

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

Eun-Jung Lee,^{1,3} Jae-Young Byun¹, Bum-Soo Kim¹, Sung-Eun. Nam Koong²
Bo-Young Choe³, Tae-Suk Suh,³ Hyoung-Koo Lee,³ Kyung-Sub Shinn,^{1,3}

¹Departments of Radiology, ²Obstetrics and Gynecology and ³Biomedical Engineering, College of Medicine, Kangnam St. Marys Hospital, The Catholic University of Korea

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 2674 yearsof 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, GE 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. After staging of all patients, the patients were divided into premenopausal (n = 25) and postmenopausal (n = 21) groups. The staging accuracy of each MR technique was also obtained in premenopausal, postmenopausal and the combined group respectively. In addition, the overall staging accuracy was obtained when T2WI was used only for premenopausal group and Gd-T1WI for postmenopausal group (menopausal status dependent MR staging, MSDMS).

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.

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