

## **Assessment of of Early Stage Endometrial Carcinoma using T2-Weighted and Gd-enhanced T1-Weighted MR Imaging**

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**PURPOSE:** To evaluate the usefulness of T2-weighted (T2WI) and Gadolinium enhanced T1-weighted MR images (Gd-T1WI) in correlation with patients' menopausal status for assessing the depth of myometrial invasion in stage I endometrial carcinoma.

**MATERIALS AND METHODS:** Total 46 consecutive patients with primary untreated endometrial carcinoma were retrospectively evaluated. The patients were 26–74 years of age (mean, 46 years). Twenty-five women were premenopausal and twenty-one women were postmenopausal. All MRI studies were performed with a 1.5-T superconducting unit (GE Signa Advantage, General Electric Medical System, Milwaukee, WI, U.S.A.) and a body coil or superficial coil. T1WI was obtained with sequences ranging 400-600/11-19 (repetition time msec /echo time msec) for all 46 patients, T2WI with 2000-2200/80-90 (TR/TE) for 22 patients, and fast spin-echo imaging with 3000/85 (TR/TE) for 24 patients in axial and sagittal planes. Other parameters included 28-cm FOV, 2 excitations, 256 X 192 acquisition matrix, 5-mm section thickness and 2.5-mm intersection gap, and 8 echo-train length. Immediately after bolus injection of gadopentetate dimeglumine (0.1mmol/ kg), T1-weighted images were obtained in axial and sagittal planes. At the time of staging, the information of patient's menopausal status was not provided. After staging of all patients, the patients were divided into premenopausal (n = 25) and postmenopausal (n = 21) groups. The premenopausal group was composed of 10 cases of stage Ia, 14 cases of stage Ib, and 1 case of stage Ic. The postmenopausal group included 3 cases of stage Ia, 11 cases of stage Ib, and 7 cases of stage Ic carcinomas. The staging accuracy of each MR technique was also obtained in premenopausal, postmenopausal and the

combined group respectively. In addition, the overall staging accuracy when T2WI was used only for premenopausal group and Gd-T1WI for postmenopausal group (menopausal status dependent MR staging, MSDMS) was obtained.

**RESULTS:** The staging accuracy without consideration of menopausal status was 58.7 % when staging was determined solely on T2WI, and 60.9 % on Gd-T1WI only. However, when we evaluated staging accuracy of T2WI or Gd-T1WI separately in premenopausal or postmenopausal patients' group respectively, T2WI showed 80% accuracy in premenopausal group, whereas Gd-T1WI gave 81% accuracy in postmenopausal group. This shows that the staging accuracy by T2WI is higher selectively for premenopausal patients, while Gd-T1WI gives the better accuracy for postmenopausal patients. The overall MR staging accuracy in the reviewed 46 patients improved to 80.4 % when patients' menopausal status was considered in staging.

**CONCLUSION:** The menopausal status dependent MR staging method will benefit the staging accuracy of early endometrial carcinoma.