

# Stereotactic Radiosurgery and Hypofractionated Stereotactic Radiotherapy for Nonfunctioning Pituitary Adenoma

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## Abstract

**Objectives:** Hypofractionated stereotactic radiotherapy (HSRT) in two-five fractions may offer patients with large non-functioning pituitary adenomas (NFPAs) with chiasm involvement a safe and effective treatment over a single week. However, little has been reported regarding this novel approach. We compared the feasibility, outcomes, and toxicity of single fraction stereotactic radiosurgery and HSRT.

**Methods:** After IRB approval, we performed a retrospective cohort study of patients treated at our institution with SRS and HSRT for NFPA. Local control, endocrinopathy, and radiation-associated toxicity were evaluated by binary logistic regression and Cox proportional hazards regression.

**Results:** A total of 45 patients with mean follow-up of 5 years were enrolled including 26 patients treated by HSRT and 19 patients treated by SRS. Clinicopathologic characteristics were balanced between cohorts. Local failure at last follow-up was 5% in the SRS cohort and 8% in the HSRT cohort, and rates of post-SRS endocrinopathy were similar between each cohort. Late complications including radionecrosis, visual deficit, and secondary malignancy were minimal in either cohort.

**Conclusions:** HSRT is an appropriate treatment strategy for patients with NFPAs, particularly for optic pathway preservation in the setting of large tumors with chiasm involvement. Further studies are needed to optimize fractionated approaches and patient selection.

## Open Access

### Abstract

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