Not evolutive clinoidal meningioma: to treat or not to treat, that is the question

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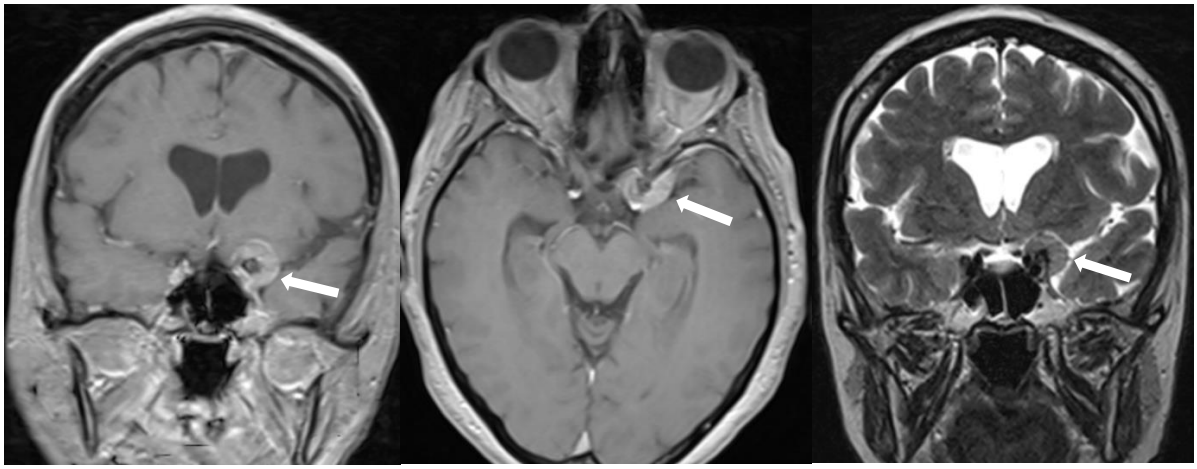
Introduction: Clinoidal meningiomas arise from the anterior clinoid process and represent a surgically challenging subset of skull base meningiomas due to their intimate relationship with the optic nerve, internal carotid artery (ICA), and cavernous sinus. The Al-Mefty classification stratifies clinoidal meningiomas into three types based on their site of origin and relationship to the ICA. Type I tumors originate inferiorly from the clinoid process and typically encase the ICA, rendering surgery technically demanding and associated with higher morbidity [1].

Although surgical resection has traditionally been considered the standard of care, contemporary management strategies increasingly recognize the role of conservative management in selected patients. The European Association of Neuro-Oncology guidelines recommend observation with serial imaging for small, asymptomatic, or minimally symptomatic meningiomas, particularly when growth is indolent and visual function is preserved [2].

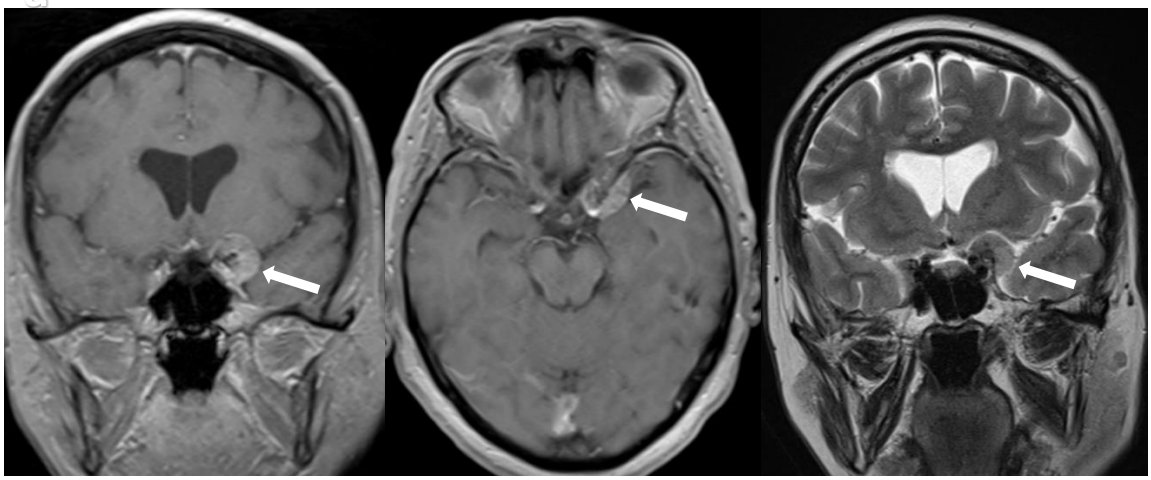
We present a 56-year-old woman with an Al-Mefty Type I clinoidal meningioma managed conservatively for seven years, illustrating the safety and clinical relevance of structured surveillance.

Case presentation: A 56-year-old woman was referred to our neurosurgical department following detection of a right parasellar mass on MRI performed for nonspecific headaches and left eye visual disturbance. There was no diplopia, or endocrine disturbances. Neurological examination was unremarkable. MRI demonstrated a 20mm × 19mm × 17mm cm homogeneously enhancing extra-axial mass arising from the right anterior clinoid process. The lesion showed broad dural attachment, slight compression of the optic nerve, encasement of the supraclinoid internal carotid artery without luminal narrowing, radiological features consistent with a clinoidal meningioma classified as Al-Mefty Type I. Ophthalmologic evaluation including automated perimetry showed mild left eye visual impairment. A conservative “watchful waiting” strategy was adopted in accordance with European neuro-oncology recommendations. Surveillance protocol included MRI with contrast and visual field testing annually, formal visual field testing, as well as clinical neurological examination. Over a 7-year follow-up period tumor size remained stable (maximal variation < 2 mm), there were no progression of visual fields deficits, and there was no radiological progression or vascular compromise. The patient continued normal daily activities without intervention.

