Journal of Medical and Health Studies
ISSN: 2710-1452
DOI: 10.32996/jmhs
Journal Homepage: www.al-kindipublisher.com/index.php/jmhs

JMHS
AL-KINDI CENTER FOR RESEARCH AND DEVELOPMENT

| RESEARCH ARTICLE

When Pregnancy Turns Toxic: Thyrotoxic Crisis and Psychosis as the First Clues of Gestational Trophoblastic Disease

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| ABSTRACT

A molar pregnancy is more than just an obstetric issue—it can act like an endocrine time bomb. Although most women affected may only show mild or biochemical signs of thyrotoxicosis, there is always a serious risk that it could quietly escalate into a dangerous, life-threatening thyroid storm. This case report presents a clear example involving a 28-year-old Saudi woman, G2P1, who was brought to our facility with unusual behavior, auditory hallucinations, severe anxiety, agitation, and abnormal uterine bleeding—occurring after two months of amenorrhea, initially mistaken for menstrual irregularity. Her beta-hCG level exceeded 100,000, and ultrasound findings were consistent with a molar pregnancy. Following successful stabilization over 24 to 36 hours, she underwent an uncomplicated suction dilation and curettage (D&C) as definitive treatment. Subsequently, she was placed under long-term follow-up with both endocrinology and gynecologic oncology teams.

| KEYWORDS

Gestational Trophoblastic Disease, Thyrotoxicosis, Thyrotoxic Crisis, Thyroid Storm, Molar Pregnancy.

| ARTICLE INFORMATION

ACCEPTED: 20 August 2025 **PUBLISHED:** 01 September 2025 **DOI:** 10.32996/jmhs.2025.6.3.29

Introduction

Thyroid storm, which is also known as thyrotoxic crisis, is an acute, life-threatening condition that occurs as an exacerbation of hyperthyroidism, and it is characterized by severe, multisystem affection and metabolic derangements [1]. It is described in literature as the exaggerated form of thyrotoxicosis leading to excess thyroid hormone release. Such a condition is observed mostly in patients who neglect their hyperthyroid treatment due to antithyroid medication withdrawal, for instance, or in those with under-treated hyperthyroidism. Although modern treatments are available, thyroid storms carry a very high mortality rate due to their fulminant presentation. Per studies, mortality rates reach 10-25% even with modern treatment [1]. Owing to the mentioned reasons, it is considered a medical emergency that necessitates early recognition and immediate proper

