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A Case of Spontaneous Postpartum Thyroid Hemorrhage Leading to Upper Airway Obstruction

Authors' Contribution:
Study Design A
Data Collection B
Statistical Analysis C
Data Interpretation D
Manuscript Preparation E
Literature Search F
Funds Collection G

EF 1 **Boris D. Hristov**
C 2 **Robert Borrego**
B 2 **Patricia A. Harding**
BD 2 **Dimitar B. Hristov**

1 Department of Surgery, Brookdale Hospital Medical Center, Brooklyn NY, U.S.A.
2 Department of Surgery, Saint Mary's Hospital Center, West Palm Beach, FL, U.S.A.

Corresponding Author: Boris D. Hristov, e-mail: bhristov10@gmail.com
Conflict of interest: None declared

Patient: Female, 36
Final Diagnosis: Thyroid hemorrhage
Symptoms: Shortness of breath
Medication: —
Clinical Procedure: Thyroidectomy
Specialty: Surgery

Objective: Rare disease





Background: Spontaneous goiter hemorrhage is a rare entity that can lead to life-threatening respiratory compromise. Goiter hemorrhages are usually due to effects of anticoagulation or neoplastic processes. The hormonal effects of pregnancy may also lead to such life-threatening goiter hemorrhages in the immediate postpartum period.

Case Report: We report the case of a 36-year-old woman who complained of progressive neck swelling as well as eventual shortness of breath in the immediate postpartum period. Computed tomography scans and ultrasound of the neck revealed an enlarged and heterogenous thyroid with airway compression. The patient underwent an emergent subtotal thyroidectomy to alleviate the mass effect on the airway. Upon resection, the thyroid was noted to contain a goiter hemorrhage with no signs of neoplastic degeneration on pathology.

Conclusions: Pregnancy is a known hormonal stressor that routinely increases the size of the thyroid and also predisposes patients to goiter formation. In rare cases, thyroid goiters may be predisposed to hemorrhage, causing airway obstruction and necessitating urgent surgical intervention.

MeSH Keywords: Goiter • Postpartum Thyroiditis • Thyroid Diseases • Thyroidectomy

Full-text PDF: <http://www.amjcaserep.com/abstract/index/idArt/895802>

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Background

Spontaneous thyroid hemorrhage is an extremely rare condition with few documented cases in the literature [1–4]. The few cases noted have been attributed either to anticoagulation [1,2], anaplastic thyroid cancer [4], or vascular rupture [4]. Acute airway compromise is a possible life-threatening complication of such a hemorrhage and warrants urgent intervention [1,3,4]. None of the cases previously described in the literature directly relate to pregnancy or the immediate postpartum period. Here, we present a case report of a spontaneous postpartum goiter hemorrhage causing acute airway obstruction, necessitating urgent operative intervention. Due to the unique hormonal stressors on the thyroid brought about by pregnancy [5], pre-existing goiters may be more predisposed to enlarge and become more susceptible to rupture. To the best of our knowledge, a postpartum goiter hemorrhage with airway compromise has not been documented previously in the literature.

Case Report

A 36-year-old African-American woman who was postpartum day 1 after a vaginal delivery developed sudden onset of bilateral neck fullness with minimum pain along with mild dysphagia. She had no associated hoarseness, stridor, or shortness of breath. There was no visible goiter or neck swelling noted from the time of initial presentation for delivery through the initial postpartum period. The delivery was uneventful without significant hemorrhage or use of oxytocin to aid labor. Her past medical history was significant for prior kidney stone, UTI, and chlamydial infection. She had no known thyroid disease or notable goiter prior to this presentation and she was not on any anticoagulation. Throughout her last pregnancy she denied noticing any new changes in her neck. Past surgeries included appendectomy and cholecystectomy. She has had a total of 14 pregnancies with 11 deliveries (6 full-term births and 5 preterm). Her vitals were HR 90, BP 110/70 RR 18, and saturation was 98% on room air. On physical exam she was calm and cooperative without notable tremor or sweating. No exophthalmos was noted. Her neck was visibly enlarged bilaterally (Figure 1) with a large and minimally tender thyroid appreciated on palpation. There was no notable stridor or bruit on examination of the neck.

