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## Introduction

Cavernous sinus (CS) invasion is associated with higher recurrence rates and a greater need for adjuvant treatment in the surgical management of resistant prolactinomas.<sup>1</sup> Recent advancement in endoscopic endonasal transcavernous approach has led to improved remission rates in aggressive macroprolactinomas to as high as 83%.<sup>2,3</sup> Mediolateral intracavernous access through the medial CS wall allows safe debulking of superior and posterior compartments, and retrocarotid space, ultimately decreasing postoperative dopamine agonist and radiation doses in refractory cases.<sup>4</sup> Chasing the lateral compartment in Knosp 4 adenomas still risks neurovascular structures during demanding carotid mobilization or may need an additive open approach.<sup>5</sup>

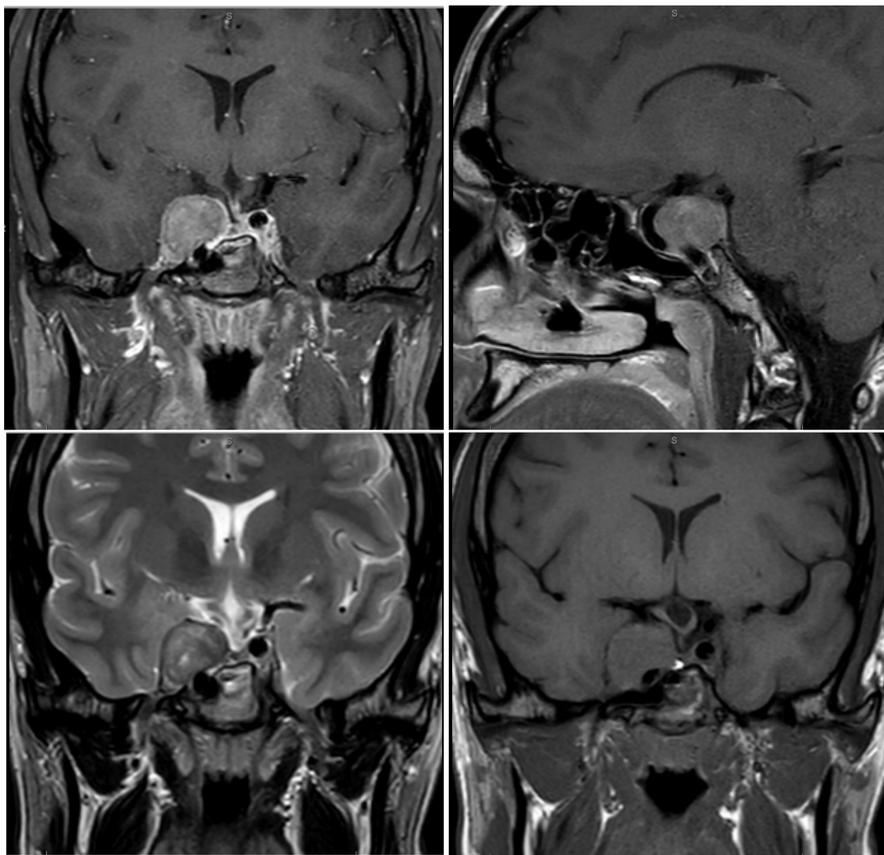


Figure 1. Preoperative MRI.

## Methods and Materials

The patient is a 23-year-old male with prior acidophilic stem cell macroprolactinoma resection who presented with new mild right-sided oculomotor and trochlear nerve paresis, and a prolactin level of 1297 ng/ml refractory to maximal medication. MRI showed a progressive recurrent Knosp 4 prolactinoma involving the right cavernous sinus and exerting mass effect on the medial temporal lobe. (Figure 1) The technical nuances of an endoscopic endonasal transcavernous approach are presented.

## Results

An endoscopic endonasal right medial transpterygoid trans-sellar transcavernous approach was performed, given favorable lateral recess access. (Figure 2) Interclinoid and inferior parasellar ligaments, posterior, and superior compartments were cleaned out of the tumor through the medial wall window. The lateral compartment was left for radiation to preserve neurovascular structures, given the patient's young age and functional status. No new postoperative deficits were observed, and histopathology was reconfirmed. Dopamine agonist was reinstated after discharge, the prolactin level progressively decreased and extraocular muscle movements improved. Stereotactic radiosurgery was performed for the small residual tumor. (Figure 3)

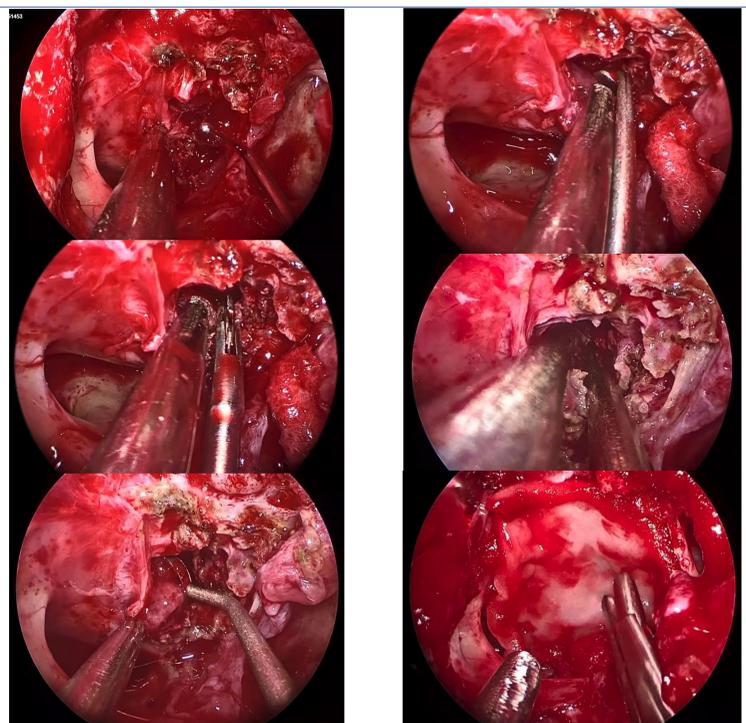


Figure 2. Intraoperative views.

## Conclusions

Maximal safe resection of CS refractory prolactinoma mandates a three-dimensional understanding of the endoscopic endonasal anatomy of the CS. Accessing the lateral compartment may jeopardize the carotid artery during mobilization, as well as the abducent and sympathetic nerves, thereby benefiting most from focused radiation of tumor residuals. Sustained remission is expected in this combination approach.<sup>6</sup>

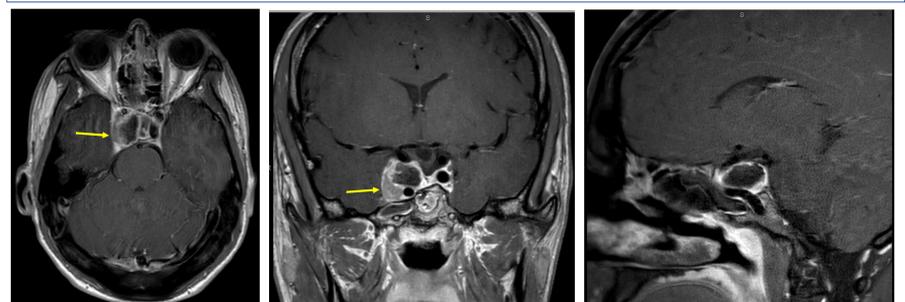


Figure 3. Postoperative MRI.

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