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Usefulness of T2-weighted SPACE in diagnosing small pituitary adenoma: comparison with dynamic enhanced T1-weighted images

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PURPOSE: Although dynamic enhanced T1-weighted images have been accepted as the best imaging technique to detect pituitary microadenoma, frequently there have been difficulties to make correct diagnosis when the imaging findings were vague due to regional susceptibility or insufficient contrast between the lesion and normal gland. T2-weighted SPACE (sampling perfection with application-optimized contrasts by using different flip angle evolutions) are three dimensional imaging technique based on fast spin echo method, thus very thin slice images (< 0.5 mm) with compatible signal to noise ratio are possible with allowable scanning time. The purpose of this study is to know the usefulness of T2-weighted SPACE in diagnosing small pituitary adenoma, especially for microadenoma.

MATERIALS AND METHODS: Total 27 patients with small pituitary adenoma (< 2 cm, including 11 microadenomas) who underwent dynamic enhanced T1-weighted images and T2-weighted SPACE together were recruited in our study. As controls, 20 patients without any lesion in pituitary gland were included. Two experienced radiologists reviewed both dynamic enhanced T1-weighted images and T2-weighted SPACE independently to detect adenoma in the sella. Sensitivity, specificity and diagnostic accuracy of both imaging techniques were evaluated.

RESULTS: T2-weighted SPACE showed similar sensitivity to the dynamic enhanced T1-weighted images (93%, 93% respectively) in detecting small pituitary adenoma. The specificity of T2-weighted SPACE was also similar to that of dynamic enhanced T1-weighted images. Most of the pituitary adenomas showed focal low signal intensities on T2-weighted SPACE and one fourth of the patients with adenoma showed slightly high signal intensity on T2-weighted SPACE.

CONCLUSION: T2-weighted SPACE showed similar sensitivity and specificity to dynamic enhanced T1-weighted images in diagnosing small pituitary adenoma. Considering that infusion of MR contrast medium was not used in T2-weighted SPACE, it is very encouraging results. T2-weighted SPACE can be used as a very good complementary imaging technique to diagnose small pituitary adenoma in clinically concerned patients.