A Case of Thymoma-Myasthenia Gravis in an Adult Malaysian Patient with Anterior Mediastinal Lesion

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ABSTRACT

Myasthenia Gravis (MG) is a neuromuscular junction disease. Around fifteen percent of myasthenia gravis patients are found to have thymoma and 20%-25% of thymoma patients have myasthenia gravis. T-MG is equally common of both men and women. It happens at any age, with a 50-year peak start. Asians, Pacific Islanders and African Americans have a greater chance of contracting this disease. Thymomatous myasthenia gravis tends to be clinically difficult; with poor prognosis. We reported a 58-year-old Chinese woman who wasadmitted to a public hospital with complaints of fever, tachycardia, nausea and chills. She has a history of MG and hyperlipidemia. In 2014, she had thymoma and underwent thymectomy. Five years later, she was diagnosed withrecurrent thymomastage IIIB and prescribed with combination chemotherapy of cyclophosphamide, doxorubicin and cisplatin. After receiving the first cycle of the chemotherapy regimen, she developed febrile neutropenia and thrombocytopenia. In conclusion, MG has a complicated clinical course and poor prognosis. Nevertheless, early aggressive treatment could improve the patient outcomes.

Key words: Myasthenia gravis, Thymoma, Thymectomy, Adult Patient, Malaysian.

INTRODUCTION

Myasthenia gravis (MG) is an autoimmune disorder characterized by fatigue and muscular weakness. Around 15 percent of all cases of MG are graded as thymoma MG (T-MG).[1,2] In the United States, the prevalence of T-MG is around 0.15 per 100,000 person-years.[3,4] T-MG is categorized according to the histological classification of the World Health Organization (WHO) and graded according to the Masaoka staging system.[5,6] The severity of this disorder is determined through the Myasthenia Gravis Foundation of America (MGFA) clinical classification system.[7] T-MG is popular on both men and women alike. It occurs at any age, with a 50-year peak start. Asians, Pacific Islanders and African Americans are more likely to contract this disease.[8] When thymoma diagnosis is identified in an MG patient, the neoplasm should be surgically removed and radical excision of the neoplasm is crucial. Most T-MG appears to have difficult clinical development and poor prognosis.[9,10] The current report is a case of MG associated with invasive thymoma.

Case presentation

A 58-year-old Chinese woman, whose weight is 64.8 kg and height is159 cm, was admitted to a public hospital in Kuala Lumpur, Malaysia on 15 October 2019 with complaints of fever, tachycardia, nausea and chills. She has a history of MG and hyperlipidemia since 2010. In 2014, she was diagnosed with type B2 thymoma. Herchest CT scan, which was taken on 1 March 2014, revealed a 2 cm × 2.5 cm × 4.5 cm thymic mass in the anterior mediastinum. The neck and throat CT scan, which was performed on 10 August 2014, demonstrated lymph node measuring 1.3 cm x 0.8 cm and well-defined hypodense lesions in segment II, III and IVB. The chest radiography, which was taken on 14 August 2014, indicated pulmonary a telectasis. She under went thymectomy in September 2014. On 15 October 2019,

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she was diagnosed with recurrent thymoma stage IIIB. Her CT scan showed anterior mediastinal lesions. The microscopic examination demonstrated lesional tissues consisting of polygonal shape epithelial cell in sheets, trabeculae and cords. The immuno histochemistry examination revealed that the p63 and pan-cytokeratin was strong with diffuse positive and the epithelial membrane antigen was scattered with positive cells. She was prescribed with a combination chemotherapy of cisplatin 50 mg/m^2 IV, doxorubicin 50 mg/m^2 IV and cyclophosphamide 500 mg/m^2 IV, repeated every 21 days for eight cycles. After receiving the first cycle of the chemotherapy regimen, she developed febrile neutropenia and thrombocytopenia. Her past medication history was at orvastatin 20 mg PO od, calcitriol 0.250 mcg PO od, calcium lactate 600 mg PO od, prednisolone 55 mg PO om and pyridostigmine bromide 90 mg PO qid. Her vital signs, blood tests and ward medication are shown in Tables 1-3 respectively.

Table 1: Vital signs.

Parameters	15/10/2019	17/10/2019	19/10/2019	21/10/2019	23/10/2019
T	38.7	37.1	37.1	37.6	37.2
BP	108/69	127/87	111/70	129/75	131/70
PR	106	99	90	99	93
RR	20	20	20	20	20

T = temperature (°C); BP = blood pressure (mmHg); PR = pulse rate (beats per minute); RR = respiratory rate (breaths per minute)

Table 2: Blood tests.

Parameters	Normal range	15/10/2019	17/10/2019	19/10/2019	21/10/2019
WBC	4−11 × 10^9/L	0.1	0.01	0.19	1.53
Hb	11.5−16.5g/dL	12	9.3	9.8	9.5
Platelet	150−400 × 10^9/L	55	4	5	43
ANC	1.5−8.0 × 10^9/L	0	0.01	0.07	1.06

WBC = white blood count; Hb = haemoglobin; ANC = absolute neutrophil count

Table 3: Ward medication.

Medication	Start date	Stop date
Tazocin 4.5 g IV qid	15/10/2019	continued
Paracetamol 1 g PO qid	15/10/2019	continued
Filgrastim 300 mcg SC om	16/10/2019	22/10/2019
Lorazepam 1 mg PO on	18/10/2019	20/10/2019
Benzydaminehydrochloride 15 mL Gargle tds	21/10/2019	continued

DISCUSSION

If an MG patient has been diagnosed with thymoma, the neoplasm can be surgically removed and radical excision of the neoplasm is important. The thymectomy may be done transsternally or via a thoracoscopic method aided by video.[11] Extreme excision of a thymoma can cure thymic neoplasia in most cases. Never the less, the patients will continue to undergo the pharmacological care even after the thymectomy, they still suffer from MG. When thymoma invades pleura or pericardium, there is no chance of radical excision and thus further oncological treatment is needed. Maggi *et al.*[12] reviewed 197 patients with MG, with the age of onset between 47 years and 56 years. Of these, 12% had thymoma stage III, 3% had thymoma stage IVA and 0.5% had thymoma stage IVB. Nearly 17% of the patients had recurrent thymoma stage IIIB. This is consistent with the current case where by the patient developed symptoms of MG in her fifties and had recurrent thymoma stage IIIB five years there after. Given the fact that radical surgical resection is the cornerstone of T-MG therapy, full resection possibilities are very small in advanced stage invasive thymoma and are almost unlikely in stage IVA tumors.[13] Following the thymectomy, patients with invasive thymoma, especially stage III, should receive radiotherapy and chemotherapy. There has, however, been no proven model therapeutic method to date. The patient had received only combination chemotherapy in the present situation. To boost the patient experience, oncologists, surgeons, radiologists and neurologists should have early aggressive care.

CONCLUSION

There is a relationship between MG and thymoma. While T-MG seems to have a complicated clinical path and poor prognosis, early aggressive treatment may improve the outcomes of patients.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

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