calculated for each imaging set. The size, shape, signal intensity or enhancement patterns were evaluated.

Results: ROC analysis showed slightly higher Az values when image set with hepatobiliary phase was interpreted (reader 1; 0.982 and reader 2; 0.724) than image set without hepatobiliary phase was (0.967 and 0.699, respectively), without statistical significance. ($p=0.498$ and 0.523 respectively). On hepatobiliary phase images compared to pre-contrast images, FEI showed more reduction (mean=3.81mm) in size than metastasis (mean=1.86mm) with statistical significance ($p=0.001$). Most of metastases showed spherical (89%) in shape whereas FEI showed non-spherical (75%). Larger proportion (75%) of FEI than metastasis (6%) showed change in shape on hepatobiliary phase images compared to pre-contrast images. On hepatobiliary phase, target appearance was seen only in metastasis (57%).

Conclusion: Combined reading of hepatobiliary-phase images showed slightly higher accuracy in the differentiation of metastasis from FEI without statistical significance. The change of size and shape and enhancement pattern on hepatobiliary-phase may be the clue to differentiate between metastasis from FEI.