

## Extradural clinoidectomy for anterior skull base meningiomas, fab or fad?

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### Introduction

The surgical management of anterior skull base meningiomas (ASBMs) represents significant challenges in terms of preservation of neurovascular structures and maximizing surgical removal of these tumours. With increasing life expectancy, subtotal excision of these tumours remains a concern with regards to future recurrence. We examined our experience in supplementing the classical approaches with extradural anterior clinoid process (ACP) resection for these tumours.

file 1



Pre-operative SAG T1W Mri image of tuberculum sellae meningioma

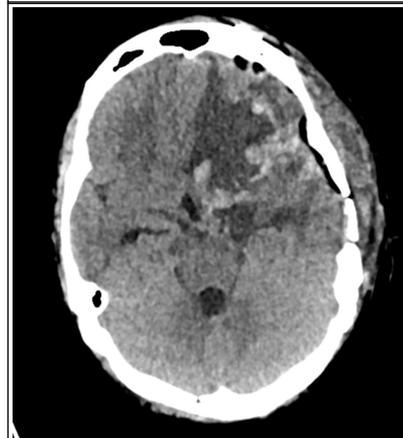
### Methods

We studied the clinical and imaging records of 12 patients with ASBMs (6 tuberculum sellae, 3 clinoidal and 3 olfactory groove), operated through the aforementioned surgical approach in our institution from 2014 to 2016. The most frequent clinical presentations included asymmetrical visual decline and frontal headache. Surgical approach was lateralized to the worse eye and preferably standard pterional. Each patient underwent extradural clinoidectomy as per Dolenc's technique in addition to the traditional craniotomies. Orbital osteotomy was added to pterional for tumours with extensive suprasellar extension. A formal COZ approach was required in two cases. In the follow up period ophthalmological studies, hormonal assays and periodic post-operative imaging were obtained for these patients. The follow up duration ranged between 12-28 months.

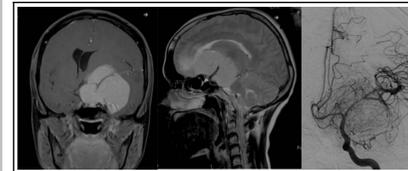
file 2



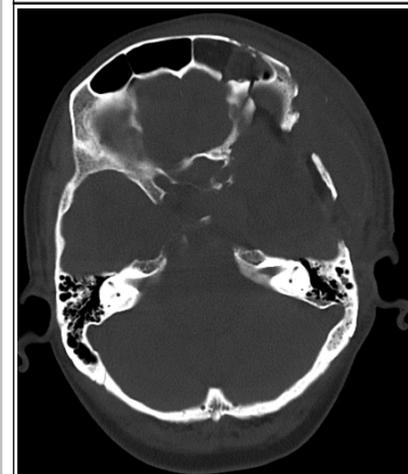
Post-operative sag T1 Contrast Image of the same patient showing excision of the meningioma.



Post-operative CT. The anterior clinoidectomy enabled us to dissect the vessels. However the surgery had to be staged due to venous engorgement in the first stage. The second stage performed 2 weeks later, good excision could be achieved.



Pre-operative image of large clinoidal meningioma with vessel encasement



anterior clinoidectomy in the post-op CT

### Conclusions

Extradural ACP drilling facilitates atraumatic optic nerve manipulation, early tumour devascularisation and early orientation regarding course of internal carotid artery in relation to tumour.

### Results

Serious morbidity with post-operative ischemic stroke (anterior choroidal artery) was noted in a patient with large clinoidal meningioma and extensive vessel encasement. The other patients had good outcomes. Surprisingly, vision improved from no perception of light in 2 cases on the side of clinoidectomy. Transient visual decline was seen in 1 patient with subsequent recovery. Visual parameters remained stable in the rest. ACP drilling added 35 minutes to operating time on an average. 10 patients had Simpson grade II and 2 patients grade IV excision.