

Case Lesson 50-2026

Giant PRL-Adenoma with Progressive Visual Deficit

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Introduction

In Prolactin-secreting pituitary adenomas (prolactinomas), dopamine agonists (DAs) remain the traditional first-line therapy, increasing evidence supports a reconsideration of surgical management, particularly with the evolution of the endoscopic endonasal transsphenoidal approach (EEA).

A recent multicenter study by the Italian Society of Neurosurgery published in *Journal of Neurosurgery*, demonstrated that EEA achieves biochemical remission in 71.6% at 3 months and 75.4% at long-term follow-up, with low complication rates, suggesting that surgery may be a valid or even first-line option in selected patients.

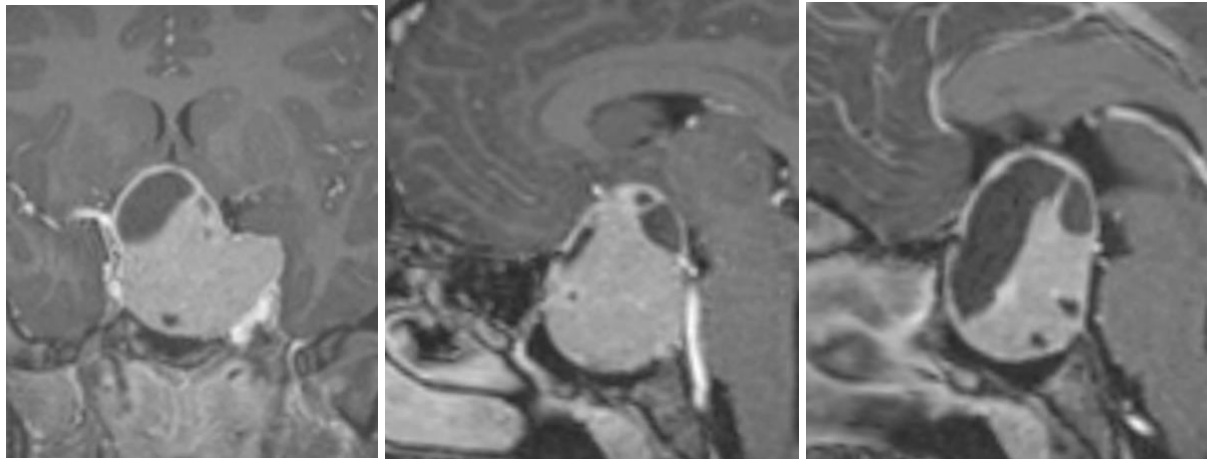
Additionally, guidelines from the Congress of Neurological Surgeons (CNS) emphasize that TSE, (EEA or Microsurgery), is the standard first-line treatment for most functioning pituitary adenomas.

We present a case of a young woman with severe visual compromise due to a prolactin-secreting adenoma, highlighting the role of early surgical intervention.

Case Presentation

A 19-year-old female presented with severe progressive visual impairment, with inability to see with the right eye and restricted visual field in the left eye.

Neuroimaging demonstrated a sellar/suprasellar mass compressing the optic chiasm, consistent with a macroprolactinoma.



Pre-operative MRI

The patient was referred for urgent surgery.

Visual field examination revealed:

- Right eye: amaurosis
- Left eye: temporal hemianopic visual field defect

Fundus oculi examination reveal:

- Atrophy of the right optic nerve
- subatrophy of the left optic nerve

Endocrinological evaluation revealed markedly elevated serum prolactin (PRL) levels:

- **Preoperative PRL:** 102,000 ng/mL
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- TSH: 2.72
- FT4: 0.57
- Cortisol: 75.4
- IGF1: 105

The patient underwent endoscopic endonasal transsphenoidal surgery, achieving **Gros Total Resection** of the lesion.

