Torsade de pointes as initial presentation of thyrotoxicosis

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A 61 year old female presented with dyspnoea and increasing palpitations on a six month history of episodic palpitations and ‘anxiety attacks’. On presentation, the patient’s exercise tolerance was acutely reduced with new onset bilateral leg swelling. Past medical history was unremarkable and there was no family history of thyroid disease.

On examination, the patient was febrile (38.0°C) and in atrial fibrillation (160bpm). BP was 160/98 mmHg and oxygen saturation 93%. A small, smooth goitre was palpable but no dysthyroid ophthalmopathy identified. Electrocardiography confirmed atrial fibrillation with a fast ventricular response and a prolonged corrected QT interval (513ms). Blood tests showed a mild leucocytosis, elevated alkaline phosphatase and normal potassium (4.7mmol/L) and magnesium (1.02mmol/L) levels. Chest radiography showed bilateral pleural effusions and an enlarged heart consistent with heart failure.

Initial treatment with β-blockers did not achieve the desired cardiac rate control despite repeated doses. Within 12 hours of admission the patient developed a symptomatic polymorphic ventricular tachycardia (Torsade de Pointes) which resolved spontaneously within eleven seconds.

Outstanding thyroid function tests confirmed thyrotoxicosis (FT4 72pmol/L, TSH <0.01mU/L) and trans-thoracic echocardiography showed moderate to severe left ventricular systolic dysfunction. The patient was initially treated for thyroid storm with steroids, propylthiouracil, potassium iodide and β-blockers. This was followed by anti-thyroid treatment with Carbimazole and radioactive iodine two months later. The post-treatment echocardiogram showed a significant improvement in the left ventricular function. No recurrence of a symptomatic arrhythmia has been observed since.

Thyrotoxicosis is commonly associated with cardiac dysrhythmias, however very rarely with torsade de pointes. In this case, this rare occurrence was documented and the polymorphic ventricular tachycardia was treated by correcting the hormonal imbalance promptly. Furthermore this emphasises the importance of cardiac monitoring in patients bordering onto thyroid crisis in order to identify and treat malignant arrhythmias appropriately.