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Thyroid

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Primary Hypothyroidism Presenting with Galactorrhea and Pituitary Hyperplasia

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Introduction: Pituitary Hyperplasia (PH) refers to diffuse enlargement of pituitary gland and is most commonly physiological as in pregnancy and lactation. PH can also be associated with end organ hormone deficiencies like primary hypothyroidism, Addison’s disease and some neuroendocrine tumors. Primary hypothyroidism is a known cause of prolactin elevation however hyperprolactinemia in the presence of pituitary enlargement can often be mistaken for pituitary adenoma. We report a case of PH caused
by primary hypothyroidism presenting with galactorrhea and hyperprolactinemia and successfully treated with thyroid hormone replacement.

**Case presentation:** 21-year-old female presented to the Primary Care Provider’s office with galactorrhea from bilateral breasts for 2 months. Pregnancy was ruled out and prolactin levels were checked and noted to be elevated at 51.3 ng/mL. Subsequently MRI of Pituitary was done which showed diffusely enlarged, homogenously enhancing anterior pituitary gland with convex superior margin, measuring 12 mm in superior to inferior dimension, contacting and slightly elevating optic chiasm. Further testing showed TSH >100µIU/mL, and undetectable Free T4. She was started on Levothyroxine and then referred to Endocrinology for evaluation of Pituitary mass. Upon further questioning she reported headaches for few weeks associated with intermittent dizziness, fatigue, weight gain of 30-40 pounds, irregular menstrual periods, cold intolerance, and low libido for several months. Physical exam was remarkable for bradycardia, dry skin. Thyroid was normal on exam. Pituitary hyperplasia was thought to be secondary to primary hypothyroidism and patient was continued on Levothyroxine. At 3 month follow up visit, patient reported improvement in her symptoms of fatigue, menstrual periods and lost few pounds of weight. Her galactorrhea resolved completely. Repeat labs showed normal prolactin levels and her thyroid levels normalized after few dose adjustments. Follow up MRI done 1 year from initial presentation showed decrease in the anterior pituitary enlargement, now measuring 8 mm, and the superior margin was no longer contacting the optic chiasm.

**Conclusion:** Primary hypothyroidism is common, but often under recognized cause of Pituitary hyperplasia. The underlying pathophysiology is lack of negative feedback of Thyroid hormones on Hypothalamus resulting in elevated levels of Thyrotropin releasing hormone (TRH). Excess TRH leads to thyrotroph cell hyperplasia in anterior pituitary and elevated TSH levels, TRH also leads to lactotroph hyperplasia and can result in hyperprolactinemia. Neurological symptoms related to PH and symptoms related to hyperprolactinemia, can sometimes be the initial presenting symptoms of primary hypothyroidism. It is important to recognize primary hypothyroidism as the cause for pituitary hyperplasia and hyperprolactinemia (especially those with TSH > 50-100 microIU/mL) as the primary treatment is thyroid hormone replacement and not surgery. These patients should be followed closely with repeat MRI to document the resolution of pituitary hyperplasia.

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