# Asymptomatic Meningioma Treatment

*J.Sales-Llopis*

*Neurosurgery Service, Alicante University General Hospital, Alicante, Spain.*

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Although optimal management is unclear, clinicians recommend a conservative approach, which preserves quality of life and limits unnecessary intervention. Several risk factors have been investigated for their potential utility in the development of prognostic models for risk assessment [1].

## Natural history

Asymptomatic meningioma natural history.

## Age

Among patients older than age 70 years who underwent operation for asymptomatic meningioma, the neurological morbidity rate was 23.3%; it was 3.5% among younger patients. This indicates that the advisability of surgery in elderly patients with asymptomatic meningiomas must be considered very carefully [2].

For the treatment of elderly patients with asymptomatic meningiomas, it is important to determine the intracranial meningioma natural history.

GKS can control tumors clinically and radiologically with high probability. Although the risk of transient adverse events exists, proactive GKS may be a reasonable treatment option when there are no comorbidities limiting life expectancy [3].

## Calcification

A comprehensive search in 2015 of PubMed, Embase, and the ISI Web of Science was performed. Using a metaanalysis with nine subsidiary studies including 777 patients.

They analyzed the correlation of the growth pattern of meningioma with patient gender, tumor location, tumor calcification, T2 weighted image signal intensity in magnetic resonance imaging (MRI), and Meningioma peritumoral edema.

The growth rate of meningioma was negatively correlated with tumor calcification (odds ratio [OR]: 0.23; 95% confidence interval (CI), 0.11-0.46; $p < 0.001$) but positively associated with MRI T2 signal intensity (OR: 2.75; 95% CI, 1.75-4.33; $p < 0.001$). No correlations were found between tumor growth and other factors such as gender (OR: 1.29; 95% CI, 0.84-1.99; $p = 0.24$), skull base location (OR: 0.80; 95% CI, 0.25-2.58; $p = 0.70$), and peritumoral brain edema (OR: 1.24; 95% CI, 0.29-5.27; $p = 0.77$).

Two factors, tumor calcification and low MRI T2 signal intensity, indicate the possibility of a slow growth meningioma. In such cases of asymptomatic meningioma, a follow-up strategy can be preferentially considered [4].

## MRI T2 signal intensity

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## Size

The effect of tumor size on future lesion growth or symptom development has been addressed in several studies. Sughrue et al. systematically reviewed the natural history of untreated meningiomas.

They identified 22 studies comprising 675 patients who were followed up by serial MRI for a median period of 4.6 years. The authors found that approximately three-quarters of untreated meningiomas 2.5 cm or smaller demonstrated no growth (51%) or grew 10% or less per year (26%). Patients with initial tumor diameters smaller than 2 cm (approximately 2%) rarely demonstrated new or worsening symptoms. Patients with initial tumor diameters of 2–2.5 cm had a marked difference in the rate of symptom progression based on whether their tumors grew more than or less than 10% per year (42% vs 0%). Patients with initial tumor diameters of 2.5–3 cm had new or worsening symptoms 17% of the time. These findings suggest that the majority of tumors smaller than 2.5 cm in diameter will not cause symptoms over the 5-year period following their discovery and that close observation with serial imaging is reasonable in these patients. On the other hand, larger lesions may be considered for early intervention [6].

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## Asymptomatic meningioma radiosurgery

Asymptomatic meningioma radiosurgery.

## Monitoring

Overdiagnosis and excessive follow-up are potential pitfalls in the management of incidental meningioma. An MRI after 6-12 months could be reasonable to rule out rapid growth and differential diagnoses. Using the available prognostic models, one might later suggest more active monitoring for certain patient groups harboring specific radiological features predictive of growth. However, detecting growth may not necessarily be clinically significant as all larger non-growing meningiomas have at one point been small. Too much follow-up may place an unnecessary burden on patients and the health-care system and could be a driver toward overtreatment. It must be contemplated whether growth is an acceptable primary outcome measure or if there are other factors more relevant to consider in this often benign tumor entity [7]

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Active monitoring seems a safe and appropriate first-line management of incidental meningiomas. Intervention was avoided in > 40% with indolent tumors in a cohort. Treatment was not compromised by meningioma growth. Clinical follow-up seems sufficient beyond 5 years if self-limiting growth is established. Steady or accelerating growth warrant monitoring until they reach a stable state or intervention is initiated [8]

1)

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