

## Double Trouble: A Case Report of Abnormal Uterine Bleeding due to Both Central and Peripheral Pathology

### Abstract

A 46-year-old female came to the gynecology outpatient department with heavy and prolonged menstrual bleeding. The examination revealed a thyroid mass and tachycardia. Systemic and gynecological examinations were insignificant. Laboratory tests revealed a deranged thyroid profile which was further explored by performing magnetic resonance imaging. This revealed a functioning pituitary microadenoma producing thyroid-stimulating hormone (TSH). This entity is known as a TSHoma. Ultrasonography of the abdomen and pelvis showed increased endometrial thickness. The patient was treated with antithyroid medication and has undergone Mirena intrauterine contraceptive device insertion. The patient is planned for a hysterectomy when the thyroid profile is normalized.

**Keywords:** Endometrial hyperplasia, pituitary microadenoma, thyroid-stimulating hormone

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### Introduction

Abnormal uterine bleeding (AUB) is a prevalent complaint causing patients to present to gynecological outpatient departments worldwide. One of the significant pathologies causing AUB include thyroid abnormalities, a vast majority of which are hypothyroidism and hyperthyroidism. However, thyroid-stimulating hormone (TSH)-producing pituitary adenomas is a rare entity. We suspect that TSH-producing pituitary adenoma which causes endometrial hyperplasia is even further rare since our literature search has not come across its global incidence. This report focuses on a case of AUB with coexisting central and peripheral etiologies.

### Case Report

A 46-year-old lady came to the gynecology outpatient department with chief complaints of heavy and prolonged menstrual bleeding for the last 7–8 months. Her last menstrual period lasted for seven days, and she had clots, which needed a change of five pads per day. She had a cycle once in 15 days, lasting 3–4 days, which improved with oral progesterone (norethisterone). Pregnancy was ruled out. There was no intermenstrual spotting, dysmenorrhea, or abdominal mass. The patient did not have a history of

white discharge from the vagina, backache, dyspareunia, weight loss/gain, heat/cold intolerance, or any urinary complaints.

She was a nulligravida despite 25 years of marriage. This was attributed to male factor infertility, unresponsive to fertility therapy. She had no known medical comorbidities. Her father and mother had died due to lung and liver cancer, respectively. On examination, her vitals were stable and systemic examination was insignificant. There was tachycardia of 104 beats/min. Her weight was 42 kg, with a body mass index of 17 kg/m<sup>2</sup>. She also had peripheral tremors and a slightly prominent thyroid mass.

Cervix and vagina were healthy, and on vaginal examination, uterus was of 8-week size, retroverted, mobile with bilateral free and nontender fornices. Hemogram, electrolytes, urine, and glucose profiles were normal. Ultrasonography (USG) pelvis showed an endometrial thickness of 20 mm, focal adenomyosis, and 47 mm × 35 mm subserosal fibroid. Adnexa and pouch of Douglas were normal. Endometrial sampling was performed and was sent for histopathology. The findings were suggestive of simple endometrial hyperplasia without atypia.

In the investigatory work-up, TSH was 5.34 uIU/ml (normal range of 0.40–4.2). This

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elevated TSH was not in concurrence with the peripheral signs of hyperthyroidism. Moreover, despite the slightly elevated TSH and normal T3 of 1.06 ng/ml (normal range of 0.70–2.04), both T4-13.91 ug/dl (normal range 5.50–11.0) and FT4-1.38 ng/dl (normal range 0.61–1.12) were elevated, concurring with peripheral signs of hyperthyroidism. To evaluate this deranged thyroid profile, further evaluation was done by the endocrinologists, and it was determined that the patient must have had a central cause of hyperthyroidism. A contrast magnetic resonance imaging (MRI) was done to identify the same, which showed a 6.6 mm × 6.1 mm × 4.5 mm well-defined lesion in the midline of the pituitary fossa with signs of early small vessel ischemic changes (Fazekas Grade I), suggestive of pituitary microadenoma. Figures 1 and 2 show the pituitary adenoma on a sagittal and axial view of MRI, respectively. The endocrinologists also suggested measuring the free alpha-subunit, which was <0.1 ng/ml. For endometrial hyperplasia, the levonorgestrel intrauterine system was inserted.