Initial ultrasound of the neck demonstrated a thyroid right lobe measuring 9.4×6.6×2.8 cm and left lobe measuring 9.8×5×3.7 cm. The thyroid was heterogeneous with notable edema calcification and possible hemorrhage. Her labs were T3 total 1.63, T4 free.67, T4 total 8, TSH 1.19, WBC 10, PT 10, and INR 1.0 with PTT 26.5.



Figure 1. Grossly enlarged neck, which was notable on postpartum day 2.

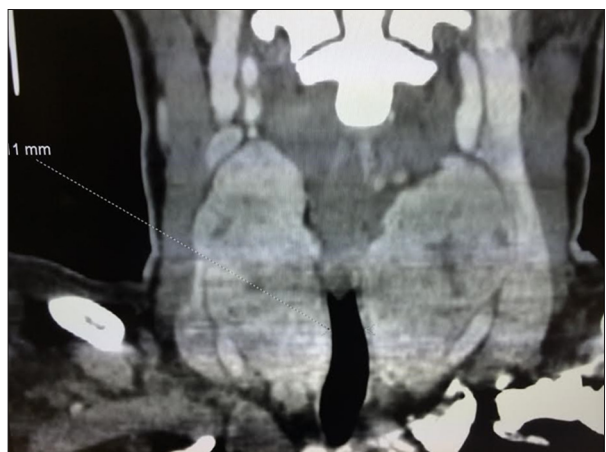


Figure 2. Coronal neck CT demonstrating heterogeneous thyroid with mass effect on airway.

Because the patient was clinically stable, she was initially managed conservatively. However, on postpartum day 2 she developed progressive dysphagia followed by hoarseness and shortness of breath. A CT of the neck was performed, which showed clear compressive effects on the trachea (Figure 2) as well as enlarged heterogeneous thyroid lobes (Figures 3, 4). The patient was diagnosed with a post-partum thyroid hemorrhage and taken to the operating room for an urgent subtotal thyroidectomy to relieve the tracheal compression.

Upon resection there was an old hemorrhage visible within the thyroid (Figure 5). Pathology findings of the specimen noted a multinodular goiter with adenomatoid nodules. The specimen weighed 142 grams and its size was 8×5.5×4 cm and 8×4.5×4.4 cm (Figure 6), a notable increase from the size on the ultrasound performed earlier. Gray-maroon, congested, focally gelatinous nodules were noted (Figure 5).

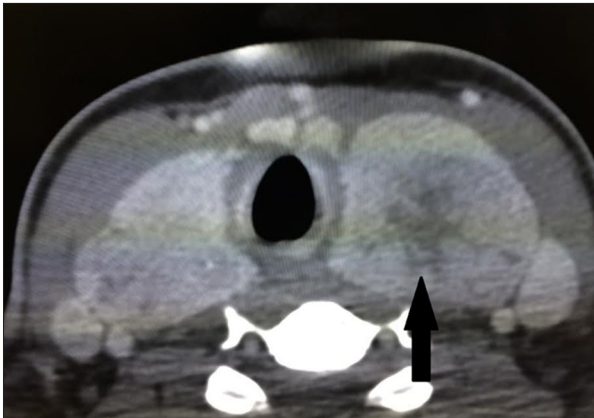


Figure 3. Enlarged right thymic lobe with intraparenchymal heterogeneous fluid.

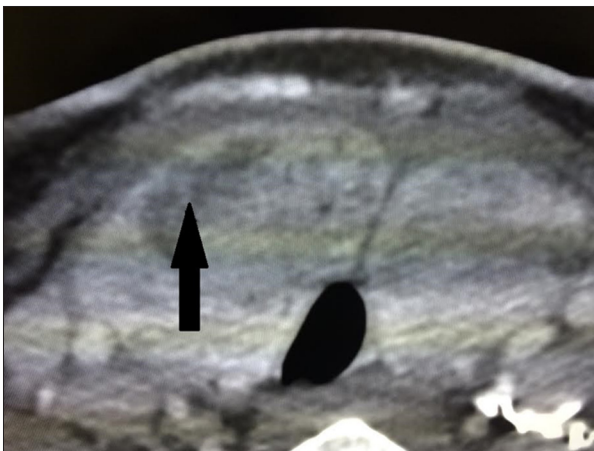


Figure 4. Left thymic lobe with intraparenchymal heterogeneous fluid and tracheal displacement to the left.

