

# THYROXINE THERAPY TREATING INFERTILITY AND PITUITARY TUMOR: PRIMARY HYPOTHYROIDISM LEADING TO PITUITARY HYPERPLASIA

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## INTRODUCTION

Pituitary hyperplasia secondary to primary hypothyroidism (PHH) represents a relatively uncommon endocrine pathology, with a higher prevalence in adults compared to adolescents. This condition emerges from a reduction in thyroid hormone (TH) production, which in turn precipitates an increase in thyroid-stimulating hormone (TSH) levels, leading to the hyperplasia of pituitary TSH cells. Clinically, PHH can closely resemble a pituitary adenoma in both imaging and laboratory tests. However, these conditions necessitate distinct treatment strategies, with pituitary adenomas typically requiring surgery while PHH can be managed with thyroxine replacement. Therefore, distinguishing between these conditions through accurate diagnosis is imperative to prevent unwarranted pituitary surgeries and the potential for irreversible glandular dysfunction.



## RESULTS



### Subsequent MRI done on 5/23:

Good treatment response. No enhancing mass seen in pituitary fossa.



### Previously seen enlarged pituitary gland:

Now shows interval resolution. It appears normal contour, no abnormal signal intensity seen in pituitary fossa.



### Current MRI measurements:

5.7 x 9 x 12 mm (craniocaudally x anteroposterior x transverse), against the previous measurement of 14 x 10 x 17 mm.



### Patient's diagnosis:

Diagnosed with Pituitary hyperplasia/macroadenoma due to hypothyroidism for 1 year. Irregular menstruation and infertility issues resolved.



## CASE STUDY



### Patient Profile

A 20-year-old female presented with no known comorbidities. She reported a history of menstrual irregularities for the past 1.5 years, associated with galactorrhea of similar duration. Over the preceding year, she experienced a weight gain of approximately 20 kg. Additionally, she described tingling and numbness persisting for the last 6 months. The patient is married and has one child, aged 3 years.



### Investigations

Further investigations done in SKM

TSH > 150 (H) | Free T4 0.2 (L)  
Cortisol 8.25 am 12.13  
FSH 3.6, LH 0.8, Prolactin 86.4 (H)  
IGF 1 77.3 (H)



Patient discussed in MDT and decided to Repeat TSH and started on thyroxine 100 mcg OD.



MRI in 6 weeks thereafter.



## METHODOLOGY

This is a descriptive case study aimed at providing information of a single patient's experience with how hypothyroidism can cause pituitary macroadenoma and medical management can prevent surgery.



## CONCLUSION

The patient responded well to the treatment regimen and was discharged.

Patient was diagnosed with Pituitary hyperplasia/macroadenoma due to hypothyroidism for 1 years. Irregular menstruation and infertility issues resolved.



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