interventions. In clinical practice, the diagnosis is primarily clinical rather than laboratory-based and is often challenging, as thyroid storm is rare—occurring in less than 2% of all thyrotoxic patients—and frequently mimics other common conditions such as sepsis or acute heart failure, arrhythmia, and other complications [1][2]. Physiologically, thyrotoxicosis causes a hyperadrenergic, hypermetabolic state that manifests with heat intolerance, fever, tachycardia, tremor, diarrhea, and anxiety or agitation [3]. In its most severe form, patients develop pronounced vital-sign instability and decompensation: hyperthermia, marked tachycardia or atrial fibrillation, hypotension or heart failure, gastrointestinal symptoms (e.g., nausea, vomiting, jaundice), and acute liver dysfunction [1][2]. Notably, neuropsychiatric features are prominent in severe thyrotoxicosis, with milder hyperthyroidism often causing irritability, insomnia, and restlessness, while thyroid storms can precipitate delirium, psychosis, seizures, or coma [4]. For example, thyroid storms may present with agitation, confusion, hallucinations, or even frank psychosis [4]. These neuropsychiatric symptoms likely arise from a surge in catecholamines and increased β-adrenergic activity, leading to agitation and psychosis. Additionally, excess thyroid hormones exert direct effects on the central nervous system, including modulation of serotonin and other neurotransmitter systems [4]. All these mechanisms enter in the pathophysiology of these neuropsychiatric symptoms. Furthermore, according to systematic review studies, typical findings of Graves' disease, such as ophthalmopathy or pretibial myxoedema, are extremely rare and seldom seen in short-lived thyrotoxicosis like that from gestational causes [2]. Gestational Trophoblastic Disease (GTD) is a spectrum of pregnancy-related disorders arising from abnormal proliferation of placental trophoblastic tissue, including hydatidiform mole and its malignant forms [2]. Although uncommon, GTD can induce significant hyperthyroidism because the neoplastic trophoblast secretes very high levels of Human Chorionic Gonadotropin (Beta-hCG) [2][5]. Human hCG is structurally similar to Thyroid-Stimulating Hormone (TSH) and, in excessive amounts, can cross-react with the TSH receptors on the thyroid gland [2][5]. Indeed, trophoblastic hCG often enhances thyrotropic activity, so that GTD patients may become overtly thyrotoxic. The molecular mimicry between hCG and TSH explains why women with molar pregnancy or choriocarcinoma frequently develop gestational hyperthyroidism [2][6]. In most cases, this GTD-associated thyrotoxicosis is subacute and resolves after evacuation of the mole, but it can be severe if hCG levels are extremely high. Thyroid storm in the setting of GTD is exceedingly rare, with only isolated case reports describing this progression [2]. When it does occur, it often follows a precipitant. For example, massive uterine hemorrhage, severe anemia, or the stress of surgery and anesthesia have been implicated as triggers that can push GTD-induced thyrotoxicosis into a storm [2]. These patients may not exhibit the classic features of Graves' disease, such as goiter or ophthalmopathy, likely due to the acute onset of thyrotoxicosis driven by trophoblastic hCG, and instead often present with sudden clinical decompensation. Since GTD is typically managed with uterine evacuation, unrecognized thyrotoxicosis can be precipitated by the procedure itself. Thus, GTD-induced thyroid storm tends to occur either in patients who already decompensate on admission or immediately after surgery, often in the context of blood loss or hemodynamic stress [2]. Clinicians should consider GTD in hyperthyroid women who are pregnant or recently pregnant, particularly if thyroid symptoms are out of proportion to expected gestational changes. For example, a first-trimester pregnancy with persistently high hCG levels, uterine enlargement beyond gestational age, or unexplained vaginal bleeding should prompt evaluation for molar pregnancy [7][6]. In such cases, measuring β-hCG and obtaining a pelvic ultrasound can help distinguish gestational trophoblastic causes from primary thyroid disease. Early recognition of GTD is crucial because evacuation of the trophoblastic tissue is the definitive treatment for hyperthyroidism. We report here a unique case in which severe thyroid storm with accompanying acute psychosis were the presenting features of an underlying gestational trophoblastic neoplasm—an exceedingly rare "toxic pregnancy" scenario that underscores the need for awareness of this linkage.

Case Presentation

Patient's history and Physical Examination

This case report presents a 28-year-old Saudi female, G2P1, married, who was brought to our facility due to bizarre behavior, auditory hallucinations, severe anxiety, and agitation. The patient reported a subjective fever, irregular palpitations, and amenorrhea for two months, followed by intermittent vaginal bleeding, which she attributed to an irregular menstrual cycle. Her symptoms had begun a few days prior and were progressive in nature. Vaginal bleeding started three days ago and was moderate in amount. She had no prior medical or surgical history and was not on any medications. She explicitly denied the use of alcohol or recreational drugs. The current pregnancy was unplanned and came as a surprise to her, with no antenatal care received. Other classic symptoms of thyrotoxicosis—such as tremors, diarrhea, or weight loss—were notably absent. On physical examination, the patient appeared agitated, anxious, and diaphoretic, with incoherent speech. Vital signs revealed a temperature of 39.4°C, tachycardia at 140 bpm with an irregular pulse, blood pressure of 110/80 mmHg, respiratory rate of 23 breaths per minute, and oxygen saturation of 95% on room air. Local examinations of the chest, cardiovascular system, and abdomen were largely unremarkable, except for mild lower abdominal tenderness without guarding or palpable adnexal masses. The uterus was consistent in size with a 14-week gestation. Importantly, there was no visible goiter or ocular signs suggestive of Graves' disease. A bedside ECG revealed atrial fibrillation with a ventricular rate of 140 bpm, and a urine pregnancy test was strongly positive.

Investigations

The laboratory investigations were conducted as outlined below (Table 1). Pelvic ultrasound revealed multiple cystic intrauterine lesions without visible fetal tissue, findings suggestive of a molar pregnancy.

