T2-weighted MR Imaging for Hepatic Hemangiomas: Comparison of Breath-Hold and Conventional Turbo Spin-Echo Pulse Sequences with Phased-Array Coil

최병인, 왕문초, 한준구, 김태경, 조순구
서울대학교 의과대학 방사선과학교실

Purpose: To compare breath-hold turbo spin-echo (TSE) with conventional TSE T2-weighted imaging with phased-array multicoil in the evaluation of hepatic hemangiomas.

Materials and Methods: Twenty-two patients with 27 hemangiomas were studied at 1.0 T by using breath-hold TSE T2-weighted and heavily T2-weighted imaging (18 seconds, each) and conventional TSE T2-weighted imaging (4 minutes 5 seconds) with phased-array multicoil. Images were quantitatively analyzed for tumor-to-liver signal-difference-to-noise ratios (SD/Ns) and tumor-to-liver signal ratios (T/Ls), and qualitatively analyzed for lesion detectability, lesion conspicuity, and overall image artifacts.

Results: Quantitatively, SD/Ns for breath-hold TSE T2-weighted, heavily T2-weighted, and conventional TSE T2-weighted images were 9.14 ± 1.93, 8.77 ± 3.04, and 7.71 ± 3.37, respectively ($p=0.60762$, 0.0638, respectively), and T/Ls were 4.19 ± 1.13, 7.35 ± 2.41, and 3.39 ± 1.10, respectively. Breath-hold TSE heavily T2-weighted images had higher T/Ls than other images ($p<0.001$). Qualitatively, breath-hold TSE images had less image artifact, better lesion conspicuity, and same lesion detectability compared with conventional TSE images.

Conclusions: Breath-hold TSE T2-weighted imaging with phased-array coil improves diagnostically useful images for liver hemangiomas, and greatly decreases acquisition time compared with conventional TSE T2-weighted imaging.