

## Case Report

# Microscopic thymoma accompanying simple thymic hyperplasia

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Accepted 11 May, 2019

Thymic pathologies such as lymphoid follicular hyperplasia or thymoma are seen in 75% of myasthenia gravis subjects. Microscopic thymoma is a lesion that is seen in 15% of myasthenia gravis patients. The World Health Organization defines microscopic thymoma as a “ usually multifocal epithelial proliferation <1 mm in diameter”. Microthymoma, in other words microscopic-sized thymoma, should be considered in the differential diagnosis of microscopic timoma. We present the case of a 28-year-old male patient followed-up for myasthenia gravis and diagnosed with “microscopic thymoma” following thymectomy.

**Key words:** Thymus, microscopic thymoma, thymoma, myasthenia gravis.

## INTRODUCTION

The term “microscopic thymoma” was first described in 1976 to refer to a small epithelial islet identified incidentally in a thymus removed during cardiac surgery (Rosai and Levine, 1976). Today, the World Health Organization defines microscopic thymoma as a “ usually multifocal epithelial proliferation <1 mm in diameter” (Marx et al., 2004). Microthymoma, in other words microscopic-sized thymoma, should be considered in the differential diagnosis of microscopic timoma.

In this study, we present the case of a 28-year-old male patient followed-up for myasthenia gravis and diagnosed with “thymic hyperplasia” and “microscopic thymoma” following thymectomy. We also discuss the morphological characteristics that help the distinction of microscopic thymoma from microthymoma.

## Case

The thoracic computed tomography of a 28-year-old male patient, who presented to our hospital a year ago with

complaint of fatigue and was diagnosed with myasthenia gravis, showed increase in density, similar to thymic remnant, in the anterior mediastinum (Image 1). The magnetic resonance examination revealed a triangular lesion in the anterior mediastinum manifesting as thymic hyperplasia, including loss of signal intensity on outphase sequences. No mass lesion with contours similar to thymoma was evident. Elective thymectomy was undertaken.

The tissue sent for pathological examination was 106.7 g in weight, 17 x 8 x 2.5 cm in dimension, yellow in color, soft, lobulated and fatty. Almost the entire tissue was sampled for histopathological examination.

Microscopic examination revealed thymic tissue in the form of nodules containing cortex, medulla and Hassall's corpuscles between fatty areas. In one of the serial sections obtained, a solid island made by epithelial cells of <1 mm were identified (Image 2). The cells had round and oval nuclei, clear chromatin and distinct nucleoli. Mitosis or nuclear atypia was not seen. Lymphocytes were not observed. As the normal thymus weight for 25-29 year-old males is accepted to be between 11.8 and 23.1 g, our case was diagnosed as “microscopic thymoma comorbid with thymic hyperplasia”. After thymectomy, there was a progressive clinical improvement over a follow-up period of 11 months. He is taking low dose corticosteroid.

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## DISCUSSION

Thymic pathologies such as lymphoid follicular hyperplasia or thymoma are seen in 75% of myasthenia gravis subjects (Drachmann, 1994). Microscopic thymoma is a lesion that is seen in 15% of myasthenia gravis patients (Drachmann, 1994; Pescarmona et al., 1992; Mori et al., 2007). Puglisi et al. (1995) studied the presence of epithelial solid islands resembling thymoma in thymic tissue obtained from 100 consecutive autopsies, and they found epithelial islands and rosette formations in 4 of these cases (Puglisi et al., 1995).

The differential diagnosis of microscopic thymoma from microthymoma is important. In addition to its small diameter, microthymoma manifests the morphological characteristics of conventional thymoma (Chalabreysse et al., 2006). The term microthymoma was used for the first time by Cheuk et al. (2005) to refer to 2 thymoma cases of microscopic sizes (Cheuk, 2005). These 5 or 7 mm lesions made of 1 or 2 lobuli manifested morphological characteristics of conventional thymoma such as formation of a separate mass from neighboring thymic tissue, lobulation, immature T cells, medullary differentiation, and perivascular gaps. Starting from these findings, it was claimed that microthymoma may represent the earliest stage in the development of thymoma (Cheuk, 2005). Microscopic thymoma, on the other hand, is merely the hyperplasia of thymic epithelium and does not display the conventional morphology of thymoma (Pescarmona et al., 1992; Puglisi, 1995; Rosai, 2004). Therefore, Rosai has suggested the use of the term "nodular hyperplasia of the thymic epithelium" in lieu of microscopic thymoma (Rosai, 2004).

As the diameter of the lesion in our case was <1 mm and the morphological characteristics of classical thymoma were not seen, the diagnosis was "microscopic thymoma".

Making the diagnosis of microscopic thymoma is only possible after a detailed histopathological examination. Particularly in patients being followed-up for myasthenia gravis, the entire thymectomy material should be sampled and examined with serial sections.

## REFERENCES

- Chalabreysse L, Orsini A, Vial C, Tronc F (2007). Microscopic thymoma. *Interact Cardiovasc Thorac Surg*. 6:133-135.
- Cheuk W, Tsang WYW, Chan JKC (2005). Microthymoma: definition of the entity and distinction from nodular hyperplasia of the thymic epithelium (so-called microscopic thymoma). *Am. J. Surg. Pathol*. 29: 415-419.
- Drachmann DB (1994). Myasthenia gravis. *New Engl. Med*. 330: 1797-1810.
- Marx A, Chen G, Ströebel P (2004). Rare thymomas. In: Travis WD, Brambilla E, Müller-Hermelink HK, eds. *Pathology and genetics: tumors of the lung, pleura, thymus and heart*. Lyon: IARC. p. 171.
- Mori T, Nomori H, Ikeda K, Kobayashi H, Iwatani K, Yoshioka M, Iyama K (2007). Microscopic-sized "microthymoma" in patients with myasthenia gravis. *Chest*. 131: 847-849.
- Pescarmona E, Rosati S, Pisacane A, Rendina EA, Venuta F, Baroni CD (1992). Microscopic thymoma: histological evidence of multifocal cortical and medullary origin. *Histopathol*. 20: 263-266.
- Puglisi F, Finato N, Mariuzzi L, Marchini C, Floretti G, Beltrami CA (1995). Microscopic thymoma and myasthenia gravis. *J. Clin. Pathol*. 48: 682-703.
- Rosai J, Levine GD (1976). Tumors of the thymus. *Atlas of tumor pathology, 2nd series, fascicle 13*. Washington, DC: Armed Forces Institute of Pathology pp. 34-161.
- Rosai J (2004). The thymus In: Rosai J, editor. *Rosai and Ackerman's Surgical Pathology*. 9th ed. St Louis: Mosby pp. 459-514.