Endoscopic Resection of a Cavernous and Clinoidal Space-Invasive Prolactinoma

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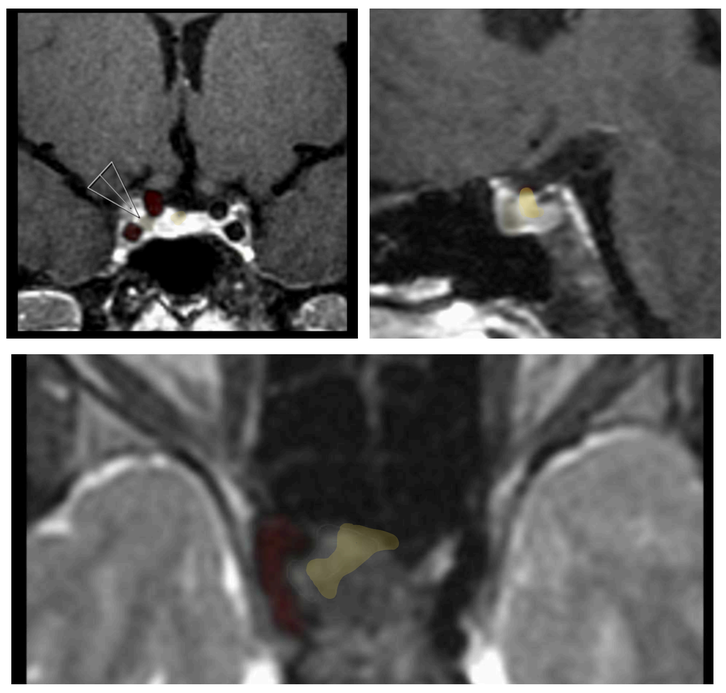
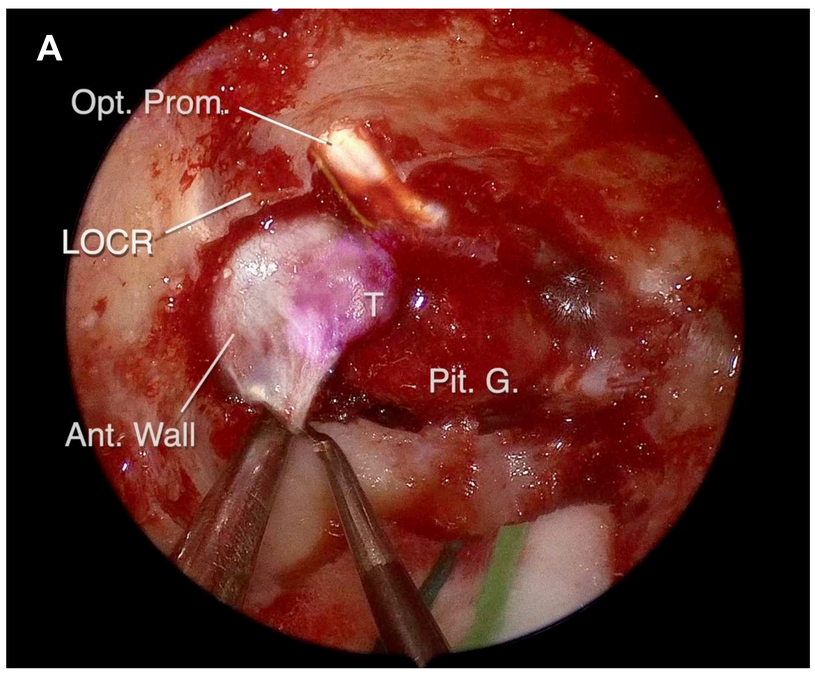
Introduction

