Original article

UDC: 616-073-089.163:616.831-002.3
doi:10.5633/amm.2016.0407

DIAGNOSTIC VALUE OF DIFFUSION-WEIGHTED IMAGING AND APPARENT DIFFUSION COEFFICIENT IN PREOPERATIVE ASSESSMENTS OF BRAIN ABSCESSES

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To evaluate the diagnostic value of magnetic resonance imaging (MRI) and diffusion-weighted imaging (DWI) in preoperative assessments of brain abscesses.

This retrospective study included 25 patients with brain abscesses who underwent MRI examination on a 1.5 T scanner, up to seven days before surgery, with the standard protocol including T1WI, T2WI, FLAIR, DWI and post-contrast T1WI sequences. DWI was performed using a single-shot spin-echo echo-planar pulse sequence with b=1000 s/mm. The data obtained by DWI were presented by measuring the value of apparent diffusion coefficient (ADC). ADC map was determined using the DP Tools software. ADC values were quantified placing the regions of interest inside the abscess cavity.

Most of abscesses showed on T1WI hypointense (80%) and isointense signals (20%). On T2WI, most of abscesses showed hyperintense (88%) and isointense signals (12%). On FLAIR, the majority of abscesses showed hyperintense (96%) and isointense signals (4%). After the contrast administration, significantly intense peripheral T1WI contrast enhancement was observed in 92% of abscesses, while 8% showed moderate enhancement. All 25 patients with abscesses showed restricted diffusion on DWI, with low mean ADC values for the abscess cavity (0.000164±0.000019 mm2/s).

MRI and DWI with ADC seem to be a valuable tool in the diagnosis of brain abscesses. *Acta Medica Medianae 2016;55(4):52-59.*

Key words: *diffusion, magnetic resonance imaging, abscess*