

Apathetic Thyrotoxicosis Presenting with Hemoptysis

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Abstract Introduction: Apathetic thyrotoxicosis is an uncommon manifestation of hyperthyroidism. We report a case of apathetic thyrotoxicosis in an elderly Nigerian woman presenting with hemoptysis. **Case Presentation:** An 85 year old woman with past medical history of hypertension and euthyroid goiter presented with a two-week-history of subjective weight loss, cough, hemoptysis and progressively worsening dyspnea. Examination findings included dyspnea, pallor, goiter, an irregularly irregular pulse, tachypnea, jugular venous distension, a third heart sound and rales in both lung bases. Thyroid function tests revealed elevated free triiodothyronine and free thyroxine with a suppressed thyroid stimulating hormone. Her brain natriuretic peptide was 980pg/L and her electrocardiogram revealed atrial fibrillation with rapid ventricular response. Findings on trans-thoracic echocardiogram included a dilated left atrium, mild concentric left ventricular hypertrophy with grade 1 diastolic dysfunction, but preserved left ventricular systolic function, without any significant valvular abnormalities. A diagnosis of apathetic thyrotoxicosis presenting with heart failure with preserved ejection fraction, precipitated by atrial fibrillation was made and treatment was instituted. The patient reverted to sinus rhythm with resolution of her hemoptysis and heart failure symptoms within one week of admission. **Discussion:** Apathetic thyrotoxicosis is an atypical manifestation of hyperthyroidism more commonly found in the elderly. It presents with cardiac disease, wasting or depression with only a few of the more typical clinical manifestations of thyrotoxicosis. The hemoptysis found in our patient is most likely due to pulmonary edema from left ventricular failure. **Conclusion:** A diagnosis of apathetic thyrotoxicosis should be considered in the elderly patient presenting with heart failure in the absence of the usual risk factors for heart failure. Early recognition and treatment can reduce the morbidity and mortality associated with this condition.

Keywords: *apathetic, atrial fibrillation, hemoptysis, hyperthyroidism, thyrotoxicosis*

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1. Introduction

Apathetic thyrotoxicosis is an uncommon manifestation of hyperthyroidism, characterized by apathy and depression in contrast to the excitability and hyperkinesis of hyperthyroidism. Only one case of apathetic thyrotoxicosis presenting with hemoptysis has been reported in the literature [1].

2. Objective

To report a case of apathetic thyrotoxicosis in an elderly Nigerian woman presenting to the emergency department of a tertiary hospital in Lagos with hemoptysis.

3. Case Presentation

An 85 year old woman with past medical history of hypertension and euthyroid goiter presented with a two-week-history of subjective weight loss, cough, hemoptysis and progressively worsening dyspnea, associated with a two-pillow orthopnea, but no paroxysmal nocturnal

dyspnea or ankle swelling. Hemoptysis was described as pink, frothy and scant, with no history of sick contacts, night sweats, and prior history of hemoptysis or of tuberculosis. Examination findings included dyspnea, pallor, a goiter, an irregularly irregular pulse with a heart rate of 106 beats per minute, blood pressure of 126/80mmHg and normal temperature. Other findings were tachypnea (respiratory rate 36 cycles per minute), jugular venous distension, displaced point of maximal apical impulse, a third heart sound, rales in both lung bases and a tender hepatomegaly. Her skin was dry, but there was no pretibial myxedema, proptosis, lid lag, lid retraction, ophthalmoplegia or tremors.

Thyroid function tests revealed free T3 of 6.2pmol/L (reference range 3.8-6.0), free T4 of 23.9pmol/L (reference range 7.2-16.4) and thyroid stimulating hormone (TSH) of 0.10 mIU/L (reference range 0.37-3.50). Anti-thyroglobulin and anti-thyroid peroxidase antibodies were both positive. Her brain natriuretic peptide (BNP) was 980ng/L and her electrocardiogram revealed atrial fibrillation with rapid ventricular response (rate of 112 beats per minute). Chest X ray findings were cardiomegaly, unfolded aorta and features of pulmonary edema. Findings on trans-thoracic echocardiogram included a dilated left atrium, mild concentric left ventricular hypertrophy with grade 1

diastolic dysfunction, but preserved left ventricular systolic function, without any significant valvular abnormalities. Complete blood count, sputum gram stain, culture, smear for acid fast bacilli, coagulation profile, chemistry and upper gastrointestinal endoscopy revealed no abnormalities. Thyroid ultrasound revealed an enlarged right lobe with homogenous echotexture and absence of pressure effect