The overall diagnosis established for this patient is AUB (leiomyoma, adenomyosis) with pituitary microadenoma. For the hyperthyroidism, the patient was started on medical therapy with tablet carbimazole 10 mg 1-0-0 and tablet propranolol 40 mg 1-0-0 for six weeks. After one year, the patient returned for follow-up with a TSH of 3.39 uIU/ml but did not have any peripheral signs of hyperthyroidism (no tremors/no tachycardia), following which carbimazole was discontinued. Follow-up with the endocrinologists was warranted only if the symptoms recur. The endometrial thickness on USG was 5 mm, and the intrauterine contraceptive device was left *in situ*. The patient has been scheduled for regular follow-ups with the gynecology department.

## Discussion

AUB in developing countries has a prevalence of 5%–15%.<sup>[1]</sup> Furthermore, approximately 26% of

premenopausal and menopausal women are diagnosed with thyroid disease.<sup>[2]</sup> TSH-secreting pituitary adenomas (TSHomas) represent 1% of all pituitary tumors, with previous literature describing approximately 350 cases of TSHoma across the world since 1960.<sup>[3,4]</sup> The low prevalence of TSHomas may be attributed to the fact that thyrotrophs account for <5% of all pituitary cells.<sup>[5]</sup> It is diagnosed usually in the fifth–sixth decade of life with equal incidence in men and women.<sup>[6]</sup>

TSHomas typically present with either mass effect leading to visual defects and headaches, or the symptoms can be representative of thyroid hormone abnormalities. Clinical features may include cardiovascular manifestations such as atrial fibrillation, heart failure, and palpitations.<sup>[4,7]</sup> Variations in manifestations are common as some cases did not have the expected tachycardia or thyroid enlargement, whereas others had tremors similar to the present case.<sup>[7-9]</sup> Patients may also have paralysis and dysfunction of the anterior pituitary.<sup>[4]</sup> Menstrual irregularities can also be seen as a symptom<sup>[4]</sup> but as displayed by Krassas *et al.*, decreased and increased thyroid profiles may still lead to normal cycles.<sup>[10,11]</sup> Concerning endometrial cellularity, Ajmani *et al.*<sup>[2]</sup> showed that hyperthyroidism is more likely to have an atrophic endometrium, whereas Kaur *et al.*<sup>[12]</sup> showed that patients with hypothyroidism were more likely to have menorrhagia and proliferative endometrium as opposed to endometrial hyperplasia. To our knowledge, this is the first case of a TSHoma causing endometrial hyperplasia.

Adenomas apart from TSHomas can also cause gynecological complaints on a broader spectrum. The high prolactin levels seen with prolactinomas can suppress the gonadotropin-releasing hormone leading to features of hypogonadotropic hypogonadism in the absence of pregnancy. This can lead to consequences such as amenorrhea, oligomenorrhea, infertility, and anovulatory cycles.<sup>[13]</sup> A case of follicle-stimulating hormone-producing

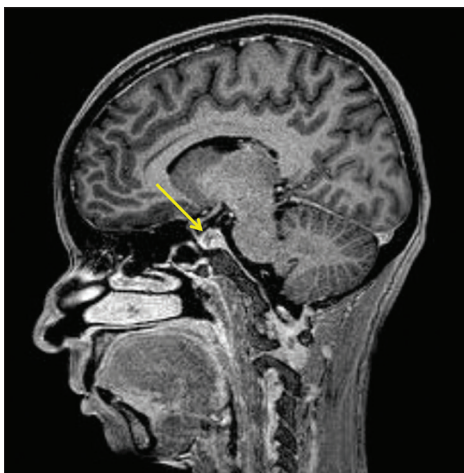


Figure 1: Magnetic resonance imaging sagittal view showing pituitary microadenoma



Figure 2: Magnetic resonance imaging axial view showing pituitary microadenoma

pituitary adenoma leading to ovarian hyperstimulation syndrome has also been described.<sup>[14]</sup>

It is noteworthy to mention that a PubMed search, conducted on July 27, 2021, using the terms “TSHoma + AUB/menorrhagia/menstrual” yielded no results. This article reports one such unique association. The dual pathologies present in this patient can manifest as AUB, yet the extent to which one influences the symptoms compared to the other cannot be determined. We hypothesize that the patient’s TSHoma has played a role in developing endometrial hyperplasia. What can be said with certainty is that clinicians should always be open-minded to coexisting diagnoses, albeit rare.

