

DIFFUSION-WEIGHTED IMAGING IN ENDOMETRIAL CARCINOMA IN EARLY STAGE AND NORMAL ENDOMETRIUM OF CHILDBEARING WOMEN IN DIFFERENT MENSTRUAL CYCLE -- PRELIMINARY STUDY

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Objective: To analyze the DWI in endometrial carcinoma and normal endometrium of childbearing women in different menstrual cycle and evaluate the ability of ADC value on diagnosing endometrial carcinoma in early stage.

Materials and methods: MR exams were performed on 40 patients (age range, 37-69 years) with endometrial carcinoma in stage I A proved by surgical histopathology and normal endometrium in 27 cases of childbearing women (age range, 23-39 years) both in secretory phase (1-4 days before menses) and proliferative phase (1-2 days after menses). DWI images were obtained using a single-shot echo-planar imaging sequence on 3T superconducting magnet (Signa Excite HD, GE, America) by an eight-channel body phased array coil with two different gradient factors (b value=0 and 800s/mm^2). Use independent samples T-test and paired samples T-test to compare the differences of ADC value among those three groups. Then taking the two normal groups as control group respectively, ROC was conducted to analyze the ability of ADC value to diagnose the endometrial carcinoma. The two ROC were compared by Medcalc software (version 12.0).

Results: The ADC value of endometrial carcinoma, normal endometrium in secretory phase and in proliferative phase were $(0.945 \pm 0.148) \times 10^{-3} \text{mm}^2/\text{s}$, $(1.19 \pm 0.16) \times 10^{-3} \text{mm}^2/\text{s}$ and $(1.12 \pm 0.09) \times 10^{-3} \text{mm}^2/\text{s}$ respectively. There were statistical difference between ADC value of endometrial carcinoma and those of normal endometrium in secretory phase ($p < 0.001$), and between endometrial carcinoma and normal endometrium in proliferative phase ($p < 0.001$), also between normal endometrium in those two phase ($p = 0.029$). When using the two normal groups as control, based on ROC analyses the AUC was 0.867 (95% CI, 0.762-0.938) and 0.854 (95% CI, 0.746-0.928), however no statistical difference was found between those two ROC ($z = 0.294$, $P = 0.769$).

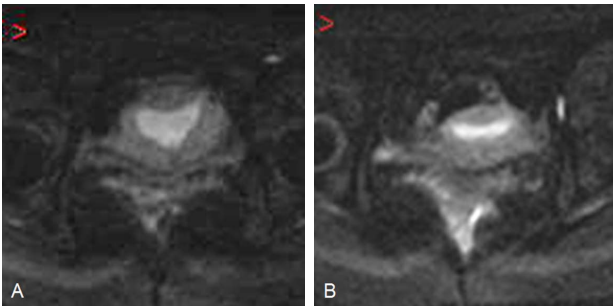


Figure 1 Axial DWI in a 31-year-old woman with normal endometrium in secretory phase (A) and in proliferative phase (B), the ADC value were $1.25 \times 10^{-3} \text{mm}^2/\text{s}$ and $1.11 \times 10^{-3} \text{mm}^2/\text{s}$ respectively.

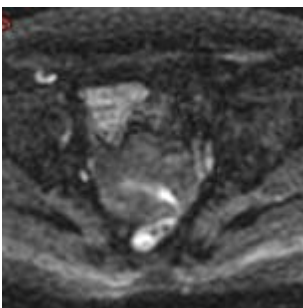


Figure 2 Axial DWI in a 52-year-old woman with endometrial carcinoma showed restricted diffusion in the left cornuate of uterus which was proved to be the tumor on surgical specimen and histopathology.

Conclusion: DWI and ADC value could reflect the state of endometrium in physiology and pathology, and are helpful to diagnose endometrial carcinoma. To childbearing woman with suspicious endometrial carcinoma, examination in secretory phase or proliferative phase would not influence the diagnosis of endometrial carcinoma in early stage.