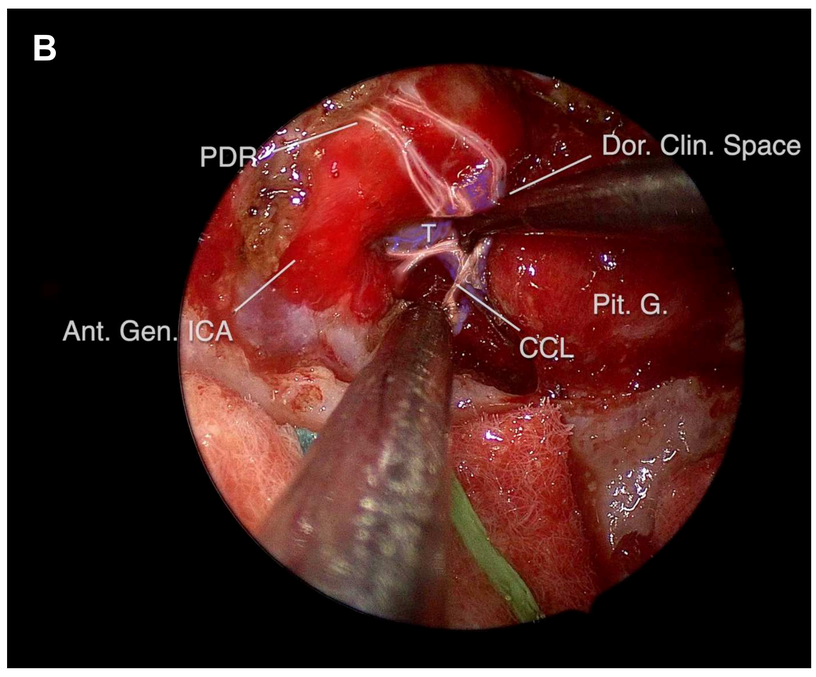
Invasive prolactinomas extending into the cavernous sinus and clinoidal space remain surgically challenging, particularly after failure of medical therapy.

