Journal of the ASEAN Federation of Endocrine Societies

IMAGES IN ENDOCRINOLOGY

Thymic Hyperplasia-Associated Myasthenia Gravis in the Setting of Coexisting Graves' Disease

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Key words: thymic hyperplasia, myasthenia gravis, Graves' disease

Thymic hyperplasia secondary to Graves' disease (GD) is a well-recognized entity.[1] Still, other causes of thymic hyperplasia in the presence of euthyroidism, especially the occurrence of massive thymic hyperplasia, should be investigated.[2] The clinical features of myasthenia gravis (MG) and thyroid eye disease (TED) may be similar, while thymic hyperplasia may occur in both conditions. Herein, we report an interesting case of the coexistence of severe TED and MG.

A 40-year-old Thai female diagnosed with severe TED requiring orbital decompression and intravenous methylprednisolone presented with left eye ptosis and chewing weakness for one month. Physical examination showed bilateral proptosis (19 mm in right eye, 21 mm in left eye) with eyelid retraction, erythema and edema of the eyelids and left eye ptosis. She denied limb muscle weakness, hoarse voice, or difficulty breathing. Her previous history included hypothyroidism after thyroidectomy for GD 18

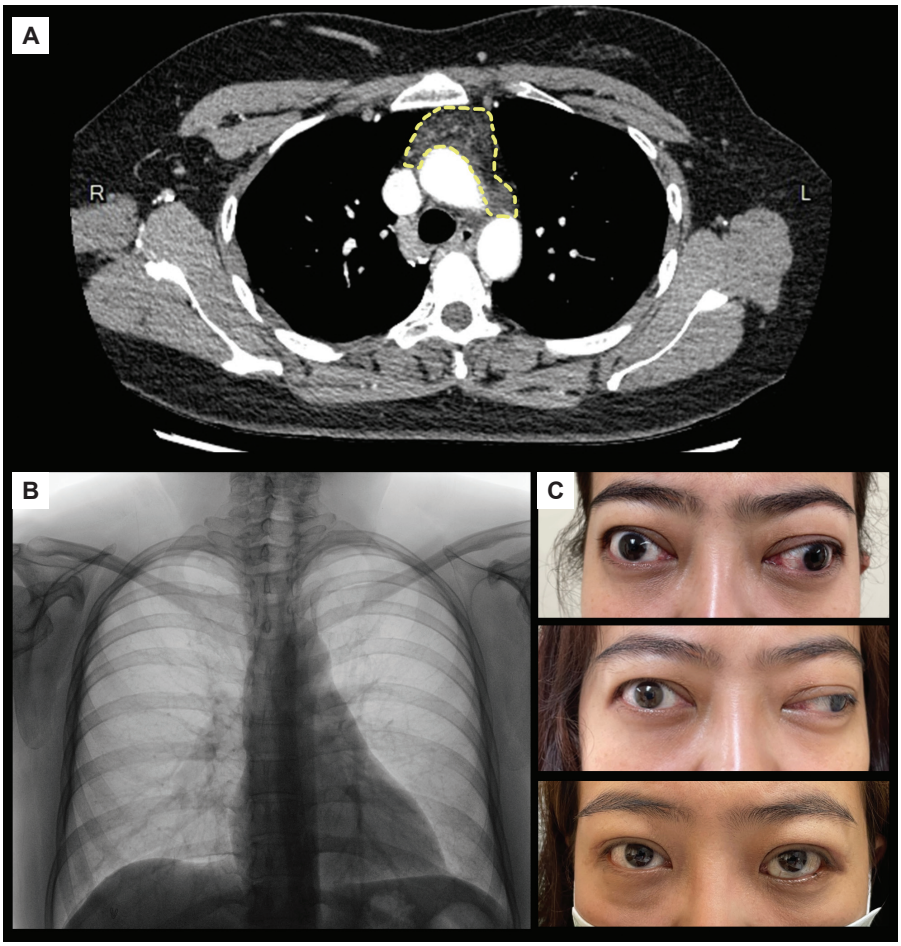

Figure 1. (A) Computed tomography images demonstrated a 10 × 9 × 1.6 cm thymic enlargement (thymic hyperplasia outline as shown in Figure 1A). **(B)** Chest X-ray at the time of thyroidectomy revealed no widening mediastinum (the brightness of the image is adjusted to enhance visibility). **(C)** Clinical course of severe thyroid eye disease from the initial presentation (18 months prior to the diagnosis of myasthenia gravis) which demonstrated inflamed bulging of both eyes and strabismus at left eye, new-onset left eye ptosis at the time of myasthenia gravis diagnosis, and after multiple surgical procedures including decompression surgery followed by strabismus surgeries.

eISSN 2308-118x (Online)
Printed in the Philippines

Received: November 19, 2024. Accepted: December 15, 2024.
Published online first: September 23, 2025.
https://doi.org/10.15605/jafes.040.02.04

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months earlier. At the initial diagnosis of GD, laboratory tests were notable for highly elevated serum thyrotropin receptor antibody (TRAb) at 14.5 U/L (normal range <1.75 U/L). Anti-acetylcholine receptor antibody was positive, confirming the diagnosis of MG. A chest computed tomography scan showed a 10 × 9 × 1.6 cm thymic enlargement with a well-demarcated margin and mild homogeneous enhancement. The patient was euthyroid at the time, on LT4 replacement for surgical hypothyroidism. Serum TRAb was decreased at 1.39 U/L. There was no mediastinal widening on the previous chest X-ray (CXR) at the time of thyroidectomy. The patient underwent video-assisted thoracoscopic thymectomy. The pathologic results revealed non-neoplastic thymic tissue with focal thymic epithelial hyperplasia. One year after thymectomy, her symptoms had significantly improved and she was prescribed oral azathioprine 50 mg/day without prednisolone. Once her TED became inactive, strabismus and eyelid surgeries were performed.

Our case highlights a diagnostic dilemma in the background of coexisting GD and MG. Thymic hyperplasia could be secondary to both GD and MG.[3] However, the previous CXR and clinical course of hyperthyroidism in this patient were essential to differentiate between both conditions. This present case emphasized that clues from all relevant imaging must be obtained to accurately determine the etiology of thymic hyperplasia in cases of coexistent GD and MG.

Ethical Consideration
Patient consent was obtained before submission of the manuscript.

Statement of Authorship
All authors certified fulfilment of ICMJE authorship criteria.

CRediT Author Statement
YT: Conceptualization, Methodology, Investigation, Writing – original draft preparation, Project administration; **VV:** Resources, Data Curation, Writing - review and editing, Visualization; **TH:** Writing – review and editing, Supervision, Funding acquistion.

Data Availability Statement
Datasets generated and analyzed are included in the published article.

Author Disclosure
None.

Funding Source
None.

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