



Letter to the Editor

Recurrent acute pulmonary embolism and paroxysmal atrial fibrillation associated with subclinical hyperthyroidism

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Abstract

Subclinical hyperthyroidism is an increasingly recognized entity that is defined as a normal serum free thyroxine and free triiodothyronine levels with a thyroid-stimulating hormone level suppressed below the normal range and usually undetectable. It has been reported that subclinical hyperthyroidism is not associated with coronary heart disease or mortality from cardiovascular causes but it is sufficient to induce arrhythmias including atrial fibrillation and atrial flutter. It has also been reported that increased factor X activity in patients with subclinical hyperthyroidism represents a potential hypercoagulable state. Elevated D-dimer levels have been reported in acute pulmonary embolism and it has also been reported that right ventricular overload and hypoxia in acute pulmonary embolism may lead to right ventricular myocardium injury reflected by elevated cardiac troponin levels too. We present a case of recurrent pulmonary embolism associated with subclinical hyperthyroidism, in an 81-year-old Italian woman. Also this case focuses attention on the importance of a correct evaluation of subclinical hyperthyroidism.

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1. Case report

Subclinical hyperthyroidism is an increasingly recognized entity that is defined as a normal serum free thyroxine and free triiodothyronine levels with a thyroid-stimulating hormone level suppressed below the normal range and usually undetectable [1]. It has been reported that subclinical hyperthyroidism is not associated with coronary heart disease or mortality from cardiovascular causes [2] but it is sufficient to induce arrhythmias [1] including atrial fibrillation [3,4] and atrial flutter [5]. It has also been reported that increased factor X activity in patients with subclinical hyperthyroidism represents a potential hypercoagulable state [6]. Elevated D-dimer levels have been reported in acute

pulmonary embolism and it has also been reported that right ventricular overload and hypoxia in acute pulmonary embolism may lead to right ventricular myocardium injury



Fig. 1. Echocardiographic evaluation of right ventricle.

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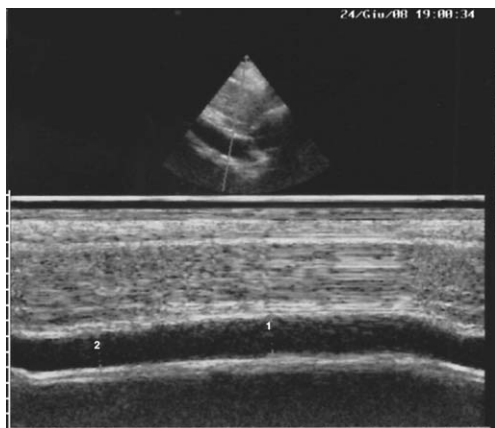


Fig. 2. Reduced respiratory variability of inferior vena cava.

reflected by elevated cardiac troponin levels too [7]. We present a case of recurrent pulmonary embolism associated with subclinical hyperthyroidism, in an 81-year-old Italian woman. On June 24, 2008, an 81-year-old Italian woman was admitted to the Cardiology Unit complaining of dyspnea and weakness. A history of acute pulmonary embolism occurred on February 2008 with elevated D-dimer levels and elevated Troponin I levels, a history of paroxysmal atrial fibrillation, and a history of arterial hypertension in treatment were present. Blood pressure values were 130/70 mm Hg, the heart rate was 96 bpm, the oxygen saturation was 87% on room air (the saturation increased to 97% on 8 l/min of oxygen via a facial mask). Echocardiographic evaluation revealed a biatrial dilatation, a reduction of ejection fraction of right ventricle with hypokinesia in the lateral wall of the right ventricle, (Fig. 1) a mild interventricular septal hypertrophy, an atherosclerosis, a mild mitral regurgitation, a mild tricuspid regurgitation, a pulmonary artery systolic pressure of 40 mm Hg, a mobile atrial septal aneurysm, and a reduced respiratory variability of inferior vena cava (Fig. 2). No pericardial effusion was observed. Troponin I was 0.14 (normal value 0.00–0.15 ng/ml), D-dimer levels were 851 µg/l (normal value 63–246), white blood cell count was 12,100 µ/L, and neutrophil count was 9,920 µ/L.

Thyroglobulin autoantibodies were 2.70 U/ml (normal value 0–4.11), antithyroid peroxidase antibodies were 1.11 U/ml (normal value 0–5.61), thyroid-stimulating-hormone was 0.046 µU/ml (normal value 0.350–4.940), free triiodothyronine was 2.28 pg/ml (normal value 1.71–3.71), and free thyroxine was 1.36 ng/dl (normal value 0.71–1.85). The patient was treated and D-dimer levels were 682 µg/l (normal value 63–246) on June 25, 2008 at 03.43 a.m., 488 µg/l at 01.39 p.m. and 237 µg/l on June 28, 2008. Also this case focuses attention on the importance of a correct evaluation of subclinical hyperthyroidism.

Acknowledgement

The authors of this manuscript have certified that they comply with the Principles of Ethical Publishing in the International Journal of Cardiology [8].

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