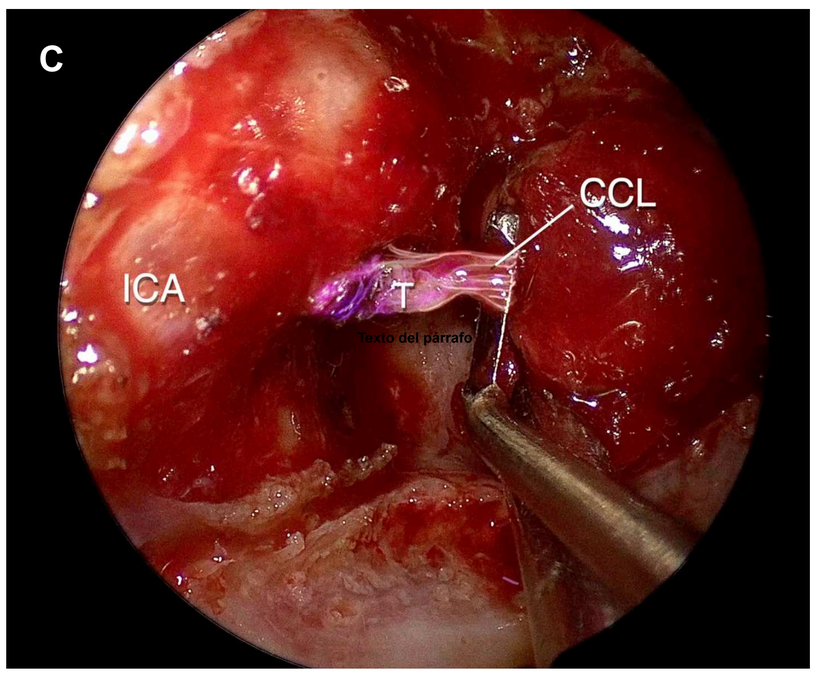


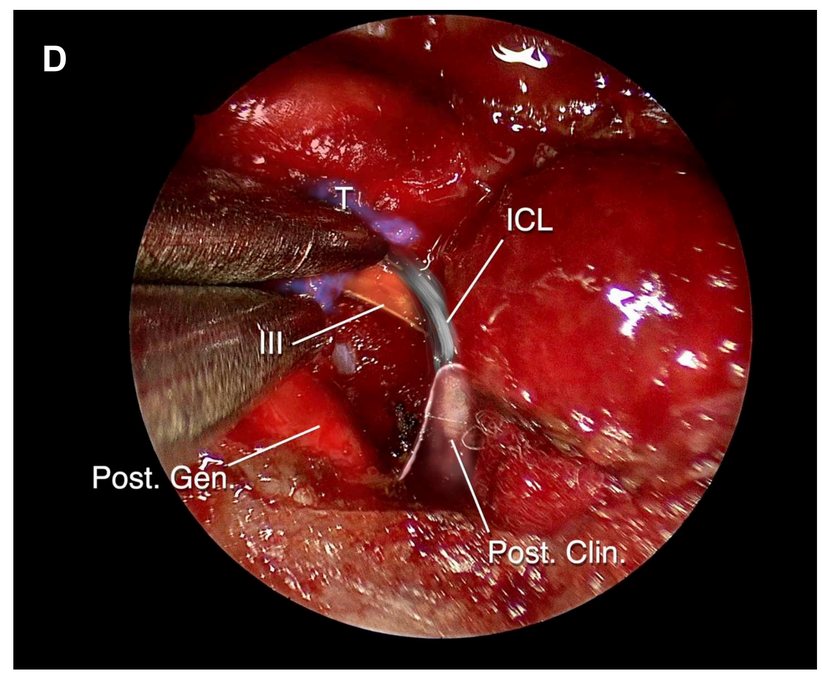
Methods and Materials

A 51-year-old female with a prolactin-secreting pituitary adenoma refractory to cabergoline presented with invasion of the cavernous and clinoidal compartments. An endoscopic endonasal approach was performed, including wide sphenoidotomy, exposure of the clinoidal carotid artery, and stepwise opening of the medial cavernous sinus wall.



