



# Thyroid Storm in a Young Woman: A Clinical Case

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Received 15 September 2020;

Accepted 28 September 2020;

Published 04 October 2020

## Abstract

Thyroid storm is a rare condition, but it can be characterized as a threat to life. It presents as an increase in the functions of the thyroid gland due to dysfunction of the central nervous system. It is characterized by pyrexia, tachycardia, heart failure and alterations in the digestive system. The objective of this report is to describe the case of a young woman with no previously reported diseases, who was affected by the thyroid storm, without the presence of Graves' disease.

**Keywords:** *thyroid storm; woman; thyroid gland.*

## Introduction

We take into account in the literature that the thyroid storm is a condition of rare occurrence but it can be characterized as life-threatening. It is shown as an overloaded thyroid function, that is, an increase in the functions of the gland due to dysfunction of the central nervous system, pyrexia, tachycardia, heart failure are characteristic and it causes alterations in the digestive system<sup>[1,2,3]</sup>.

The correct medical conduct is essential, so there are no complications, since mortality rates can reach 30%. There is no major evidence in the medical literature that points to factors or other diseases that can promote or worsen the prognosis of the affected patient<sup>[4,5]</sup>. Hereby it is going to be described through the case of a young woman with no reported diseases, who was affected by the thyroid storm, a patient who does not have Graves disease<sup>[6]</sup>.

The case provides great information and challenges for the treating medical personnel, it is possible to observe the heterogeneous, diversified presentation to which point the severity that a thyroid crisis can reach<sup>[7,8]</sup>. Early multidisciplinary treatment and evaluation have an impact on the patient's rehabilitation, there is still a need for more studies, and more therapy options that are not yet efficient and lack a guarantee of quality, not providing alternatives for situations that exceed the limits of conventional treatments, which are currently available.

## Clinical Case

A 28-year-old female patient attended the hospital emergency room with a 15-day history, with the appearance of a seropurulent lesion located in the right iliac fossa and in the left leg. Added to the case

there was a fever of 7 days of evolution, 40 degrees Celsius (104 degrees Fahrenheit), without a predominance of hours and of undulating nature, accompanied by tremors and sweating. The patient referred to the presence of sporadic palpitations, nausea not followed by vomiting and diarrhea without inflammatory signs. In addition, she reported feeling fatigued and the presence of weight loss of approximately 18 kg in a period of 6 months, despite having an unbalanced diet and in low quantity. Patient reported not being a known carrier of underlying pathologies. Patient appeared lucid, collaborative, whose chronological age did not coincide with the biological age, located in time, space and person, normoline, normosomic, normocoloured, eutrophic. The physical examination drew attention to an asymmetric, painless neck mass that corresponded to a diffuse enlargement of the thyroid gland and also the presence of exophthalmos (**Figure 1**).

Vital signs showed a BP: 140/80 mmHg, heart rate: 117 BPM, respiratory rate: 22 BPM, and a temperature of 39.4 °C. Given the case presented, a thyroid profile, anti-TPO and anti-TRAB antibodies were requested, which came out with the following results: T3: 8.66 nmol / L; Free T4:> 320 ug / dL; TSH: <0.05 uIU / ml; anti-TPO antibody: 85.25 IU / ml, anti-TRAB antibody / 13.80 IU / L. An electrocardiogram was also requested, where a sinus tachycardia was found, and a thyroid ultrasound, which concluded a goiter with diffuse changes suggestive of autoimmune pathology.

According to the Burch and Wartofsky scale, the patient scored a total of 55 points: Temperature> 39.3 (25 points), Tachycardia with a heart rate of 117 BPM (10 points), Nausea and diarrhea (10 points), Infection as a precipitating factor (10 points). With the results of the complementary tests and with this score on the scale, the patient was diagnosed with thyroid storm. She

received as treatment: Propylthiouracil 600mg every 4hs, Propranolol 40mg every 4hs, Hydrocortisone 300mg as initial dose

and then 100mg every 8hs and Clindamycin as treatment for her infection.



**Figure 1:** The white arrows indicate an asymmetric, painless neck mass corresponding to a diffuse enlargement of the thyroid gland

## Discussion

The subject of the present clinical case is responsible for 1-2% of all hospitalizations not related to thyrotoxicosis, it is important to highlight that, even with early diagnoses, mortality can reach, impressively, 10% to 30%. The triggering events are the most diverse, from physical stress such as the patient going through surgeries to infectious processes, there are cases of non-adherence to treatments that suppress thyroid function of patients, trauma of various types and, in pregnant women, labor damage [1,4].

In the described patient, there was not a history, which helps us to better assign the factor that may have triggered the process, so it is possible to assume that the patient would have a long-term thyroid disease, without monitoring and diagnosis, as the values suggest that it is a candidate to be diagnosed with Graves' disease [9]. In this case, there was no factor of those mentioned above that supports another diagnosis [10]. The high value of the antibodies pointed to thyroiditis, due to massive aggression to the gland and hyperproduction of its hormones, which would justify the case. Due to the context, there was a compromise of the cardiovascular system, changes in thermoregulation, gastrointestinal changes and alterations in the central nervous system, due to the excessive secretion of thyroid hormone, the increased response to it and sympathetic hyperactivity [1]. In 1993, Burch and Warftosky proposed a system that scores the diagnosis of this condition taking into account the impairment in temperature, CNS, gastrointestinal and cardiovascular systems. This score indicates that 45/140 is highly suggestive of a thyroid storm event. The patient was 55/140 [1,3].

The worst prognosis occurs when there are atypical complications such as disseminated intravascular coagulation, occurrence of cytopenias, multi-organ dysfunction and fulminant liver failure (10).

## Data Availability

All data in qualitative character, used by our work, as well as spreadsheets, images and others that support the results and conclusions of this study are readily available through the corresponding author.

## Conflicts of Interest

The authors have no conflict of interest to declare.

## Funding Statement

There was no financial support from any public or private institution for this research. The activities of this research were conducted using the authors in partnership.

## Authors' contributions

The initial proposal was made by the CVG and approved by all authors after submitting the research topic to a wide discussion and a better reformulation. IMT conducted the literature review and collected all relevant data. KWDA performed the data analysis. The Manuscript was written by CVG, revised by all authors who agreed with its content and made the collective decision to submit it for consideration and possible publication.

## Acknowledgments

The authors of this study wish to officially thank the CERDIL Group's technical, operational and administrative team, especially Dr. Luiz Dutra, chief radiologist. To everyone in the pathological anatomy laboratory in the person of Dr. Fabio Rocha. We

appreciate all the help during the period of data collection and execution of the works.

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