CASE REPORT

Pancytopenia in a Patient with Grave's Disease

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SUMMARY

Pancytopenia can rarely complicate Grave's disease. It can be due to uncontrolled thyrotoxicosis or as a result of rare side effect of antithyroid medication. Pernicious anemia leading to Vitamin B12 deficiency is another rare associated cause. We report a case of a patient with Grave's disease and undiagnosed pernicious anemia whom was assumed to have antithyroid drug induced pancytopenia. Failure to recognize this rare association of pernicious anemia as a cause of pancytopenia had resulted in delay in treatment and neurological complication in our patient.

KEY WORDS:

Grave's disease, Pancytopenia, Pernicious Anemia, Vitamin B12 deficiency, Neurological complication

CASE REPORT

A 48 year-old gentleman with long standing Grave's disease presented with giddiness, lethargy and reduced effort tolerance for 3 weeks. Apart from carbimazole 10mg and propranolol 20mg twice daily, he was not on any other medication. He was a chronic smoker of 10 pack years and social alcohol drinker. He had no other medical illnesses. On examination, he was pale, but not jaundiced. He had mild exophthalmos and a small diffuse goiter but was clinically euthyroid. There was no hepatosplenomegaly. Examination of the cardiovascular and respiratory systems yielded no abnormalities.

Full blood count showed pancytopenia, with normochromic normocytic anemia [hemoglobin of 8.7g/dL, MCV 87.2fL, MCHC 34.4q/L], total white count of 3,200/uL (Neutrophil count 1,160/uL), and platelet counts of 48,000/uL. Reticulocyte count was 0.87%. Peripheral blood film showed microcytic normochromic red blood cells with anisocytosis, macrocytes and tear drop cells. There was no nucleated red blood cell. There was leucopenia with hypersegmented neutrophils but no blast cells, platelet clumping or giant platelet. Thyroid function and liver function tests were within normal limits except for elevated total bilirubin at 28umol/L with predominantly indirect bilirubinaemia. Coomb's tests were negative for both direct and indirect anti-human globulin tests. Iron studies showed no feature of iron deficiency.

He was transfused with 3 pints of packed cells and was treated as carbimazole-induced pancytopenia. The anti-thyroid medication was ceased and he received radioactive iodine treatment for his thyrotoxicosis. He was then started on L-thyroxine replacement when he developed hypothyroidism.

He presented 11 months later with one month history of progressive difficulty in walking. On neurological examination, there were no muscle wasting. His tone and power were normal. Reflexes were normal in his upper limbs but absent in his lower limbs. He was severely ataxic on his feet with loss of proprioception and vibration in his lower limbs but intact sensation to pin prick and light touch. There were no other signs of cerebellar syndrome, such as dysdiadokokinesia, dysmetria and nystagmus. Other examination was unremarkable except for presence of atrophic glossitis.

Full blood count again showed pancytopenia (hemoglobin 8.7g/dL, total white count 3,300/uL, platelet 69,000/uL) with peripheral blood film showing many hypersegmented neutrophils consisting of 23% of the blood film. Lactate dehydrogenase level was raised at 2420u/L (normal 140-180u/L). Thyroid function, renal function and liver function tests were otherwise normal.

A diagnosis of megaloblastic anemia secondary to Vitamin B12 deficiency was made and confirmed by low B12 level of 107pg/mL (normal 211-911pg/mL) with normal folate level 10.5ng/mL (normal >2.8ng/mL). Dietary history excluded nutritional deficiency or alcohol abuse. Oesophagoduodenoscopy showed atrophic gastritis with small pre pyloric ulcer.

He was started on intramuscular cyanocobalamin at therapeutic dose with dramatic resolution of his neurological impairment. One day after starting treatment, he could ambulate with support and four days later he could ambulate independently. Subsequent investigation revealed positive intrinsic factor antibody supporting the diagnosis of pernicious anemia as the underlying cause of his vitamin B12 deficiency.

DISCUSSION

Pancytopenia can complicate Grave's disease and it can be due to different aetiologies. First of all, untreated thyrotoxicosis itself has been associated with pancytopenia, which usually resolves after treatment of thyrotoxicosis[1]. Low Boon-Hua reported 17 patients with hyperthyroidism associated with pancytopenia from year 1981 till 2008 and found that all of them had resolved blood counts when they

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