

## Isotropic 3D T2-weighted MR imaging for female pelvis with 3 Tesla MRI: Feasibility study

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**Objective:** The aim of this study was to compare the quality of images obtained with 3D T2-weighted sequence with the quality of conventional 2D T2-weighted images.

**Subjects and Methods:** Thirty consecutively registered patients (average age, 55 year; age range 32-79 years) underwent imaging at 3.0 T with a 6-element body array coil. All imaging was performed with three T2-weighted images: 3D axial T2-weighted images (SPACE; TR/TE=2700/287, PAT=2, Slice thickness=1.0mm, Matrix= 256x256, FOV250, ETL=71) and conventional 2D axial and sagittal T2-weighted images (FSE; TR/TE=4000/93, Slice thickness=3.0mm, Matrix= 288 x 384 FOV200, ETL=19). Quantitative measures of images signal and contrast (myometrium (MY)/junctional zone (JZ), MY/endometrium (EM), Lesion/MY) were evaluated by analysis of variance and Mann Whitney-U test. A-5 point scale (1, nondiagnostic, to 5, high diagnostic confidence) was used to compare the 3D and 2D data sets for image quality and definition of uterus and ovarian anatomic features. We also analyzed 3D images could be used as the alternative sequence or not. Friedman's nonparametric and Wilcoxon's rank sum tests were performed for statistical analysis of the qualitative assessments.

**Results:** Quantitative results showed EM had significantly high intensity on 3D T2-weighted images than 2D. 3D and 2D T2-weighted images showed no significant differences contrast of MY/EM, MY/JZ and Lesion/MY. The qualitative findings showed that 3D T2-weighted images gave better ovarian detectability than the 2D technique ( $p < 0.001$ ). The overall quality of 3D images could stand comparison with that of 2D images, and 3D imaging was better at depicting uterine anatomy especially tortuous uterus, although the difference did not reach statistical significance.

**Conclusion:** Three-dimensional volumetric T2-weighted images on 3.0T MRI are of content quality and give better anatomical recognition than conventional 2D images and have the added advantage of multiplanar and postprocessing capabilities.