An important initial diagnosis of a patient with Graves’ disease associated with myasthenia gravis, thyroid carcinoma and thymoma

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Abstract

Introduction
Graves’ disease and myasthenia gravis are both autoimmune diseases. These diseases rarely coexist. The following report details an extremely uncommon case of a woman with Graves’ disease accompanied by myasthenia gravis, thyroid carcinoma and thymoma.

Methods
A 62-year-old woman was diagnosed with Graves’ disease and was treated for three years before being referred to our hospital. The woman experienced ptosis and difficulty in swallowing and speaking.

Results
The patient was diagnosed with myasthenia gravis. Thymoma and thyroid carcinoma were simultaneously discovered. After being treated for Graves’ disease and myasthenia gravis, the patient underwent a total thyroidectomy. The patient’s post-operative course was uneventful, and it was decided that thymectomy should be performed as a two-stage operation. Patients with Graves’ disease may simultaneously have thyroid carcinoma, thymic disease or autoimmune disease.

Conclusion
If a patient is diagnosed with Graves’ disease, it is important to check for thyroid carcinoma, mediastinal disease and other autoimmune diseases at the same time.

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Figure 1: CT of the neck and mediastinum. CT indicates primary thyroid cancers in both lobes (a). CT indicates a tumor anterior to the heart with no invasion to the neighbouring organs (b and c). Arrows indicate carcinomas.

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Case report (Cont.)

ng/mL). Thyroid-stimulating hormone receptor antibody (TRAb) was 6.8 IU/L (normal range, <2.0 IU/L). The electrocardiogram (ECG) showed atrial fibrillation. An ultrasonographic imaging of the thyroid demonstrated two calcified thyroid nodules in both lobes (Figure 2). Fine-needle aspiration biopsy with ultrasonographic guidance revealed papillary thyroid carcinoma. The diagnosis of MG (Osserman grade IIb) was also established on the basis of abnormal fatigability and muscular weakness, which transiently improved after intravenous administration of edrophonium chloride (Tensilon). Antiacetylcholine receptor antibody was as high as 40 nmol/L (normal range, <0.2 nmol/L). A CT of the chest indicated a mass anterior to the heart with no invasion to the neighbouring organs, which was diagnosed as thymoma (Masaoka stage I) (Figure 1). After Graves’ disease and MG were controlled by medication, the patient underwent total thyroidectomy with neck dissection. The thyroid gland had multiple intrathyroidal metastases, and the thyroid’s weight was calculated to be 47 g. Tumours in both lobes were pathologically found to be papillary carcinomas, and no lymph node metastasis was identified (Figure 3). A hyperplastic lesion of the thyroid was also found. The patient’s post-operative course was uneventful. It was decided that the patient should undergo thymectomy as a two-stage operation.

Discussion

The frequency of Graves’ disease accompanying thyroid carcinoma has been reported to be relatively high. It was reported that the incidence of thyroid carcinoma associated with Graves’ disease is 2.6%–4.3% in Japan\(^1\)\(^2\), whereas the incidence of thyroid carcinoma associated with Graves’ disease was reported to be as high as 9.8%–25% in Europe\(^3\)\(^4\). A number of studies have strongly recommended more

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Figure 2: Ultrasonographic findings. An ultrasonography of the thyroid demonstrates two calcified thyroid nodules in both lobes (a, right lobe; b, left lobe). FNAB with ultrasonographic guidance revealed papillary thyroid carcinoma (c).

Figure 3: Pathological findings demonstrate well-differentiated papillary thyroid carcinoma. (a) Low-power magnification. (b) High-power magnification.

diagnosed with generalised MG with concurrent thymoma. Thyroid disease and thymic disease are strongly associated and often

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Discussion (Cont.)

of 7 cancer cases\textsuperscript{13}. Some reports have referred to the concurrence of MG and thyroid carcinoma. Verdy et al. noted that thyroid carcinoma was found in 2 of 17 patients with MG treated by thymectomy\textsuperscript{14}. Our patient had already suffered from breast cancer and thyroid cancer.

These reports highlight that thyroid disease, thymic disease and autoimmune disease are strongly associated and they often develop simultaneously. However, the concurrence of Graves’ disease accompanied by MG, thymoma and thyroid carcinoma is very rare. In our patient, the thyroid carcinoma had not been detected until the MG symptoms appeared more than three years later. For early detection of thyroid carcinoma, thymic disease and other autoimmune diseases, it is necessary for physicians to carefully check for thyroid, mediastinal disease and other autoimmune diseases during the initial treatment of Graves’ disease.

Conclusion

We presented a rare case of a patient with Graves’ disease, MG, thymoma and thyroid papillary carcinoma. Patients with Graves’ disease sometimes have thyroid carcinoma, thymic disease and autoimmune disease simultaneously. It is important to check for mediastinal disease and other autoimmune diseases when we make a diagnosis or follow up Graves’ disease.

Consent

Written informed consent was obtained from the patient for publication of this case report and any accompanying images.

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References


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