

Abstract Form

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Project Title:	Case Series of thyrotoxicosis: unique presentations and challenges of Thyroid Storm Management

Research Category (please check one):

<input type="checkbox"/>	Original Research	<input checked="" type="checkbox"/>	Clinical Vignette	<input type="checkbox"/>	Quality Improvement	<input type="checkbox"/>	Medical Education Innovation
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Abstract

Introduction: Hyperthyroidism is defined as inappropriately high production and release of thyroid hormones. The development of symptoms is called thyrotoxicosis while thyroid storm (thyroid crisis) is the acute and life-threatening state of exacerbated hyperthyroidism. The presentation of thyrotoxicosis and thyroid storm is wide and the resultant complications are unpredictable. The mortality of thyroid storm is estimated at 8 to 25% despite modern advancements, early recognition and supportive measures. In this case series, three different patient cases are presented with varied manifestations and outcomes, such as cardiogenic shock, stroke and cardiac arrest as a result of thyrotoxicosis and thyroid storm.

Case Description: A 37 year old Hispanic male with no known medical history who initially presented to the hospital with shortness of breath and abdominal pain, was found to have acute heart failure with ejection fraction (EF) less than 10%. Thyroid studies were significant for thyroid stimulating hormone (TSH) < 0.008 (normal 0.554 - 4.780 mIU/mL), and free thyroxine (T4) > 7.6 (normal 0.9- 1.8 ng/dL). Patient was on mechanical ventilation for acute respiratory failure secondary to acute cardiogenic shock due to thyroid storm and he eventually expired. A 31 year old Korean male with no known medical history presented to hospital with hoarseness of voice and left sided hemiplegia and was found to have a right middle cerebral occlusion. He has no evidence of atrial fibrillation. Labs were significant for TSH < 0.008 and free T4 of 8.5. Patient underwent thrombectomy complicated by post thrombectomy bleeding with acute brainstem neurological change and eventually expired. A 19 year old female with recently diagnosed Grave’s disease, on methimazole therapy presented to the hospital with tachycardia and was found to have acute respiratory infection in face of agranulocytosis. Found to have a TSH level of < 0.017 and free T4 of 4. Patient was started on treatment for thyrotoxicosis, including esmolol drip and the patient subsequently went into cardiac arrest with return of spontaneous circulation (ROSC). Her management was further done with use of lithium as anti thyroid drugs could not be used. Her condition subsequently stabilized and was discharged with consideration of thyroidectomy once more stable.

Discussion: Thyroid storm is a medical emergency with multisystem involvement and carries a high mortality rate. It is important to consider diagnosis of severe thyrotoxicosis in the young population as atypical presentations such as cardiogenic shock, stroke, and even cardiac arrest are possible with no prior history of hyperthyroidism. In this case series, extensive discussion in regards to the cardiovascular and cerebrovascular conditions secondary to thyrotoxicosis and thyroid storm are noted. It is important to identify the factors associated with increased mortality. In our case series, each case had an atypical presentation and had a varied outcome