

Perfusion-weighted MR imaging in Uterine Arterial Embolization: comparison of arterial spin labeling and dynamic susceptibility-weighted contrast-enhanced MR imaging

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OBJECTIVE: To evaluate changes in perfusion of leiomyomas after uterine artery embolization (UAE) using an arterial spin-labeling (ASL) method and first-pass dynamic susceptibility-weighted contrast-enhanced (DSC) MR imaging and to determine the relationship of the volume of uterine leiomyomas and clinical symptoms before and after UAE.

SUBJECTS AND METHODS: Eight consecutive patients with leiomyomas were examined at 1.5 T before and one month after UAE. Perfusion values in leiomyomas were measured using ASL and first-pass DSC echo-planar imaging (EPI) in all patients. The decreases of perfusion values after UAE were compared with the volume reductions of the leiomyomas and the reduction of clinical symptoms after UAE.

RESULTS: The decrease of perfusion values using ASL after UAE was 0.21 ± 0.06 (mean \pm SD). The decrease of perfusion values using first-pass DSC EPI after UAE was 0.28 ± 0.31 (mean \pm SD). The reduction of volume after UAE was 0.34 ± 0.12 (mean \pm SD). The reduction of clinical symptoms after UAE was 0.28 ± 0.13 (mean \pm SD). The decrease of perfusion values using ASL after UAE was correlated with the decrease of perfusion values using first-pass DSC EPI after UAE by calculating Spearman's correlation coefficients ($r = 0.76$). The decrease of both perfusion values and the mean reduction of volume after UAE did not correlate with the reduction of clinical symptoms after UAE.

CONCLUSION: Both ASL and DSC EPI MR imaging yield highly comparable perfusion values in uterine leiomyomas before and after UAE.

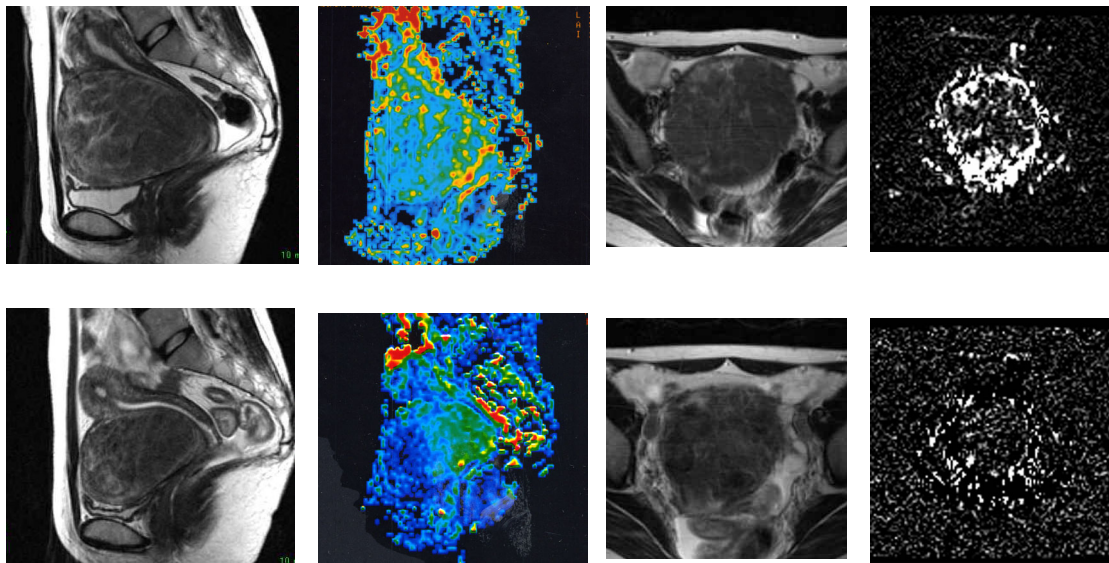


FIGURE 1. Thirty two-year-old woman with uterine leiomyomas

(A) Sagittal T2-weighted MR image obtained before embolization shows uterine fibroid. (B) Perfusion map on dynamic MR imaging EPI shows perfusion of fibroid and uterus. (C) Axial T2-weighted MR image obtained before embolization shows uterine fibroid. (D) Perfusion map on arterial spin-labeling MR image shows perfusion of fibroid.

(E) Sagittal T2-weighted MR image obtained after embolization shows decrease of fibroid. (F) Perfusion map on dynamic MR imaging EPI shows decrease of perfusion in fibroid. (G) Axial T2-weighted MR image obtained after embolization shows decrease of fibroid. (H) Perfusion map on arterial spin-labeling MR image shows decrease of perfusion in fibroid.