Role of Thymectomy in the Surgical Treatment of Myasthenia Gravis

Kohki Konomi, Seiichi Toyoda, Fujihiko Nishikata, Shoichiro Saito, Hiroshi Yamamoto, Motomichi Torigi and Sachiko Kawanami*

ABSTRACT: Of the 26 patients with myasthenia gravis undergone thymectomy, 11 cases had either benign or malignant thymoma as judged not only by histological examination but also by their clinical and operative findings. Age of initial onset ranged from 13 to 64 years old. Fifteen out of 26 (58 per cent) benefited from thymectomy. Duration of the symptom from the onset to the operation and the presence or absence of the thymoma are not related to their outcome. Benign or malignant nature of thymoma should not be determined by histological examination alone but by combined evaluation of clinical and operative findings. Serial studies of serum immunoglobulin levels before and after thymectomy suggested that this disorder could be associated with humoral antibody (IgG). HLA typing of the patients with myasthenia gravis did not indicate the presence of any specific antigens.

KEY WORDS: myasthenia gravis, thymoma, thymectomy, immunoglobulin, HLA typing.

INTRODUCTION

The cause of myasthenia gravis remains obscure and definite therapeutic methods have not been established. Myasthenia gravis are often accompanied by abnormal thymus and thyroid gland and their etiological role has been suggested. Since the first thymectomy for myasthenia gravis by Blalock in 1939, this operation has been advocated with some favorable result. However, efficacy of thymectomy in myasthenia gravis so far reported varies considerably. In the present communication, 26 consecutive cases undergone thymectomy have been presented. Immunological and genetic aspects of the disease have been discussed based on the study of immunoglobulin level before and after thymectomy and HLA typing.

MATERIAL AND METHOD

Patients

Twenty six patients with confirmed myasthenia gravis seen at Kyushu University Hospital, Fukuoka, Japan, underwent thymectomy from 1971 to 1975. Of the 26 patients, 10 were males and 16 were females. Their ages ranged from 14 to 67 years. In 15 patients, the symptoms started before 20 years of age and after 50 in one case. The onset

From the Department of Surgery I, Kyushu University Faculty of Medicine, and * the Department of Neurology, Fukuoka University Hospital, Fukuoka, Japan.

of the first symptom in patients with myasthenia gravis was most common between the ages of 20 and 30 years. Eight patients had mild generalized myasthenia (Osserman II-A)\(^1\), 14 moderately severe generalized disease (II-B), one acute fulminating form (III) and three late severe stage of the disease (IV). There were no cases of atrophic form (V). Upon exploration, thymomas were found in 11 patients, six males and five females. The tumors were invasive to thorax wall, pericardium, lung and phrenic nerve in six cases. They were followed up from seven months to five years and three months after thymectomy.

Clinical evaluation of the result of thymectomy was based on the following criteria:

A Remission: Complete remission of the symptom without further necessitate of anticholinesterase drugs for three months or more.

B Improvement: Symptoms improved, reduced dose of drugs and fluctuation of the symptoms by day difference, infection and stress.

C Slight improvement: Reduced dose of drugs, slight improvement of the symptoms, reduced fluctuation of the symptoms by various factors.

D No change.

E Deterioration.

**Operative Procedure**

Thymectomy was performed as an elective procedure. Patients were selected for operation if satisfactory medical control of the symptoms could not be achieved. The demonstration of the thymoma was an absolute indication for operative intervention. Those with mild symptoms that were readily controlled by anticholinesterase drug or those with long-standing end stage myasthenia did not receive surgical treatment. Upper median sternotomy was used to prove optimal exposure of anterior mediastinum which lessen the operative scar feature especially important in young females. Either posterolateral thoracotomy or median sternotomy was used for thymoma or for the removal of fat pad from the anterior mediastinum. Transcervical technic was not used because of inherent failure of complete removal. Pericardial or pleural involvement was removed en-bloc. Postoperatively all patients were transferred to intensive care unit for at least two to three days for control of respiratory function. Use of nasotracheal intubation with respirator, obviated tracheotomy. Anticholinesterase drug was started for three to four days postoperatively after the removal of nasotracheal tube after Tensilon test to determine proper dose.

**Determination of Immunoglobulin Levels**

Ten sera collected preoperatively and days 1, 3, 7, 14 and 21 after thymectomy were subjected to immunoglobulin level (IgG, IgM and IgA) determination by Mancini's method\(^1\) using immunodiffusion plates.

**HLA Typing**

HLA typing by the microcytotoxicity method\(^15,23\) was done on five ml of sera obtained from 45 patients with myasthenia gravis either before or after thymectomy.

**Results**

**Clinical Results**

Of the 26 patients including thymoma cases, 15 patients (58 per cent) benefited from the operation (B: eight cases, C: seven cases). However, as indicated in Table 1, the symptoms fluctuated after the operation. The general condition improved after two to three years postoperatively despite the poor results in the early postoperative period