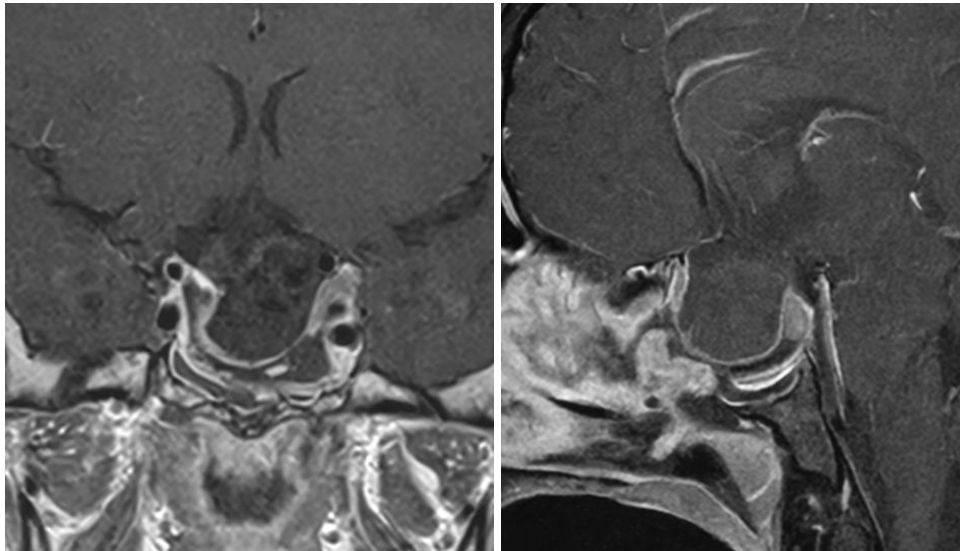
Results

Improvement in visual field deficits, particularly in the left eye, and light perception in the right eye. Stabilization of optic nerve damage with No postoperative worsening of vision.

Gross-total resection achieved with No perioperative complications reported. These findings are consistent with large series reporting visual improvement in over 80% of patients after surgery.

- Preoperative PRL: **102,000 ng/mL**
- Immediate Postoperative PRL: **6,000 ng/mL**

This represents a dramatic biochemical response, consistent with the immediate hormonal normalization often observed after surgical decompression.



Immediate Post-operative MRI

Discussion

Although DAs are traditionally first-line therapy, surgery is indicated in specific scenarios, including: Progressive visual impairment, Tumor mass effect, DA resistance or intolerance, according to the Italian multicenter study and CNS guidelines which respectively account for: DA resistance (49.3%), DA intolerance (20%) and Progressive visual symptoms (12.6%).

Especially in cases like ours, recent perspectives propose surgery as a co-first-line treatment in selected patients, especially when rapid decompression is needed.

Visual outcomes are strongly dependent on: Duration of compression and the Severity of optic nerve damage. Early surgical decompression, as in this case, can lead to: Significant visual field recovery and Prevention of irreversible optic atrophy. Large series demonstrate visual improvement in 82.3% of cases, supporting early intervention.

Surgical remission is influenced by: Tumor size, Invasiveness and Preoperative PRL levels. The multicenter study showed: 79.5% radical resection rate and 71.6% biochemical remission at 3 months.

Although this patient had extremely high PRL levels (suggesting a large/invasive tumor), the significant postoperative reduction confirms the effectiveness of surgical debulking. CNS guidelines further support that: Transsphenoidal surgery is safe and effective in experienced centers

- It remains the cornerstone of treatment for most functioning adenomas

Immediate hormonal control advantage over medical therapy, Furthermore, surgery provides: Rapid decompression of the optic apparatus and Immediate biochemical improvement, unlike delayed response with DAs

Conclusion

This case illustrates that **TSE surgery is a safe and effective treatment option** for giant prolactinomas with severe visual compromise but it shows failure of the healthcare system in a country.

Early surgical intervention in patients with progressive visual deficits, as supported by the Italian multicenter study and CNS guidelines, underscores the critical importance of timely optic apparatus decompression in maximizing visual recovery and preventing irreversible damage.

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