

# Anesthesia Consideration of an Impending Thyroid Storm Patient undergoing Emergency Suction Evacuation for Bleeding Molar Pregnancy

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## ABSTRACT

**Background:** Thyrotoxicosis associated with molar pregnancy is rare to see, and anesthesia management of such patients for the emergency procedure is extremely challenging.

**Case description:** A 22-year-old primigravida with 17 weeks of amenorrhea presented with bleeding per vaginum and pain abdomen, diagnosed as molar pregnancy, posted for emergency suction evacuation. Primary examination and lab investigation showed features of thyrotoxicosis, and the Burch–Wartofsky score was highly suggestive of an impending thyroid storm. The endocrinologist advised the evacuation of molar pregnancy as it is the definitive management of thyrotoxic state in this condition, and optimum stabilization after initiation of an antithyroid drug is still not known. The patient was given preoperative  $\beta$ -blockers and steroids. The suction evacuation was done under low-dose spinal anesthesia successfully. The patient was symptomatically better and discharged after 1 week.

**Conclusion:** Knowledge of dangerous complications of molar pregnancy and safe anesthesia choices are important for an anesthesiologist for successful perioperative management of such patients.

**Keywords:** Anesthesia, Hyperthyroidism, Molar pregnancy, Thyroid storm.

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## BACKGROUND

The incidence of molar pregnancy in India is one in 400. Thyrotoxicosis associated with molar pregnancy is rare to see, and anesthesia management of such patients for an emergency procedure is extremely challenging because of less time for optimization and the risk of intraoperative thyroid storm and high output cardiac failure.

## CASE DESCRIPTION

A 22-year-old primigravida presented to an obstetric emergency with amenorrhea of 17 weeks, followed by excessive bleeding per vaginum, abdominal pain, and palpitation. On examination, she was agitated, pulse rate-136 bpm regular, blood pressure- 138/86 mm Hg, temperature-37.9°C, sweating, fine tremors, and exophthalmos were present. No goiter was present. The uterus was 20 weeks in size. Ultrasound of abdomen showed 14 × 8 × 13 cm bulky uterus with cystic lesion suggestive of vesicular mole. We suspected thyrotoxicosis, and biochemical investigation showed hemoglobin (Hb)— 6.5 gm/dL, free triiodothyronine (FT3)— 3.51 pg/mL, free thyroxine (FT4)— 1.18 ng/dL, thyroid stimulating hormone (TSH)— 0.01 mIU/L, and  $\beta$ -human chorionic gonadotropin ( $\beta$ -hCG)— 467219 mIU/mL. Burch–Wartofsky point scale showed a score

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of 40, highly suggestive of an impending thyroid storm. The endocrinologist advised an evacuation of molar pregnancy as it is the definitive management of thyrotoxic state in this condition, and optimum stabilization after initiation of an antithyroid drug is still not known. An emergency suction evacuation was planned. High-risk informed consent was taken. In the operating room, electrocardiogram, peripheral oxygen saturation, blood pressure, and temperature were monitored. Wide bore IV were secured. The patient was given an injection (inj.) of esmolol 0.5 mg/kg, inj. of hydrocortisone 100 mg, inj. of paracetamol 1 gm, and inj. of tranexamic acid

1 gm intravenously. Ringer lactate and one packed red blood cell were started in view of low preoperative Hb. The goal was to reduce tachycardia, hypertension, temperature, anxiety, and proper oxygenation with adequate anesthesia to prevent thyroid storms. Low-dose subarachnoid block was given with 0.5% 2 mL heavy bupivacaine under aseptic precaution, and a T8 level was achieved. inj. of midazolam 0.05 mg/kg was given to prevent anxiety. The patient was vitally stable following subarachnoid block. Heart rate and blood pressure were under control. The second packed red blood cell was started in view of intraoperative blood loss of 600 mL. The procedure was uneventful, and the patient shifted to the intensive care unit for close monitoring. The patient was symptomatically better postoperatively.  $\beta$ -hCG reduced significantly. The patient was discharged after 1 week. The thyroid function test became normal after 2 weeks.

## DISCUSSION

Gestation trophoblastic diseases (GTD) are a spectrum of diseases. Vesicular mole is the most common among these. A molar pregnancy can be presented with vaginal bleeding, hyperemesis, uterine enlargement greater than gestational age, pregnancy-induced hypertension, and hyperthyroidism. Molar pregnancy and hyperthyroidism are rare entities. Diagnosis can be made from history, physical examination, pelvis ultrasound, and serum  $\beta$ -hCG. Surgical evacuation is the definitive management. Both  $\beta$ -hCG and TSH are glycoproteins with structural similarities which can cause cross-reactivity of hCG with TSH receptors, which explains the existence of hyperthyroidism in GTD.<sup>1</sup> All patients with GTD with very high serum  $\beta$ -hCG levels may not manifest as hyperthyroid because of different trophoblastic activity of hCG isomers.<sup>2</sup> Hyperthyroid state can range from an asymptomatic increase of thyroid hormones to a thyroid storm. Patients with normal thyroid hormone levels can also develop thyroid storms. Thyroid storm is rare, and mortality may range from 10 to 20% and should be suspected in case of tachycardia, tachypnoea, fever, and hypertension. Hyperthyroidism can coexist with anemia secondary to vaginal bleeding in molar pregnancy, and their clinical presentations are overlapping, which can miss in emergency situations. The Burch–Wartofsky score is a quantitative diagnostic tool for diagnosing thyroid storm. Evacuation of molar pregnancy is the definitive management, so delaying evacuation to control thyrotoxicosis in emergency procedures is known to increase further increase in perioperative complications.<sup>3</sup> Goal is to prevent the release of T4 and inhibit conversion into T3, inhibit peripheral action of hormones and treat precipitating factors. Antithyroid drugs such as propylthiouracil and methimazole, Lugol's iodine,  $\beta$ -adrenergic blocker, and steroids are used for this condition. Many experts achieve inhibition of T4–T3 conversion solely with  $\beta$ -blockers and corticosteroids.<sup>4</sup> We treated the patient with  $\beta$ -blockers and steroids as the patient presented at an advanced stage and less time available

for preoperative optimization because of active bleeding.  $\beta$ -blocker provides rapid optimization as compared to antithyroid drugs.<sup>5</sup> For acute management of thyroid storm, esmolol infusions are preferred as the  $\beta$ -1 selectivity increases the safety of the drug and shorter half-life enables rapid titratability.<sup>6</sup> Perioperative complications include thyroid storm, hypertension, high output cardiac failure, embolization of trophoblastic material, pulmonary edema, and disseminated intravascular coagulation.<sup>7</sup> Anesthesia management should be individualized. General anesthesia will be the choice in actively bleeding hemodynamically unstable patients. However, it can cause increased blood loss due to the tocolytic effect of inhalation anesthetics. As our patient was hemodynamically stable, we decided low dose spinal as the anesthesia choice. Regional anesthesia can be considered in hemodynamically stable patients as it has no tocolytic effect, earlier detection of a complication such as a thyroid storm and cardiorespiratory distress avoids sympathetic stimulation associated with laryngoscopy and intubation, and excellent postoperative pain relief.<sup>8</sup>

## CLINICAL SIGNIFICANCE

Knowledge of dangerous complications of molar pregnancy and safe anesthesia choices are important for an anesthesiologist for the successful perioperative management of such patients.

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