A diagnosis of apathetic thyrotoxicosis presenting with heart failure with preserved ejection fraction, precipitated by atrial fibrillation was made. Intravenous furosemide was commenced, together with digoxin, carvedilol, lisinopril, carbimazole and low molecular weight heparin. The patient reverted to sinus rhythm with resolution of her hemoptysis and heart failure symptoms within one week of admission. She was discharged and she is currently being followed up at the endocrinology and cardiology clinics. During out-patient follow-up, available options for definitive therapy for her hyperthyroidism were discussed, including the risks and benefits of each of radioactive iodine and thyroidectomy. However, after discussion with the patient and her family, definitive treatment for hyperthyroidism was refused due to advanced age.

4. Discussion

Apathetic thyrotoxicosis is an atypical manifestation of hyperthyroidism more commonly found in the elderly. It presents with cardiac disease, wasting or depression, rather than having hyperactivity, tremor, and other symptoms of sympathetic overactivity usually found in patients with thyrotoxicosis [2]. Even though hyperthyroidism in elderly patients may be apathetic, two thirds of such patients have symptoms similar to those in younger patients [3]. In cross-sectional studies of patients with hyperthyroidism, older patients were found to be less likely to have several classical symptoms (such as, heat intolerance, tremor, nervousness) but were more likely to present with weight loss and shortness of breath compared with younger patients [3,4]. Older patients also had a higher rate of atrial fibrillation and moderate to severe ophthalmopathy [4].

The patient presented with hemoptysis and had symptoms referable to the respiratory and cardiovascular system, without the typical symptoms of thyrotoxicosis. The Conditions considered initially in the differential diagnosis were pneumonia, tuberculosis, malignancy, heart failure and pulmonary embolism. However, the presence of pulmonary edema, jugular venous distension, cardiomegaly, a third heart sound, rales, tender hepatomegaly and elevated BNP made heart failure the most likely diagnosis. The finding of new onset atrial fibrillation in a patient with goiter and thyroid bruit, focused attention upon the thyroid gland as the etiology of this patient's illness. Thyroid function test result was consistent with hyperthyroidism, which was treated with carbimazole and a beta-adrenoceptor blocking agent. Digoxin was added for ventricular rate control for atrial fibrillation, in addition to an angiotensin converting enzyme inhibitor and diuretic for heart failure.

The effect of hyperthyroidism on the heart is mediated via adrenergic effects with increased chronotropic and inotropic stimulation. These adrenergic effects may lead to supraventricular arrhythmias including paroxysmal atrial tachycardia, atrial fibrillation, and atrial flutter. Among

these arrhythmias, atrial fibrillation is the most common, occurring in 5 to 15 percent of patients, especially patients ≥ 60 years of age [5,6,7]. Approximately 55 to 75 percent of patients with atrial fibrillation due to hyperthyroidism and no other underlying cardiac valvular disease will return to sinus rhythm within three to six months after treatment of the thyrotoxic state [8].

Atrial fibrillation in patients with hyperthyroidism is a frequent trigger of heart failure. In one study of hyperthyroid patients with average age 66 years, only 6 percent of the patients had heart failure. Of the patients with heart failure, 94 percent had coexistent atrial fibrillation [9]. As was seen in this case, the signs and symptoms of heart failure resolve when the ventricular rate is slowed, normal sinus rhythm is restored, and the patients are rendered euthyroid [9,10,11].

The earlier case published by Leon-Sotomayor, L and colleagues described a 21 year old woman who presented with hemoptysis, epistaxis and menometrorrhagia with unclear cause of bleeding. The hemoptysis in this 85 year old presented here is most likely due to pulmonary edema from left heart failure precipitated by atrial fibrillation. Following treatment of hyperthyroidism and restoration of sinus rhythm, the hemoptysis, together with the symptoms of heart failure completely resolved.

5. Conclusion

A diagnosis of apathetic thyrotoxicosis should be considered in the elderly patient presenting with heart failure in the absence of the usual risk factors for heart failure. Early recognition and treatment can reduce the morbidity and mortality associated with this condition.

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