Post-operatively, the patient's hoarseness resolved and her swallowing improved. Her Jackson-Pratt (JP) drain was removed on post-operative day (POD) 1. She was started on 0.1 mg Levothyroxine daily. She was discharged on POD 3 and upon return for follow-up on POD 21 she remained asymptomatic with labs in normal range.

Discussion

Pregnancy has known effects on pre-existing thyroid nodules, causing them to enlarge [5], and has also been demonstrated to increase the development of new thyroid nodules, predisposing to formation of multinodular goiter [5]. This is hypothesized to be mediated by increased levels of β -HCG in the blood [6,7]. The β -HCG has known thyrotropic function, as its units are nearly 85% similar to that of TSH, the main hormonal stimulator of thyroid function [8]. Overall, pregnancy produces thyroid dysfunction in 10–50% of women, depending on the level of iodine deficiency [9].

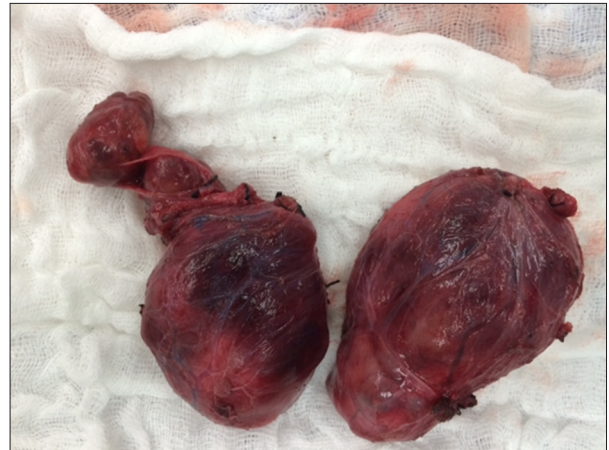


Figure 5. Thyroid gland specimen immediately after resection.



Figure 6. Visible hemorrhage inside the thyroid.

A separate entity, subacute thyroiditis, is also common postpartum and affects approximately 5.4% of pregnancies [10]. It usually manifests as thyroid gland tenderness along with non-specific symptoms like fatigue, constipation, and lethargy. Subacute thyroiditis usually presents 3–6 months postpartum, is characterized by lymphocytic infiltration of the thyroid, and can lead to hyper- or hypothyroidism. It is usually self-limiting without need for medical management because thyroid function usually returns to normal within 6 months [11].

In the case outlined above, thyroid function tests were within normal levels, effectively ruling out postpartum subacute thyroiditis in this patient. However, the role of β -HCG thyrotropic effects on her pre-existing goiter cannot be ruled out. This patient had a total of 14 pregnancies, each of which added incremental hormonal stressors on her thyroid and likely exacerbated her goiter. It is plausible that increased straining during contractions and birth had caused an intraparenchymal bleed within the goiter. To the best of our knowledge, this type of spontaneous postpartum thyroid hemorrhage has not been previously documented in the literature. The rapid growth in

size combined with evidence of bleeding on ultrasound and CT scan indicate that the majority of goiter growth and mass effect in the postpartum course of this patient was indeed due to an acute and spontaneous hemorrhage.

Once a thyroid hemorrhage has been identified in a patient, the management is dependent on presence of associated symptoms. The majority of spontaneous thyroid hemorrhages are small and only cause minimal pain and discomfort to patients [12]. These cases can be carefully observed as long as the patient has no symptoms of airway compression and there is no evidence that the hemorrhage is continuing to expand [13]. Any case of a larger thyroid hemorrhage that continues to expand despite medical therapy or presents with symptoms of tracheal compression is an emergency, which requires establishing a secure airway as soon as possible followed by an operative exploration of the neck [14]. It is important to prepare for an emergent surgical airway because intubation may

not be possible due to distortion of the airway. In the majority of cases, a subtotal thyroidectomy is necessary; however, if the hemorrhage and mass effect are localized to 1 thyroid lobe, a lobectomy may be sufficient [14].

Conclusions

Pregnancy commonly exacerbates or precipitates pre-existing goiters through several mechanisms. While symptoms usually are self-limiting and can be managed medically, in rare instances postpartum goiter complications can quickly lead to airway compromise and may need emergent surgical intervention. Failure to make a timely diagnosis may quickly lead to patient death, especially when airway distortion makes late intubation extremely difficult. Clinicians should be alert to this rare but life-threatening possibility in all pregnant and postpartum women with goiters.

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