landmark OS analysis. 4 patients developed pathologic RN identified at craniotomy (1 pt metachronously in multiple lesions) and 5 developed radiographic RN to yield a 19.6% RN rate. Median time to RN was 9.0 mo (range, 3.5-26.5) from SRS. Age, sex, KPS, SRS dose, number of prior therapies, proportion with controlled extracranial disease at time of SRS, proportion presenting with >1 BM, IPI dose, and SRS timing (before/during vs after IPI) were not significantly different between patients with vs without RN (all p>>0.05). Patients with RN received more IPI doses (mean 9.3 vs 5.1, p=0.05). At 1 yr after SRS, patients with RN had improved intracranial disease control vs patients without RN (56 vs 31%, p=0.03); intracranial control was durable in RN patients, remaining at 56% at 5 yrs. Median OS was longer for patients with RN at 67.1 mos (95% CI, 12.5-121.7) from SRS vs 14.2 mos (95% CI, 13.4-15.0) without RN (p=0.04). This result was confirmed on multivariate analysis, which demonstrated 3 significant independent predictors for OS from SRS: RN (HR 0.20, p=0.004), control of extracranial disease at time of SRS (HR 0.25, p=0.01), and timing of IPI (HR 0.07, p<0.001).

Conclusion: RN following treatment of melanoma BM with SRS+IPI appears to be associated with prolonged OS and improved intracranial control. Further studies are needed to confirm these results and investigate histopathologic immune correlates.

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Prognostic Importance of Ki-67 Labeling Index in WHO Grade II Glial Tumors

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Purpose/Objective(s): World Health Organization (WHO) grade II gliomas are very heterogeneous types of gliomas and there is still significant disagreements between clinicians concerning the optimal treatment modality. Up until know a number of methods for predicting the prognostic subgroups of LGGs have been identified. These identified methods have some limitations in predicting the clinical outcome and survival. So we aimed to determine the predictive role of Ki-67 Labeling index (LI) on tumor behavior and survival.

Materials/Methods: Between 1995 and 2014, the adult patients who had been irradiated at our departments with WHO grade II glial tumors were evaluated in this retrospective study. At our clinics, postoperative early-radiotherapy (RT) frequently applied for patients with which can not be resected totally or for patients who are suspected to have high risk features whereas delayed-RT frequently applied for patients with recurrence or progression. The patients received RT with 1.8-2 Gy fraction doses, five days a week for a total dose of median 54 Gy to the tumor or tumor bed with 1-2 cm margin. At least two experienced neuropathologist re-defined all the histological tissues retrospectively. Statistical analyses were performed using Statistical Package for Social Sciences Software, v 13.0 (Chicago, IL, USA).

Results: This present study included in 78 adult patients with median 44 (range; 6-137) months follow-up. Surgery was the initial treatment approach for all patients. 51 patients received adjuvant early-RT while 27 patients received delayed-RT. 72/78 specimens were Ki-67 positive. The mean overall survival (OS) was 88 (range; 73-102) months. 2-, 5- and 10- year OS rates were 90%, 70% and 40%, respectively. Patients with ≥40 years old had a poorer OS than patients with <40 years old (p=0.04). Patients with gross total resection or subtotal resection had a longer OS than patients with biopsy (Bx) or parsial resection (PR) (p=0.001). If the disease had recurrence or progression during the follow-up period, the patients had a poorer OS (p=0.01). Patients with a Ki-67 LI value ≥4% had a poorer OS than patients with a Ki-67 LI value <4% (p=0.001). According to multivariate analysis; recurrence or progression (HR=11.10, 95% CI, 2.19-56.20), Bx or PR (HR=8.22, 95% CI, 2.47-27.36) and Ki-67 LI value ≥4% (HR=5.06, 95% CI, 1.79-14.25) were the poor prognostic factors that affect OS. The mean progression-free survival (PFS) was 67 (range; 56-77) months and the extent of resection was the only independent prognostic factor that affect PFS.

Conclusion: According to our current study, the extent of surgery, recurrence or progression, and Ki-67 LI ≥4% were the independent prognostic factors predicting OS. In addition, the extent of surgery was the only independent prognostic factor that affect PFS. In our opinion, the Ki-67 LI value is an important prognostic factor for WHO grade II glial tumors but this value can not be used alone as a diagnostic measure. It must be combined with the other prognostic factors.

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Adjuvant Stereotactic Radiosurgery Improves Local Control After Surgical Resection of Skull Base Chordomas and Chondrosarcomas

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Purpose/Objective(s): Chordomas and chondrosarcomas are rare slowly growing tumors arising from the embryonic remnants of the notochord that can be locally destructive and have high recurrence rates. Tumors arising in the skull base can be especially difficult to control as complete surgical resection may be challenging near critical structures. Postoperative therapy with fractionated radiation using charged particles such as protons is well-established, but there are fewer studies investigating the use of stereotactic radiosurgery (SRS). We examined our experience treating skull base chordomas and chondrosarcomas with gamma knife or cyber knife.

Materials/Methods: We retrospectively reviewed 30 patients with chordomas (N=29) or chondrosarcomas (N=1) arising in the skull base treated at our institution from 1999 to 2015. The associations of time to progression (TTP) and progression-free survival (PFS) with baseline patient demographics, clinical characteristics, and treatment details were evaluated using the univariate log-rank test. Multivariable analysis was performed to test the association of TTP with type of initial treatment, surgery alone (N=16) versus surgery with adjuvant radiation (N=14), by using the Cox proportional model.

Results: Baseline patient and treatment characteristics were similar between the two treatment groups. Of those receiving adjuvant radiation, 9 patients received gamma knife radiosurgery (GKRS) and1 patient received cyber knife radiosurgery (CKRS). Median SRS dose for these 10 patients was 16 Gy (range 15-30 Gy). Another 2 patients received intensity modulated radiotherapy (IMRT) and 2 patients received proton therapy. The median follow up time was 36.7 months (range 0.03 to 203.2 months). Median overall survival was not reached for these 30 patients. Progression was noted in 19 patients (63%) with a PFS of 20.5 months (95% CI: 10.4, 29.3). For the surgery alone group, TTP was 6.1 months (95% CI: 2.4, 17.9), local control was 31% (±13%) at 1 year and 8% (±7%) at 2 years, while the surgery with adjuvant radiation group had median TTP of 52.3 months (95% CI: 22.3, 199.2), local control of 100% (±0%) at 1 year and 81% (±12%) at 2 years ($p<0.001$). After controlling for each of 5 variables—patient age, tumor location (mid, lower or upper clivus), tumor size, extension outside clivus, and surgical technique (endoscopic endonasal, microscopic transphenoidal or retrosigmoid) separately, the association between TTP and treatment group remained statistically significant. The