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Microscopic Thymoma in a Patient with Early Onset Myasthenia Gravis- A Case Report

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Case Report

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Abstract: We present a rare entity of incidentally detected microscopic thymoma in the thymectomy specimen of a female with early onset myasthenia gravis. The thymus was of normal size radiologically and macroscopically. Histological sections examined show multifocal tiny thymic epithelial proliferation suggestive of microscopic thymoma. Microscopic thymomas are rare tumours and less than 20 cases have been reported worldwide.

Keywords: myasthenia gravis, microscopic thymoma, nodular epithelial hyperplasia.

INTRODUCTION

Myasthenia gravis is an autoimmune disease caused by the presence of antibodies against components of the muscle membrane at the neuromuscular junction. Patients with a generalized form of Myasthenia can be divided into three subgroups according to the age of onset- Early-onset form (age of onset<50 years), Late-onset form (age of onset>50 years) and Very late-onset form (age of onset>60 years). Early onset type is often associated with follicular hyperplasia of thymus whereas late onset is frequently associated with thymomas [1]. Thymectomy is often thought to give symptomatic improvement in cases of early onset myasthenia. We present a case of incidentally detected microscopic thymoma in a thymectomy specimen performed in a patient with early onset myasthenia.

Microscopic thymoma is defined as an epithelial proliferation, smaller than 1 mm in diameter, which is usually found in patients suffering from myasthenia gravis and without a macroscopically evident tumor, first reported by Rosai J in 1976 [2]. Microscopic thymomas are rare tumors and less than 20 cases have been reported worldwide till now to the best of our knowledge [3, 4].

CASE REPORT

We report the case of a 41 year old lady, who was diagnosed with myasthenia 12 years back. She had ptosis, respiratory difficulty and mild motor weakness at the time of initial presentation. She was started on Pyridostigmine and Prednisolone. Her symptoms though initially well controlled by the drugs, started worsening gradually. Meanwhile she developed diabetes mellitus and hypertension. She had also had a cerebrovascular accident 2 years back. She was admitted in our institute on September 2017 due to progressive aggravation of muscle weakness. Elective thymectomy was planned for her since it is known that thymectomy can lead to reduced severity or remission in a significant number of patients. Mediastinal CT scan showed no evidence of thymoma. Per-operatively thymus was normal.

We received thymectomy specimen in the department of pathology, which weighed 13 grams and measured 3.5x2x1cms. Cut-section was unremarkable. Microscopically hematoxylin and eosin stained sections (Figure 1 & 2) showed multifocal small nests and cords of thymic epithelial cells separated by adipose tissue. Thymic epithelial cells had moderate amount of eosinophilic cytoplasm, round to oval nucleus with fine chromatin. No nuclear atypia, mitotic figures, diffuse or infiltrative pattern was seen. Only scanty lymphocytic infiltrate was noted around few epithelial cell nests. No Hassall's corpuscles or perivascular spaces or lymphoid hyperplasia were identified.

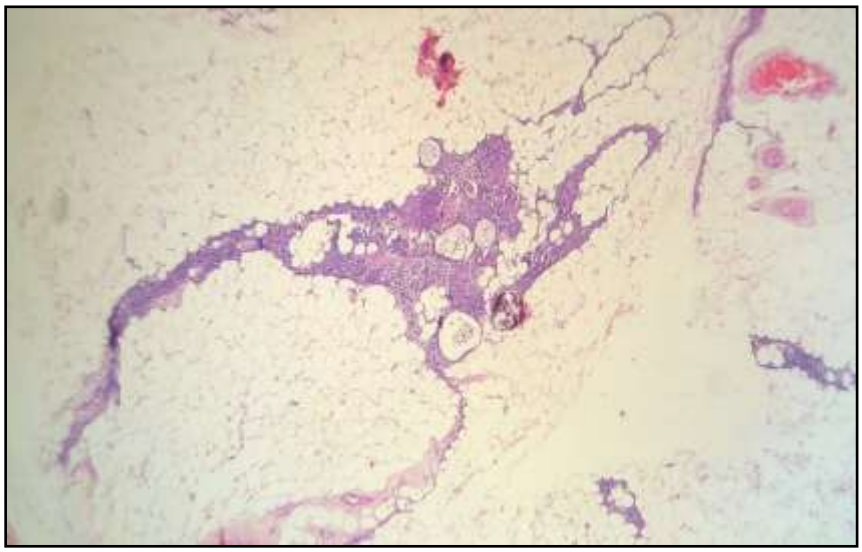

Fig-1: Scanner view showing epithelial proliferation and surrounding adipose tissue (H& E x 40)

