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**Malignant Ventricular Arrhythmia in a Fatal Thyroid Storm**

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**ANSWER TO JCHS-IQ-02-2020**

**Question 1: B**

**Discussion**

ECG shows monomorphic ventricular tachycardia with a narrower QRS complex (100-140 ms) and shorter RS interval (60-80 ms) than the usual forms of VT. There is atrioventricular dissociation.

Shortly after evaluation in ED, the patient rapidly deteriorated and succumbed following failed attempts at resuscitation. The patient's thyroid function test which returned after her demise were in-keeping with hyperthyroidism and a Burch Wartofsky score calculated post-mortem was highly suggestive of thyroid storm.

Thyroid storm is a rare endocrine emergency that carries a high mortality rate of 10-17%. [1] Tachyarrhythmia is a common presentation of hyperthyroidism and is included in both Burch Wartofsky and Akamizu diagnostic criteria for thyroid storm. It is usually supraventricular in origin and is found in more than ¾ of patients with thyroid storm. [1, 2] Ventricular arrhythmias are uncommon and are usually found in patients with an underlying cardiac disease. [3] The mechanism of ventricular arrhythmias in thyroid storm is unclear although myocardial excitability directly caused by thyroid hormones and possible autoimmune myocarditis have been postulated. [3, 4] In this case, ventricular arrhythmia in the absence of structural heart disease had masked the diagnosis of thyroid storm. This illustrates the importance of considering rare presentations and not limit oneself to common presentations alone when diagnosing diseases as dire as thyroid storm.

A large Japanese study showed that, although cardiovascular disease is the commonest co-morbidity and that cardiopulmonary failure is the main mechanism of death, cardiac manifestations/comorbidities are not significantly associated with mortality in thyroid storm. Rather, old age (>60 years), central neurological dysfunction, delayed treatment with anti-thyroid drugs and beta blockade (as was the case here), and the need for mechanical ventilation strongly predict mortality. [5]

**Learning Points**

- Correct diagnosis and immediate management is crucial in managing life-threatening ventricular tachyarrhythmia.
- Thyroid storm is an endocrine emergency which has good prognosis if treatment is started early.

## Conflict of Interest

Authors declare none.

## REFERENCES

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