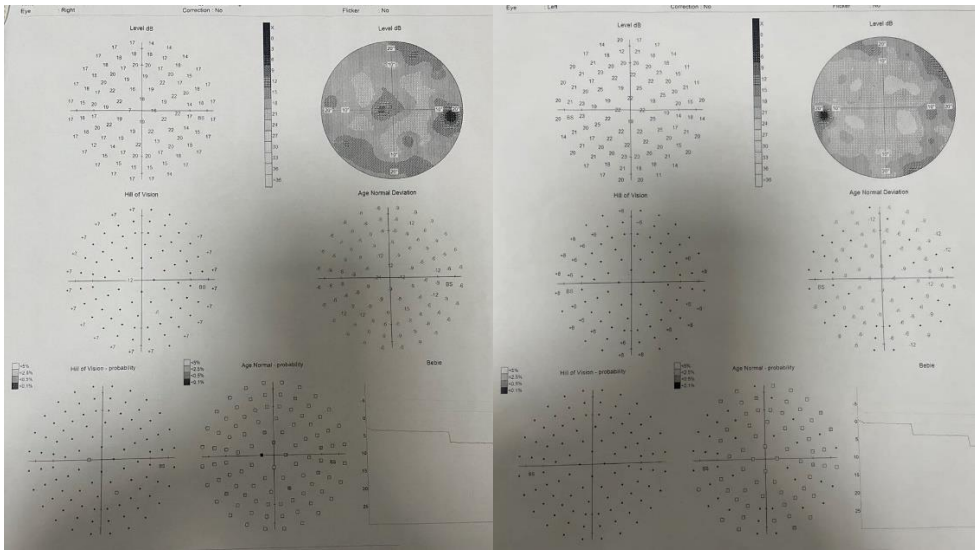


First MRI in 2019

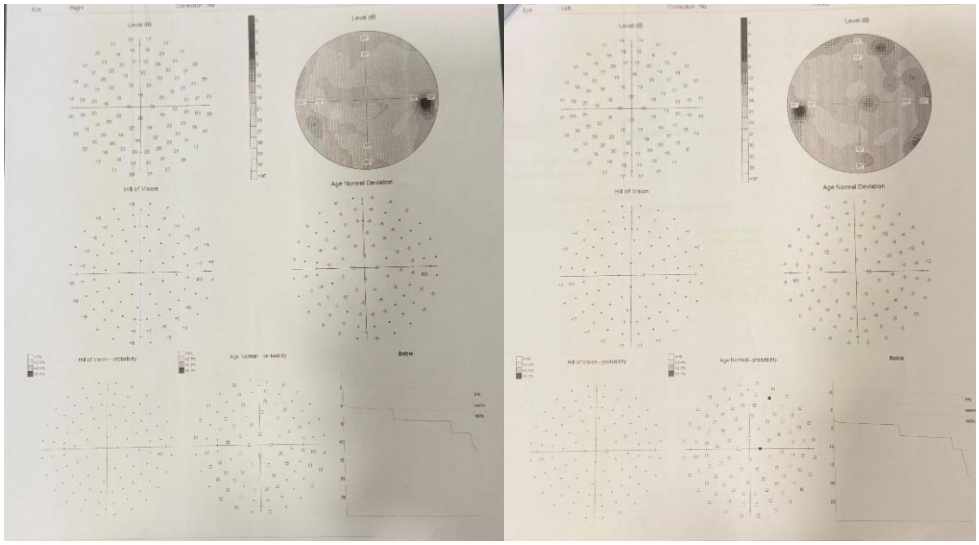
a)



Last MRI in 2026



First Visual fields testing 2019



Last Visual fields testing 2026

Discussion: Clinoidal meningiomas are among the most surgically complex skull base tumors. Type I lesions, in particular, often involve early carotid encasement and intimate adherence to neurovascular structures. Surgical morbidity may include visual deterioration, ICA injury, cranial nerve palsies, incomplete resection due to vascular encasement [3]. Historically, early surgery was advocated to prevent future optic nerve compromise. However, longitudinal observational studies demonstrate that many skull base meningiomas exhibit slow growth kinetics, particularly in older patients. The European Association of Neuro-Oncology guidelines emphasize observation as first-line management for incidental or asymptomatic meningiomas, MRI surveillance annually for 5 years, then at increasing intervals if stable, and intervention only upon documented growth or functional deterioration Furthermore, age is a relevant prognostic factor; growth rates tend to be slower in patients over 50 years of age. In this context, immediate surgery may represent overtreatment [2, 4].

Conclusion: The present case illustrates that a 7-year stability period is clinically meaningful and supports the long-term safety of conservative management in selected Al-Mefty Type I clinoidal meningiomas. It demonstrates that conservative management with structured annual MRI and visual field monitoring is a safe and effective strategy for selected patients. In alignment with EANO recommendations, watchful waiting should be considered a valid first-line approach in patients without neurological compromise. Avoiding premature surgical intervention may reduce morbidity while maintaining excellent long-term functional outcomes, however careful patient selection and rigorous follow-up remain essential.

References

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