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# Spontaneous Regression of a Pituitary Macroadenoma: A Clinical Mystery

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## Introduction

Pituitary macroadenomas are benign tumors of the anterior pituitary gland, typically larger than 10 mm in diameter, and often associated with symptoms arising from hormonal hypersecretion or mass effect on adjacent structures such as the optic chiasm. Standard management involves surgical resection, medical therapy, or radiotherapy depending on tumor type and hormonal activity. However, spontaneous regression of a pituitary macroadenoma is an exceptionally rare phenomenon, documented in only a handful of cases. The exact mechanisms underlying this regression remain uncertain, though theories suggest pituitary apoplexy, ischemic necrosis, or immune-mediated tumor destruction as possible explanations. This case report presents a patient who exhibited spontaneous regression of a pituitary macroadenoma, underscoring the unpredictable natural history of such tumors and the importance of careful long-term monitoring [1].

## Description

A 47-year-old female presented to the endocrinology clinic with complaints of progressive headache and visual blurring over six months. Physical examination revealed bitemporal hemianopia, suggesting optic chiasm compression. Hormonal evaluation showed mild hyperprolactinemia, while other pituitary hormones were within normal ranges. Magnetic Resonance Imaging (MRI) of the brain demonstrated a 1.8 cm pituitary macroadenoma with suprasellar extension compressing the optic chiasm. The patient was initially planned for transsphenoidal surgical resection following stabilization with dopamine agonist therapy [2].

However, due to personal reasons, she postponed surgery and was advised to continue medical follow-up. Six months later, the patient reported a remarkable improvement in her headache and visual symptoms. Repeat hormonal testing showed normalization of serum prolactin levels.

A follow-up MRI revealed significant reduction in tumor size, measuring only 0.4 cm, with resolution of suprasellar extension. There were no radiological signs of hemorrhage or necrosis typically associated with pituitary apoplexy. This unexpected regression suggested a spontaneous involution of the prolactinoma, likely attributed to delayed but sustained responsiveness to medical therapy. The patient's endocrine profile remained stable, and ophthalmologic evaluation confirmed complete recovery of visual fields. She was advised to continue periodic monitoring with annual MRI and hormonal assessment to ensure long-term stability. Given the excellent clinical and radiological response, surgical intervention was no longer considered necessary unless future progression occurred [3].

The spontaneous shrinkage of the macroadenoma was thus confirmed, and the patient remained asymptomatic over two years of follow-up. The exact cause of regression could not be determined, but possibilities include subclinical infarction or spontaneous necrosis within the tumor tissue. This unexpected course highlights that not all pituitary macroadenomas exhibit progressive growth and some may undergo partial or complete involution without intervention [4,5].

## Conclusion

Spontaneous regression of a pituitary macroadenoma remains a clinical rarity and continues to intrigue endocrinologists and neurosurgeons alike. Although pituitary apoplexy is often implicated, regression can also occur without overt hemorrhage or infarction, suggesting other biological mechanisms at play. This case emphasizes the value of individualized management and the potential for conservative monitoring in select patients with stable or regressing lesions. Regular imaging and hormonal evaluation are crucial to ensure long-term stability and to detect any signs of recurrence or re-expansion. Ultimately, this phenomenon challenges the conventional understanding of pituitary tumor behavior and calls for further research into the underlying molecular and vascular mechanisms driving spontaneous tumor regression.

## Acknowledgement

None

## Conflicts of Interest

None

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