### Conclusion

Here, we presented a case of AUB that was due to two separate pathologies. Even though the patient had a functioning microadenoma, we were able to manage the patient conservatively using oral therapy and an intrauterine device.

### Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed

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### Conflicts of interest

There are no conflicts of interest.

### References

1. Harlow SD, Campbell OM. Epidemiology of menstrual disorders in developing countries: A systematic review. *BJOG* 2004;111:6-16.
2. Ajmani NS, Sarbhai V, Yadav N, Paul M, Ahmad A, Ajmani AK. Role of thyroid dysfunction in patients with menstrual disorders in Tertiary Care Center of Walled City of Delhi. *J Obstet Gynaecol India* 2016;66:115-9.
3. Li J, Tan H, Huang J, Luo D, Tang Y, Yu R, *et al.* Case report of recurrent atrial fibrillation induced by thyrotropin-secreting pituitary adenoma with Graves’ disease. *Medicine (Baltimore)* 2018;97:e11047.
4. Li J, Li J, Jiang S, Yu R, Yu Y. Case report of a pituitary thyrotropin-secreting macroadenoma with Hashimoto thyroiditis and infertility. *Medicine (Baltimore)* 2018;97:e9546.
5. Socin HV, Chanson P, Delemer B, Tabarin A, Rohmer V, Mockel J, *et al.* The changing spectrum of TSH-secreting pituitary adenomas: Diagnosis and management in 43 patients. *Eur J Endocrinol* 2003;148:433-42.
6. Beck-Peccoz P, Persani L, Lania A. Thyrotropin-Secreting Pituitary Adenomas. 2019 Jan 11. In: Feingold KR, Anawalt B, Boyce A, Chrousos G, de Herder WW, Dhatariya K, *et al.*, editors. *Endotext* [Internet]. South Dartmouth (MA): MDText.com, Inc.; 2000. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK278978/>. [Last updated on 2019 Jan 11].
7. Mouslech Z, Somali M, Sakali AK, Savopoulos C, Mastorakos G, Hatzitolios AI. TSH-secreting pituitary adenomas treated by gamma knife radiosurgery: Our case experience and a review of the literature. *Hormones (Athens)* 2016;15:122-8.
8. Lee EJ, Kim KR, Lee KM, Yoon DH, Kim YS, Kim DI, *et al.* Thyrotropin-secreting pituitary microadenoma. *Yonsei Med J* 1992;33:368-73.
9. Quinn M, Bashari W, Smith D, Gurnell M, Agha A. A remarkable case of thyrotoxicosis initially caused by Graves’ disease followed by a probable TSHoma – A case report. *BMC Endocr Disord* 2020;20:133.
10. Krassas GE, Pontikides N, Kaltsas T, Papadopoulou P, Paunkovic J, Paunkovic N, *et al.* Disturbances of menstruation in hypothyroidism. *Clin Endocrinol (Oxf)* 1999;50:655-9.
11. Krassas GE, Pontikides N, Kaltsas T, Papadopoulou P, Batrinos M. Menstrual disturbances in thyrotoxicosis. *Clin Endocrinol (Oxf)* 1994;40:641-4.
12. Kaur T, Aseeja V, Sharma S. Thyroid dysfunction in dysfunctional uterine bleeding. *Webmed Central Obstet Gynaecol* 2011;2:002235.
13. Saleem M, Martin H, Coates P. Prolactin biology and laboratory measurement: An update on physiology and current analytical issues. *Clin Biochem Rev* 2018;39:3-16.
14. Patel S, Pacione D, Fischer I, Maloku E, Agrawal N. Follicle-stimulating hormone-producing pituitary adenoma: A case report and review of the literature. *AACE Clin Case Rep* 2019;5:e175-80.