

World health organization grade 2 meningioma

[Chordoid meningioma](#)

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Treatment

[World health organization grade 2 meningioma treatment.](#)

Atypical meningioma treatment

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Case series

189 patients with mean age 57.4 ± 14.6 years, 64.0% female and median follow-up was 64 (IRQ: 20-96) months. At initial treatment, 21 patients received [adjuvant radiotherapy](#) and 168 received surgery alone. There was no significant difference for OS (HR=1.3 [95% CI 0.4-4.5], $p=0.92$) overall or when limited to [gross total resection](#) (GTR) ($p=0.38$) or [subtotal resection](#) (STR) ($p=0.85$). There was no significant difference in local recurrence (LR) overall ($p=0.75$) or when restricted to GTR ($p=0.77$) or STR ($p=0.20$). No patient had radiotherapy stopped or altered because of side-effects, however 71.4% reported tolerable side-effects during the treatment period and 14.3% reported side-effects persisting longer than 12 months post-treatment.

In a large retrospective cohort, Rebchuk et al. found no survival or local recurrence benefit to adjuvant radiotherapy in treatment of grade 2 meningiomas. Sensitivity analysis limited to initial GTR and STR also failed to demonstrate any OS or LR benefit with adjuvant radiotherapy. There is limited utility to upfront adjuvant radiotherapy following initial surgical resection in the treatment of grade 2 meningiomas ¹⁾.

Increasing [evidence](#) suggests that genomic and [molecular markers](#) need to be integrated into the grading of [meningioma](#). [Telomerase reverse transcriptase promoter](#) (TERTp) [mutation](#) is receiving attention due to its clinical relevance in the treatment of meningiomas. The predictive ability of conventional and [diffusion MRI](#) parameters for determining the TERTp mutation status in [World health organization grade 2 meningiomas](#) has yet been identified.

In this study, 63 patients with surgically confirmed grade II [meningiomas](#) (56 TERTp wildtypes, 7 TERTp mutants) were included. Conventional imaging features were qualitatively assessed. The

maximum diameter, the volume of the tumors, and histogram parameters from the apparent diffusion coefficient (ADC) were assessed. Independent clinical and imaging risk factors for TERTp mutation were investigated using multivariable logistic regression. The discriminative value of the prediction models with and without imaging features was evaluated.

In the univariable regression, older age (odds ratio [OR] = 1.13, P = 0.005), larger maximum diameter (OR = 1.09, P = 0.023), larger volume (OR = 1.04, P = 0.014), lower mean ADC (OR = 0.02, P = 0.025), and lower ADC 10th percentile (OR = 0.01, P = 0.014) were predictors of TERTp mutation. In multivariable regression, age (OR = 1.13, P = 0.009) and ADC 10th percentile (OR = 0.01, P = 0.038) were independent predictors of variables for predicting the TERTp mutation status. The performance of the prediction model increased upon inclusion of imaging parameters (area under the curves of 0.86 and 0.91, respectively, without and with imaging parameters).

Older age and lower [ADC](#) 10th percentile may be useful parameters to predict TERTp mutation in grade II meningiomas ²⁾.

A retrospective database review between 1995 and 2019. Kaplan-Meier analysis was used to compare overall and progression-free survivals between patients who underwent [gross total resection](#) (GTR) and those who underwent [subtotal resection](#) (STR). Multivariable Cox proportional-hazards analysis was used to identify independent predictors of tumor recurrence and mortality.

Results: Of 214 patients who underwent surgical resection for WHO grade II meningiomas (median follow-up 53.4 months), 158 had GTR and 56 had STR. In Kaplan-Meier analysis, patients who underwent GTR had significantly longer progression-free (p = 0.002) and overall (p = 0.006) survivals than those who underwent STR. In multivariable Cox proportional-hazards analysis, GTR independently predicted prolonged progression-free (HR 0.57, p = 0.038) and overall (HR 0.44, p = 0.017) survivals when controlling for age, tumor location, and adjuvant radiation.

Conclusions: Extent of resection independently predicts progression-free and overall survivals in patients with WHO grade II meningiomas. In an era of increasing support for adjuvant treatment modalities in the management of meningiomas, our data support maximal safe resection as the primary goal in treatment of these patients ³⁾.

Poulen et al. retrospectively analyzed patients in the database with WHO grade II meningioma, operated on between 2007 and 2010 in the university hospitals of [Montpellier](#) and [Bordeaux](#), France. Clinical and radiological data, treatments and survival were analyzed.

Eighty-eight patients were included. Five-year overall survival was 89.7%. Nineteen patients received radiotherapy during follow-up, without a significant impact on survival (p=0.27).

In WHO grade II meningioma, it is currently difficult to establish clear recommendations for [radiotherapy](#). The present study is in accordance with the literature that early postoperative radiotherapy is not mandatory in grade II meningioma with macroscopically total resection ⁴⁾.

Between January 2000 and August 2015, 178 cases of World Health Organisation (WHO) Grade II [meningioma](#) were operated.

This population underwent a total of 224 surgical resections and 36 patients received a [radiotherapy](#). Median follow-up was 3.6 years, interquartile ranges (IQR)[1.5 - 6.2].

28 patients (16.1%) were re operated for a relapse of their grade II meningioma. The median time between the first and the second surgery was 4.2 years, IQR[1.4-5.3]. Surgical recurrence-free survival at 1, 2, 5 and 10 years were respectively: 96.9%, 95 %CI[94.2, 99.6]; 91.7%, 95 %CI[87.3, 96.3], 85%, 95 %CI[78.6, 92] and, 70.8%, 95 %CI[60.1,83.5]. At the end of the study, 93 patients (57.8%) had no residual tumour on the last scan. Age at diagnosis (HR=0.17, 95 %CI[0.05,0.56], p-value<0.001), extent of resection (HR=0.22, 95 %CI[0.08,0.64], p-value=0.01), and Ki-67 index (HR=0.18, 95 %CI[0.06,0.56], p-value<0.001) were independent factors associated with the surgical recurrence-free survival.

Younger patients with a lower proliferation rate and gross total resection are less likely to undergo a reintervention for WHO grade II meningioma recurrence. Observation rather than systematic adjuvant radiotherapy may be preferred. If possible, a redo surgery may be considered in case of relapse or tumor residual progression, as radiotherapy may not decrease the surgical recurrence-free survival after complete or incomplete resection ⁵⁾.

References

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