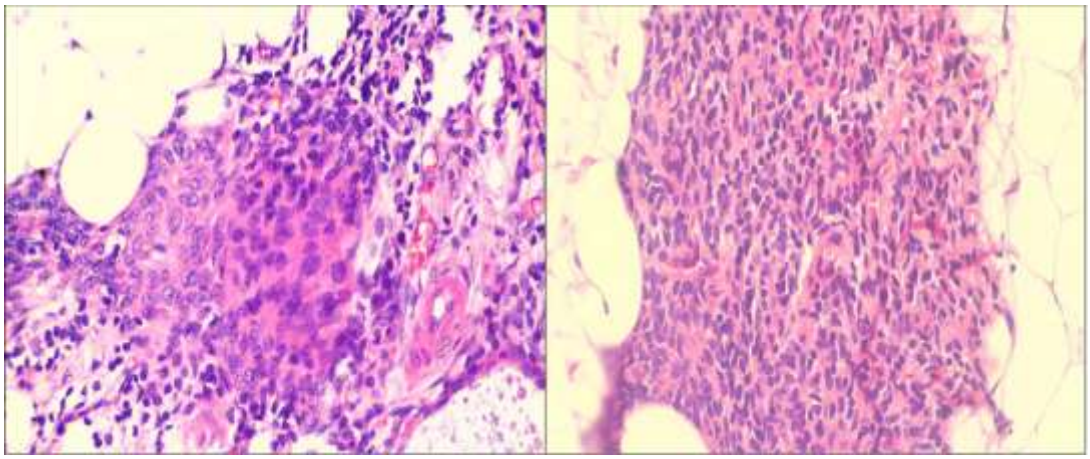

Fig-2: Nest of thymic epithelial proliferation on higher magnification. Scanty lymphocytic infiltrate seen around one cell nest (H & E x 400)

DISCUSSION

Myasthenia gravis is often associated with pathological changes in the thymus, either lymphoid hyperplasia (15–85%) or thymoma (10–15%) [5]. Few cases may show normal/ involuted thymus.

In Early onset myasthenia gravis, follicular hyperplasia is very common, while in the Late onset type, thymomas are frequently observed. These morphological changes of the thymus are primarily associated with antibodies against Acetylcholine receptor. Patients with thymic follicular hyperplasia typically display elevated serum acetylcholine receptor antibody titers. In these patients, the activated cells in the thymus themselves produce the acetylcholine receptor antibodies [1].

The randomized trial of thymectomy in myasthenia gravis (MGTX study) had clarified that extended thymectomy improved clinical outcomes in patients with non thymomatous myasthenia gravis [6].The best results are obtained in the patients with severe thymic hyperplasia and when the thymectomy is performed soon after the onset of symptoms. This likely eliminates the main site of autoantibody production and often leads to a decreased level of anti- acetylcholine receptor antibodies [1, 7].

Microscopic thymoma is defined as an epithelial proliferation, smaller than 1 mm in diameter, which is usually found in patients suffering from myasthenia gravis and without a macroscopically evident tumor [2]. In thymectomy specimens of non thymomatous myasthenia, microscopic thymoma was identified in 3.8- 15% of specimens [8]. The lesion will not be detected by imaging studies. It is different from involuted and atrophic thymic tissue as involuted thymic islands are composed predominantly of lymphocytes [9].

Many authors are of the opinion that nodular epithelial hyperplasia would be a more appropriate term for these lesions because they present as small multifocal thymic epithelial islands that are found

incidentally and lack the morphological features of conventional thymomas such as lobulation, perivascular spaces, immature T cells, and medullary differentiation [3, 10]. Multifocal nature of microscopic thymomas suggests that multiple lesions originate from distinct epithelial cell nests present in different areas of the thymus [11].

In our case as described earlier there was multifocal, small thymic epithelial proliferation that was unencapsulated and measured< 1mm in maximum dimension. In our view it is better to term this lesion as nodular hyperplasia as it differs in all aspects from a thymoma.

To conclude we present a rare entity of microscopic thymoma incidentally detected in a female with early onset myasthenia gravis. As this lesion is often multifocal and small, careful grossing and extensive sampling of the normal sized thymectomy specimens is essential for the detection of microscopic thymomas.

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Conflict of Interest: None declared.

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