Usefulness of subtraction pelvic MRI in patients with ovarian endometrioma

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To minimize damage of ovarian reserve, it is necessary to evaluate the follicular density in ovarian tissue surrounding the cyst in preoperative image of patients with ovarian endometrioma. Purpose of presented study was to evaluate the usefulness of subtraction pelvic MRI of ovarian endometrioma. A subtracted T1 weighted image (T1-WI) was performed by subtract T1-WI from contrast enhanced T1-WI with exact similarity in all parameters between both sequences of 22 patients with surgically confirmed ovarian endometrioma. To evaluate comparability with normal ovarian tissue, signal to noise ratio (SNR) of ovarian endometrioma which were classified into high signal intensity group and iso-to-low signal intensity group on T2 weighted image were compared with those of normal ovarian tissue. To evaluate effect of contrast enhancement, standardization map was obtained by dividing subtracted T1-WI by contrast enhanced T1-WI. Visual assessment classified 22 patients with ovarian endometrioma into 16 patients with high signal intensity and 6 patients with iso-to-low signal intensity on T1-WI. Although the SNR of endometrioma with high signal intensity was higher than that with iso-to-low signal intensity, there is no difference of SNR after subtraction (13.72 ± 77.55 versus 63.03 ± 43.90, p=0.126). As the area of affected ovary was smaller than normal ovary, (121.10 ± 22.48 versus $380.51 \pm 75.87mm2$, p<0.001), however, the mean of pixel number of viable remaining tissue in affected ovary by endometriosis was similar to that of normal ovary (0.53 ± 0.09 versus 0.47 ± 0.09 p=0.682). Subtraction technique of pelvic MRI could be useful to evaluate the extent of endometrial invasion to normal ovarian tissue and viable remnant ovarian tissue.

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