

CASE REPORT

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A case of myasthenia gravis accompanied with hasimoto thyroiditis and familial mediterranean fever

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Abstract

Familial mediterranean fever (FMF), Hashimoto's thyroiditis (HT) ve Myasthenia gravis (MG) are chronic diseases that show autoimmunity. Literature reviews indicate several cases of coexisting MG and HT and only one case coexistence of MG and FMF. We present a clinical table of a 21-year-old male patient with all three diseases. The patient admitted to the hospital with limited eye movements, difficulty in swallowing which became evident towards the end of a meal. The patient had a history of FMF. The anti-TPO and anti-TG levels of the patient had increased. The ACh Receptor antibody was in the normal range (0.01), and the anti-MuSK value was high (>12). Single fiber EMG results of the patient were compatible with myasthenia gravis. The methylprednisolone and pyridostigmine treatment led to an almost complete improvement of the symptoms. As the patient had three different autoimmune disorders at once, it was thought to be a notable case worth presenting.

Keywords: Myasthenia gravis, hashimoto thyroiditis, familial mediterranean fever

Introduction

Myasthenia gravis (MG) is a chronic neuromuscular disease with a reported annual incidence of 0.25-2.00 per 100,000 population. Autoinflammation is considered to play a role in the etiology of MG [1]. Familial Mediterranean fever (FMF) is an autosomal recessive disorder characterized by recurrent attacks of fever and polyserositis (peritonitis, pleuritis, arthritis) [2]. Hashimoto's thyroiditis (HT) is a thyroid disease of autoimmune origin resulting from autoimmune destruction of the thyroid gland by cellular and humoral immune mechanisms [3]. Coexistence of MG with other autoimmune diseases has been shown in the literature [4]. Moreover, the autoimmune nature of FMF, HT, and MG implicates that coexistence of these diseases is highly likely. In this report we present a case of coexisting FMF, HT, and MG.

Case Report

The 21-year-old male patient presented with a 6-month history of bilateral ptosis that became prominent within a short time after wake-up in the morning and was accompanied by diplopia. Patient history revealed that the patient received a diagnosis of FMF 6

years earlier, suffered from dysphagia that became prominent particularly at the end of meals for the last 5 months, and noticed eye-movement restriction about 2.5 months earlier. Family history revealed that the father of the patient was an FMF carrier. The patient was on regular treatment with colchicine 2x0,5 mg/day. Physical examination was normal. Neurological examination showed marked bilateral ptosis that was more prominent in the right and also revealed that the left eye could partially move down and was restricted in all other directions while the right eye could partially move inward and down and was restricted in all other directions. The neurological examination was otherwise normal. Hormone tests indicated high levels of anti-thyroid peroxidase (anti-TPO) (582.4) and anti thyroglobulin (anti-TG) (1420.5) antibodies, thyroid function test results were normal, and anti-acetylcholine receptor antibody (AChR-Ab) (0.01) was detected. Cranial magnetic resonance imaging (MRI) was normal except for extra-axial arachnoid cyst in size 25 mm in the left temporal lobe. A chest computed tomography (CT) showed a nodular thymic lesion approximately 8 mm in the anterior mediastinum. Single-fiber electromyography (SFEMG) was consistent with MG. After the initiation of pyridostigmine and prednol, a significant improvement was achieved in the eye symptoms and functions. The patient had a high level of anti-muscle specific kinase antibody (anti-MuSK-Ab) (<12).

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Discussion

Myasthenia gravis (MG) typically occurs as a result of the disruption of neuromuscular transmission caused by the antibodies developing against the acetylcholine receptors, characterized by muscle weakness that worsens on exertion. A high level of anti-AChR-Ab is evident in 85% and the anti-MuSK-Ab is positive in 4-6% of the patients with generalized MG. However, no elevation of antibodies may be seen in 10-15% of the patients [5].

Familial Mediterranean fever (FMF) is a genetic multisystem disease characterized by recurrent attacks of fever accompanied by symptoms of abdominal pain, chest pain, joint pain and/or skin rashes [6]. FMF is also an autosomal recessive disorder caused by the heterozygous mutation in the MEFV gene localized on the short arm of chromosome 16. The MEFV gene encodes a protein known as pyrin, which is an inhibitor of the chemotactic factor, interleukin (IL)-8 and suppressor T cells. Numerous studies have shown that FMF can be accompanied by autoimmune diseases such as multiple sclerosis, Behçet's disease, and polyarteritis nodosa [6].

Hashimoto's thyroiditis (HT) is the most common form of autoimmune thyroid disease. Literature indicates that the levels of T cells that produce interferon gamma (IFN γ) and tumor necrosis factor (TNF)-alpha (TNF- α) tend to be higher in individuals with high levels of anti-TPO antibody [7]. Moreover, the possibility of the coexistence of MG with thyroid autoimmunity has been reported to be 10-20% [4]. Clinical manifestations of MG often emerge within 2 years of the onset of autoimmune diseases, mostly in the form of ocular or generalized MG [8].

Literature reviews indicate that the first cases of coexisting MG and HT were reported by Daly, Jackson and Simpson in 1964 [9]. In 1966, Singer et al. presented a case of coexisting HT, MG, and pernicious anemia [10].

Kanawaza et al. showed that the incidence of autoimmune diseases such as Grave's disease and HT was higher in patients with MG compared to the general population [11]. A similar finding was also presented by a population-based study in Poland that was conducted with 343 patients with MG [12]. Another study that was conducted in Japan reported that the incidence of autoimmune diseases was higher in patients with AChR-Ab-positive patients compared to anti-MuSK-Ab-positive patients [13]. However, Toth et al. found no significant difference between the patients with seropositive MG and those with seronegative MG with regard to the incidence of autoimmune thyroid diseases [14]. As consistent with the finding reported by Toth et al., our patient was a case of coexisting seronegative MG and HT. Kubiszewska et al. showed that the presence of thymoma in MG is related to higher risk of non-autoimmune thyroid diseases [12]. In our patient, however, thymoma was coexisting with HT.

To our knowledge, coexistence of MG and FMF has been reported in only one case in the literature, who was also accompanied by Morvan's syndrome [15]. The case presented in this study is worth

noting since he had coexistence of FMF with autoimmune diseases, i.e. MG and HT. Moreover, although there have been several cases of coexisting HT and MG in the literature, this is the first case to be reported with HT and MG coexisting with FMF.

Conclusion

In conclusion, coexistence of FMF, HT, and MG in the present case implicates a possible link between auto-inflammation- and auto-antibody-mediated diseases.

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