Test	Result	Normal Range
Hemoglobin	9.6	12-16 g\dL
WBC	12.2	4.0-11x10^9\L
Platelets	190	150-450x10^9\L
Quantitative Beta-hCG	>100,000	<5 in non-pregnants
TSH	<0.01	0.4-4.0 mIU\L
Free T4	55	10-22 pmol\L
Free T3	18	3.5-6.5 pmol\L
Sodium	133	135-145 mmol\L
Potassium	4.4	3.5-5.0 mmol\L
ALT	73	<40 U\L
AST	65	<40 U\L

Table 1: results of relevant laboratory investigations.

Management course

Stabilization was prioritized in the emergency department, with plans to transfer the patient to the intensive care unit for close monitoring. Owing to concerns about her ability to protect her airway, initial medications were administered intravenously. Intravenous fluids, paracetamol, propranolol, hydrocortisone, and a loading dose of 600 mg Propylthiouracil (PTU) followed by 200 mg every four hours via nasogastric tube were initiated. To prevent the Jod-Basedow phenomenon, five drops of Lugol's iodine were administered one hour after the initial therapies, with subsequent doses scheduled every eight hours. The gynecology team was consulted, and after a stabilization period of approximately 24–36 hours, the patient underwent an uncomplicated suction dilatation and curettage (D&C) as definitive management. Prophylactic antibiotics were administered perioperatively. Clinical improvement was observed within 72 hours, with heart rate stabilizing around 90 bpm and the patient remaining afebrile. Serial weekly Beta-hCG measurements were planned until normalization. An oncology referral was made to evaluate for possible persistent gestational trophoblastic disease potentially requiring chemotherapy. Long-term follow-up with both gynecology and endocrinology was arranged.

Discussion

In cases of thyroid storm, serum levels of T3 and T4 often show poor correlation with disease severity, rendering diagnosis primarily clinical [1]. Thus, awaiting laboratory confirmation may prove detrimental; empiric treatment should be initiated promptly upon suspicion [1,3]. Delay in therapy is associated with significant mortality, often due to cardiovascular compromise manifesting as heart failure and arrhythmia [1,3]. Despite hospitalization, mortality rates in thyroid storm cases remain high, ranging from 8% to 20% [3]. This underscores the importance of prompt clinical assessment using validated tools. A Burch-Wartofsky Point Scale (BWPS) score exceeding 45 is strongly indicative of thyroid storm, as observed in this case [3]. A notable clinical twist in this presentation is the absence of a prior history or hallmark features of Graves' disease, such as ophthalmopathy or goiter. The key diagnostic clue was a markedly elevated Beta-hCG level disproportionate to normal pregnancy, accompanied by a history of abnormal vaginal bleeding following two months of amenorrhea—initially mistaken for irregular menses [2]. In gestational trophoblastic disease (GTD), particularly molar pregnancies, Beta-hCG levels can be massively elevated due to overproduction [2]. Compounding this, some GTD cases produce a hyperglycosylated form known as "Asialo-hCG," which exhibits enhanced TSH receptor activity per unit, pushing the patient from uncomplicated thyrotoxicosis to a full-blown thyrotoxic crisis [2]. While normal pregnancies peak at Beta-hCG levels of approximately 100,000 IU/L between 9 and 12 weeks of gestation—followed by a physiological decline—complete moles can generate persistently high or exceedingly abnormal levels, often ranging from 500,000 to over 1,000,000 IU/L [8]. Although there is no definitive threshold beyond which hyperthyroidism is guaranteed, the risk rises with increasing Beta-hCG concentrations [8]. In cases where the clinical suspicion for molar pregnancy is high but Beta-hCG levels appear inappropriately low, repeat assays are warranted, as extremely elevated levels can sometimes result in lab errors or assay hook effects [8]. Typical GTD presentations include first-trimester vaginal bleeding, hyperemesis gravidarum, theca-lutein ovarian cysts, and either partial or complete absence of fetal tissue [9]. However, this case highlights more atypical and diagnostically challenging manifestations such as hyperthyroidism, metastatic symptoms, respiratory compromise from embolic events, or early-onset preeclampsia [9]. Although imaging has high sensitivity in the late first

