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Hypothyroidism Presenting as Recurrent Syncopal Attacks: A Missed Diagnosis

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Abstract Myxedema coma is a severe hypothyroidism which usually occurs due to long-standing, undiagnosed, or untreated hypothyroidism. Fortunately, Myxedema coma is now a rare presentation of hypothyroidism, likely due to earlier diagnosis as most of physicians are familiar with classic signs and symptoms of hypothyroidism and widespread availability of thyroid-stimulating hormone (TSH) assays. However it might be associated with several cardiac arrhythmias including; sinus bradycardia, ventricular tachycardia, and torsade de pointes. We report a case of a 53 year old female who presented with several episodes of syncope that was associated with intermittent torsade de pointes found to have severe hypothyroidism with complete reversal of her symptoms after she was started on thyroid hormonal replacement.

Keywords: *hypothyroidism, torsade de pointes, ventricular arrhythmia, myxedema*

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1. Introduction

Myxedema coma is defined as severe hypothyroidism leading to decreased mental status, hypothermia, and other symptoms related to slowing of function in multiple organs. It is usually resulted from longstanding, undiagnosed or untreated hypothyroidism. It is considered a medical emergency with a high mortality rate.

We present a clinical case of patient who presented with recurrent syncopal episodes that was associated with intermittent torsade de pointes as earliest manifestation of severe hypothyroidism.

2. Case Presentation

A 53 year old female is known case of hypertension, hyperlipidemia, learning disabilities and impulse control disorder. She presented with several episodes of presyncope and syncope of less than 1 min in duration.

On presentation, she was somnolent and lethargic. Initial vitals were; temperature was 36 Celsius, bradycardia in 40s, and blood pressure 100/50. ECG showed sinus bradycardia with bigeminy and prolonged QTc > 600 (Figure 1). Serum (Na, K, Mg) were 131, 4, 2 respectively. After she was admitted, patient had experienced several episodes of syncope. The cardiac monitor and telemetry strips showed episodes of intermittent episodes of torsade de pointes (TDP).

She was given initially on intravenous magnesium sulfate (MgSo4) and later was started on lidocaine infusion for persistence of episodic intermittent torsade de pointes. She denied chest pain or shortness of breathing therefore we started to think about other possible causes of torsade de pointes beside the cardiac ischemia especially her serial Troponin was negative.

Initial serum TSH was 97 uIU/ml (0.35-4.95), free T4 < 0.4 ng/dl (0.7-1.48), and Serum cortisol was < 1.1 ug/dl (4.2-38.7). She was started on IV hydrocortisone and IV levothyroxine with gradual improvement of her clinical status with normalization of QTc with no more syncope episodes and torsade de pointes (Figure 2).

Figure 1. ECG on presentation in ED (left) & Strip rhythm shows TDP (right)

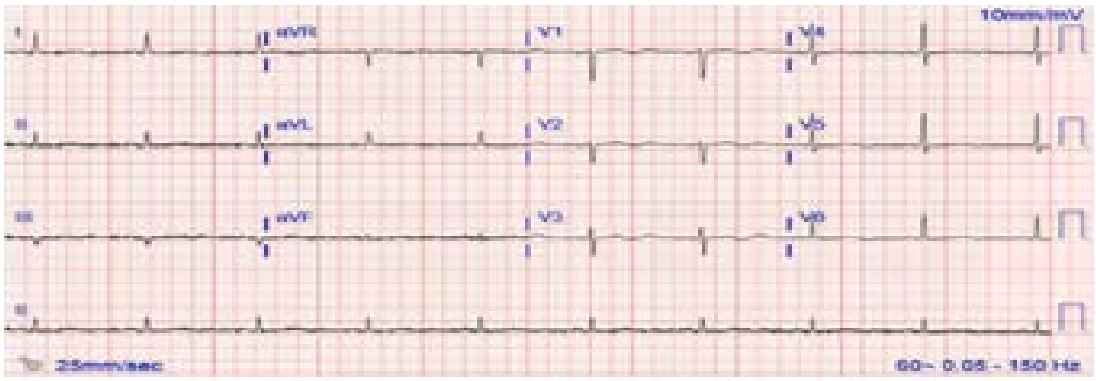

Figure 2. ECG on Discharge with Normalization of QTc

3. Background

Fortunately, Myxedema coma is now a rare presentation of hypothyroidism, likely due to earlier diagnosis as a result of the widespread availability of thyroid-stimulating hormone (TSH) assays [1].

Most patients of myxedema presented with typical features of severe hypothyroidism, however, elderly patients may have non-specific or atypical symptoms therefore physicians should have a high clinical index of suspicion for this fatal condition especially among patients who presented with unexplained cardiopulmonary failure likes unexplained syncope and ventricular arrhythmias [2].

Untreated hypothyroidism has detrimental effects on almost all organs including the heart. It may be associated with a decrease in cardiac output due to decreased myocardial contractility. It can cause cardiac arrhythmias including conduction abnormalities such as sinus bradycardia, ventricular tachycardia, and torsade de pointes [3].

The possible mechanisms that might be responsible for slowing the cardiac electrical conduction and several types of arrhythmias among the patients with hypothyroidism are decreased expression of several cardiac genes that play important role in the cardiac conducting systems [4], decreased function of several enzymes that are involved in calcium current which affects the action potential duration [5], sympathovagal imbalance that might cause increased inhomogeneity of ventricular recovery times [6] and cardiac unresponsiveness to circulating catecholamines as there number of beta adrenergic receptors as result of low serum T3 [7].

4. Conclusion

Besides to the common triggers of polymorphic ventricular tachycardia, torsade de pointes, like acute myocardial ischemia, electrolytes abnormalities and medication side effects, we would like to highlight the importance to rule out other rare but also life threatening conditions like severe hypothyroidism as possible differential diagnosis among patients presenting with syncope with intermittent torsade de pointe.

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