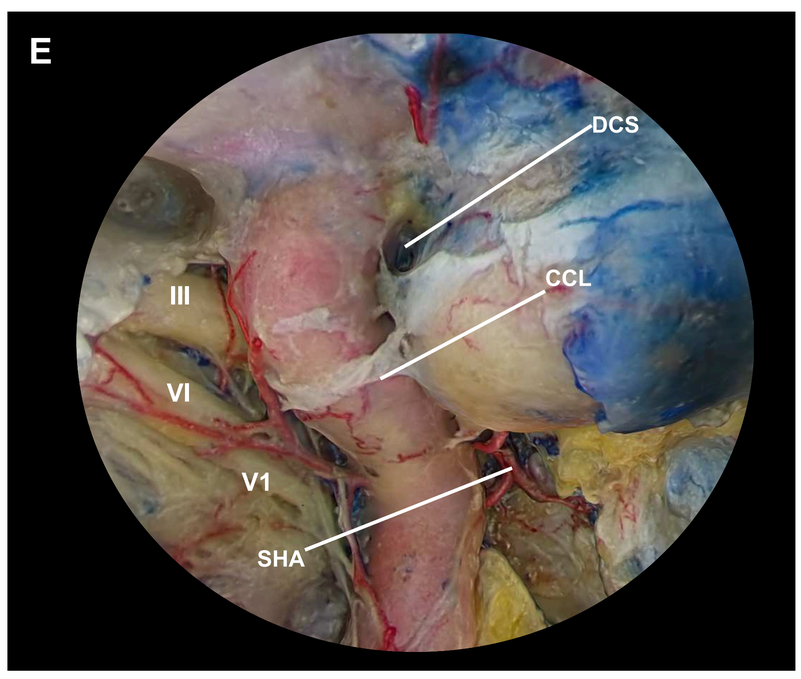


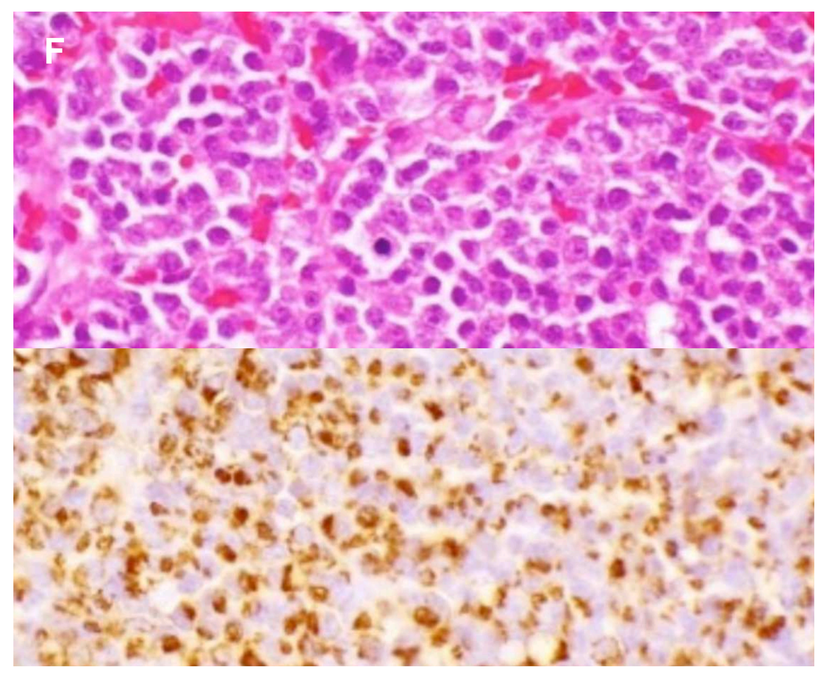


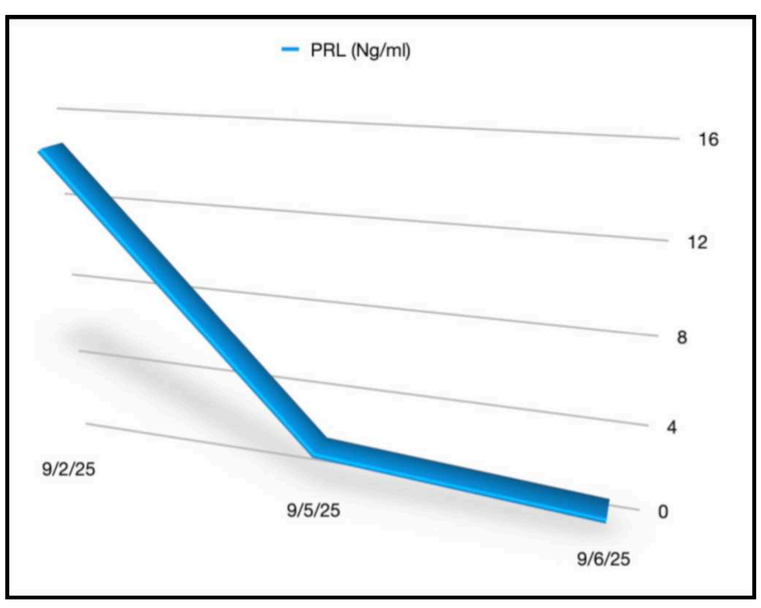


Results

The tumor was successfully removed from the cavernous, clinoidal, and sellar compartments. This case highlights key technical nuances enabling safe, maximal resection of invasive prolactinomas. Histopathological examination demonstrated a mixed lactotroph– somatotroph pituitar neuroendocrine tumor (PitNET), with extension into the carotid– clinoidal ligamer (CCL) and invasion of the medial cavernous sinus wall (medial wall of the cavernous sinus, MWCS







SCAN ME

A, Endoscopic exposure of the anterior wall of the cavernous sinus (**CS**, cavernous sinus), identifying the lateral opticocarotid recess (**LOCR**, lateral opticocarotid recess), optic prominence (**Opt. Prom.**), and pituitary gland (**Pit. G.**).
B, Opening of the anterior CS wall demonstrating tumor invasion of the **CCL** (carotid– clinoidal ligament) and medial wall of the CS, with identification of the **Ant. Gen. ICA** (anterior genu of the internal carotid artery).
C,Thickened medial wall of the cavernous sinus infiltrated by tumor, adherent to the horizontal cavernous ICA and involving the CCL. **D,** After medial wall resection the interclinoidal ligament (**ICL**, interclinoidal ligament) and the oculomotor nerve (**III**, oculomotor nerve) could be seen in the roof of the CS. (**Post. Clin.**, posterior clinoid), (**Post. Gen.**, posterior genu of the ICA). **E,** Three-dimensional photogrammetry model following anterior wall of the CS open the **DCS** (dorsal clinoidal space) and the CCL are seen. **F,** Histopathology showing a mixed lactotroph– somatotroph pituitary neuroendocrine tumor (PitNET, pituitary neuroendocrine tumor) positive in the MWCS.

Conclusions

Resection of the medial wall of the cavernous sinus is a critical surgical step that enables safe and effective maximal resection of invasive prolactinomas, expanding the curative potential of endoscopic endonasal surgery beyond the sellar compartment.

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