trimester, it should not be solely relied upon [9]. Classic ultrasonographic features such as a 'snowstorm' appearance in complete mole or cystic areas alongside fetal tissue in partial mole may be absent [9]. Stabilization of the patient remains paramount, particularly because the adrenergic surge induced by surgical evacuation and anesthesia can precipitate a thyroid storm [4]. As such, GTD-related thyrotoxic crises may present as post-evacuation complications, even if early decompensation—due to hemorrhage and anemia, as seen in this case—already signals systemic instability. When fertility preservation is desired and there is no indication for hysterectomy, suction curettage remains the preferred treatment modality [9]. Post-evacuation, it is imperative to measure quantitative Beta-hCG within 48 hours, followed by serial monitoring every 1–2 weeks until complete resolution [9]. For complete moles, surveillance should continue for at least six months following the first normal Beta-hCG value [9]. In partial moles, follow-up should persist until two to three consecutive normal values are documented, owing to the lower but present risk of neoplasia [9]. Post-molar gestational trophoblastic neoplasia (GTN) must be suspected if any of the following occur: evidence of metastases, histopathologic confirmation of choriocarcinoma, plateauing of Beta-hCG levels across four measurements over three weeks, a rise of over 10% across three consecutive readings, or persistent detectability beyond six months [9]. During this surveillance period, effective contraception is essential. Combined oral contraceptive pills (OCPs) are considered safe [9]. However, intrauterine contraceptive devices (IUDs) should be avoided until Beta-hCG normalization, as their use may increase the risk of infection or uterine perforation and may confound the clinical picture through irregular bleeding [9].

Conclusion

A molar pregnancy is not merely an obstetric concern but may represent an endocrine volcano. While most affected women experience subclinical or biochemical thyrotoxicosis, the potential for an insidious progression to a life-threatening thyroid storm must never be underestimated. Moreover, the absence of active gestational trophoblastic disease (GTD) does not signify resolution. Although typically benign, molar pregnancy carries the persistent risk of malignant transformation, and evacuation does not mark a definitive conclusion. In this context, follow-up becomes the true cornerstone of management—where care is not a single intervention but a long process. Contraception, therefore, is not optional but essential, as a subsequent pregnancy can obscure the recurrence of GTD, blurring the distinction between physiological and pathological states.

References

[1] Pokhrel B, Aiman W, Bhusal K. Thyroid storm. StatPearls - NCBI Bookshelf. https://www.ncbi.nlm.nih.gov/books/NBK448095/. Published October 6, 2022.
[2] Pereira JVB, Lim T. Hyperthyroidism in gestational trophoblastic disease – a literature review. *Thyroid Research*. 2021;14(1). doi:10.1186/s13044-021-00092-3
[3] Idrose AM. Acute and emergency care for thyrotoxicosis and thyroid storm. *Acute Medicine & Surgery*. 2015;2(3):147-157. doi:10.1002/ams2.104
[4] Fauci AS, Kasper DL, Longo DL, et al, eds. Harrison's Principles of Internal Medicine. 21st ed. McGraw-Hill Education; 2022.
[5] Blick C, Nguyen M, Jialal I. Thyrotoxicosis. StatPearls - NCBI Bookshelf. https://www.ncbi.nlm.nih.gov/books/NBK482216/. Published January 18, 2025.
[6] Hokman S, Wulandari DC. The hyperthyroidism in gestational trophoblastic disease: a case report. *International Journal of Advances in Medicine*. 2023;10(11):785-789. doi:10.18203/2349-3933.ijam20233209
[7] Walfish L, Gupta N, Nguyen DB, Sherman M. Molar Pregnancy–Induced hyperthyroidism: The importance of early recognition and timely preoperative management. *JCEM Case Reports*. 2023;1(6). doi:10.1210/jcemcr/luad129
[8] Yoshimura M, Hershman JM. Thyrotropic action of human chorionic gonadotropin. Thyroid. 1995 Oct;5(5):425-34. doi: 10.1089/thy.1995.5.425. PMID: 8563483.
[9] Ngan HYS, Seckl MJ, Berkowitz RS, Xiang Y, Golfier F, Sekharan PK, Lurain JR, Massuger L. Update on the diagnosis and management of gestational trophoblastic disease. Int J Gynaecol Obstet. 2018 Oct;143 Suppl 2:79-85. doi: 10.1002/ijgo.12615. PMID: 30306586.