

## **Comparison of Target Localization Error between Conventional and Spiral CT in Stereotactic Radiosurgery**

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The accuracy of the target localization was evaluated by conventional and spiral CT in stereotactic radiosurgery. Conventional and spiral CT images were obtained with geometrical phantom, which was designed to produce exact three-dimensional coordinates of several objects within 0.1mm error range. Geometrical phantom was attached by BRW headframe, intermediate head ring, and CT localizer. Twenty-seven slices of conventional CT image were scanned at 3mm slice thickness. Spiral CT images were scanned at 3mm slice thickness from the pitch value 1 to 3, and twenty-seven slices of image were obtained per each the pitch value. These CT images were transferred to a treatment planning system(X-knife, Radionics) by ethernet. Three-dimensional coordinates of these images measured from the treatment planning system were compared to known values of geometrical phantom. The mean localization error of the target localization of conventional CT was 1.4mm. In case of spiral CT, the error of the target localization was within 1.6mm from the pitch value 1 to 1.3, but was more than 3.0mm above the pitch value 1.5. In conclusion, as the localization error of spiral CT was increased in high pitch value compared to conventional CT, the application of spiral CT will be with caution in stereotactic radiosurgery

*key Words* : Accuracy of target localization, Conventional CT,  
Spiral CT, Stereotactic radiosurgery.