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Case Report

Polyglandular Auto-immune Syndrome with Myasthenia Gravis

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Abstract

Individual autoimmune disease is frequently encountered in day to day practice. But polyglandular auto-immune (PGA) syndromes are rare. They are characterized by immune dysfunction affecting two or more endocrine glands as well as certain non-endocrine organs. Coexistence of Graves' disease and Vitiligo fulfill the criteria of PGA type 3. Association of the above two with Myasthenia Gravis is extremely rare. We are reporting a case of 36 years old male having Myasthenia Gravis, Graves' disease with Vitiligo.

Key words: *Polyglandular auto-immune syndromes, Myasthenia gravis, Graves' disease, Vitiligo*

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Introduction

Polyglandular auto-immune (PGA) syndromes are rare entity. They are characterized by immune dysfunction affecting two or more endocrine glands as well as certain non-endocrine organs. The PGA syndromes are classified in to four types: PGA Type 1 , PGA Type 2, PGA Type 3 and PGA Type 4.[2] PGA Type 1, also called autoimmune polyendocrinopathy candidiasis-ectodermaldysplasia (APECED), requires at least two of chronic mucocutaneous candidiasis, hypopara-thyroidism and autoimmune adrenal insufficiency (Addison's disease) for diagnosis. PGA Type 1 is usually recognized in the first decade of life, shows autosomal recessive inheritance and may be associated with other endocrine defects like hypogonadism, hypothyroidism, type I diabetes mellitus (DM), dental enamel hypoplasia, nail dystrophy etc. PGA Type 2, also known as Schmidt's syndrome is polygenic and usually presents in adulthood. The relatively common member diseases of PGA Type 2 are Addison's disease, autoimmune hypothyroidism, Graves' disease (GD) and Type I DM. Other autoimmune disorders like myasthenia gravis (MG), primary hypogonadism, vitiligo, alopecia and coeliac disease can also be associated.[1] In PGA type 2, presence of Addison's disease should always be present. When two or more members of PGA type 2 disorders are present in absence of Addison's disease, the association is classified as PGA type 3. The combination of two or more organ specific autoimmune diseases which do not fit into above mentioned types is classified as PGA type 4.[2] Epidemiological studies show that Autoimmune thyroid disorders (AITD) including GD and Hashimoto's thyroiditis occur in approximately 5-10% of patients with MG, while MG is reported in only 0.2% of patients with AITD. [3] MG, GD and Vitiligo are auto-immune diseases and the coexistence of these three diseases is extremely rare. In this study, we report a case having Myasthenia Gravis, Graves' disease with Vitiligo.

Case Report

A 36 year old married male, normotensive, non diabetic, farmer hailing from a village of Sirajganj, presented with easy fatigability and bilateral drooping of upper eyelids with diurnal variation, more marked at evening for last 7 years. He had excessive sweating, heat intolerance and weight loss of about 10 kg over past 2 years. There is no history of fever, cough, shortness of breath, change in complexion, joint pain or swelling. His appetite and bowel and bladder habits were normal.

Figure 1: The photo shows expressionless facies with bilateral ptosis and wrinkling over forehead

Physically the patient was conscious & oriented. Bilateral symmetrical ptosis, expressionless facies with over wrinkling of forehead, diffuse goiter and fine hand tremor were noted (Figure 1). Vitiligo was present in both palms and soles. Pulse rate was 110 beats/minute (regular), Blood pressure 125/80 mm Hg without postural drop. He was thin but anaemia, icterus, cyanosis and lymphadenopathy were absent. Ocular examination revealed bilateral ptosis, mild exophthalmos and equal pupils with normal response to light and accommodation. Motor examination revealed normal muscle tone and reflexes, muscle power 4/5 and positive fatigability tests viz. Counting test, Peek test and Ice on eyes test. All the investigations including blood counts and ESR, routine urine and biochemical results were normal except suppressed TSH (0.03 μIU/mL), elevated Free T_4 (18.53ng/dL) and Free T_3 (40.00 pg/mL). Radioactive iodine uptake were 15% at 2 hours, 70% at 24 hours and 20% at 48 hours. Repetitive nerve stimulation as well as single fiber electromyography, antiacetylcholinereseptor antibody, chest CT scan & MRI of brain and orbits could not be done for financial constraints.

With suggestive clinical features and available laboratory evidences, MG with GD and vitiligo were diagnosed that fulfill the criteria of PGA. Pyridostigmine 60 mg 3 times daily was started and observable improvement of ptosis was noted in the first week. Carbimazole 15 mg 3 times daily was added after 7 days. Patient was followed up again after 4 weeks and substantial improvement of tachycardia, tremor, ptosis and muscle power were observed. Ethical clearance had been taken form Institutional ethical committee and the subject had given informed consent for publication purpose.

Discussion

The prevalence of type 2 PGA is 1:20.000. Although it appears at any age, it is more common between the ages 30 and 40 and in females.[2, 3] PGA type 2 and 3 diseases are associated with HLADR3 and/or DR4 haplotype and shows polygenic inheritance.[5,6] Adrenal insufficiency is expected in all patients with type 2 PGA, whereas autoimmune thyroid disease (AITD) is expected in 69-82% and type 1 DM in 30-52%.[4] The most common

combinations are type 1 DM with autoimmune thyroid disease (41%), autoimmune thyroid disease with Addison disease (14.6%), type 1 DM with vitiligo (9.9%) and Type 1DM with Addison disease (3.3%).[7] Many of the endocrine disorders of PGA are adequately managed with hormonal replacement therapy if recognized early. The therapies regarding the different components of PGA are similar whether they occur as single or in multiple associations with other autoimmune diseases. PGAs are rare entities and all are more common among females.[8] In our case the clinical features were favourable to consider to diagnose as rarer PGA type 3 rather than PGA type 2. Vitiligo was easily recognized but proximal muscle weakness and easy fatigability are common both in GD and MG which could lead to failure of recognition of either. The presence of ptosis and diurnal variation gave us the clue to recognize MG in addition to GD.

Conclusion

Polyglandular auto-immune syndromes (PGAs) are various associations of organ specific endocrine and non-endocrine disorder having wide clinical spectrum. Due to its inclusion of a large group of diseases, it is important to evaluate the clinical and laboratory parameters of patients. This case report emphasizes on the need of high index of suspicion of coexisting Myasthenia Gravis in patients with both signs of thyroid eye disease, ptosis and vitiligo. The report also shows that it is still possible to diagnose the presence of Myasthenia Gravis indirectly using ice pack test in limited resource centers (even though it may not be confirmatory). Our case is a good reminder that the clinical features of autoimmune diseases can overlap. The presence of one autoimmune disease should require a detailed investigation for other autoimmune diseases. Also, it should be remembered that ptosis is not only expected symptom in MG. If ptosis or paresis of the orbicularis oculi muscle develops in a patient with MG, incidence of AITD should be considered.

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