

# Petrous Apex Meningioma with Extension into Meckel's Cave: Resection using a Retrosigmoid Intradural Suprameatal Approach

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## Abstract

The retrosigmoid intradural suprameatal approach was first introduced in 1983 by Samii et al, as a modification of the classic retrosigmoid approach intended to open Meckel's cave, exposing the trigeminal nerve and access the middle fossa.<sup>1</sup> The area of bone resected in this approach is similar to that removed in a Kawase's approach.<sup>2</sup> Whereas the direction of drilling in a Kawase's approach is from anterior and superior, it is from posterior and inferior in the retrosigmoid intradural suprameatal approach. Seoane and Rhoton quantified the exposure of Meckel's cave, finding that this approach allowed access, on average, to the posterior 10.3 mm of Meckel's cave.<sup>3</sup> This was confirmed by Chanda and Nanda who found that suprameatal drilling resulted in a mean gain of exposure of the trigeminal nerve of 10.7 mm.<sup>4</sup> In this video, we present the case of a patient when an enlarging petrous apex meningioma with extension into Meckel's cave (►Fig. 1). The patient underwent a retrosigmoid intradural suprameatal approach to achieve a Simpson's grade II resection. This approach was ideally suited for this case to obtain access to tumor located at the petrous apex and within Meckel's cave (►Fig. 2). Without access to Meckel's cave provided in this approach a significant portion of tumor would have remained in situ. The link to the video can be found at: [https://youtu.be/eNldkF4a\\_OI](https://youtu.be/eNldkF4a_OI).

## Keywords

- meningioma
- petrous apex
- retrosigmoid
- retrosigmoid intradural suprameatal approach

**Conflict of Interest**  
None.



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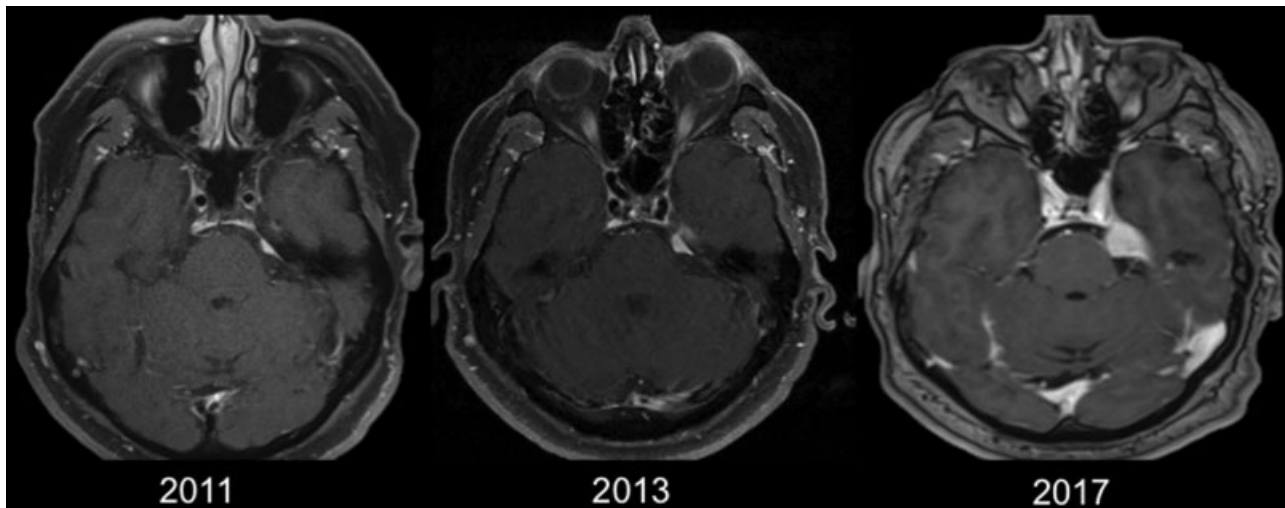
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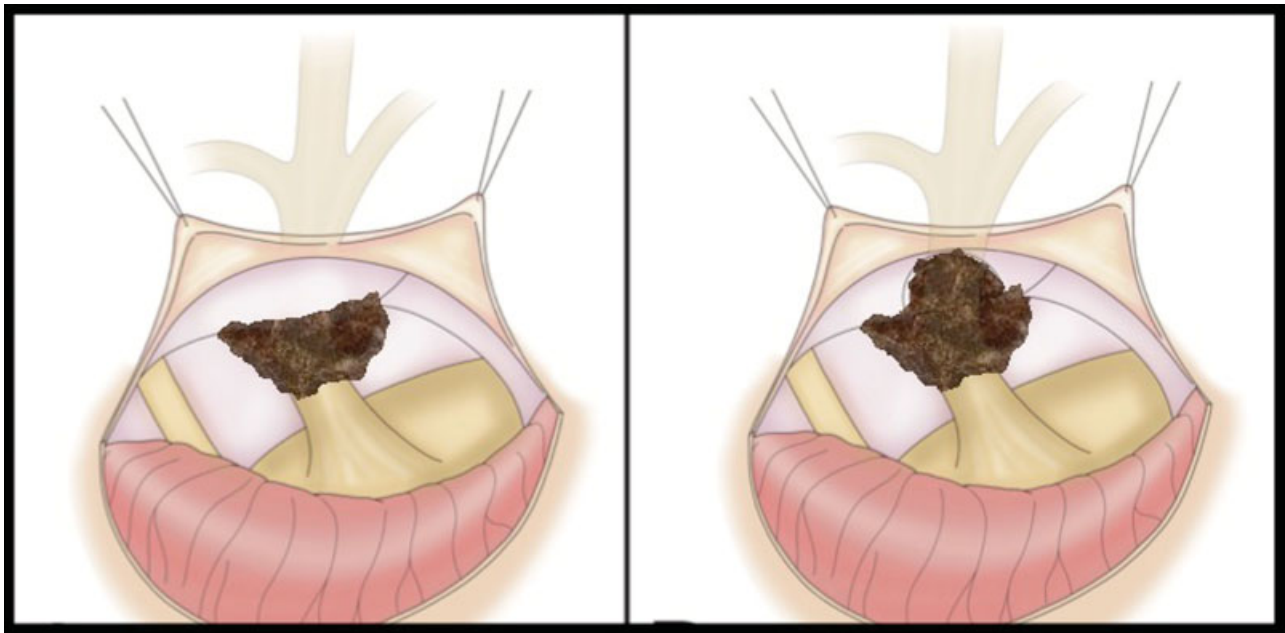
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**Fig. 1** T1-weighted axial MRI with gadolinium demonstrating progressive enlargement of a left petrous apex meningioma with extension into Meckel's cave. MRI, magnetic resonance imaging.



**Fig. 2** Schematic demonstrating the access to Meckel's cave achieved after intradural suprameatal drilling.

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