Case Report of Thymoma Tumor Reduction Following Plasmapheresis

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Abstract: For thymoma, multidisciplinary antitumor strategy is composed of surgery, chemotherapy, and radiotherapy. Meanwhile, ~20% to 25% of patients with thymoma have myasthenia gravis and plasmapheresis is recommended for thymoma-associated myasthenia gravis.

We report a case that a 40-year-old woman with thymoma experiencing tumor relapse after surgery showed significant response to plasmapheresis. This is the first case of thymoma responded to plasmapheresis, which may guide the study of the etiology and pathogenesis of thymoma.

CLINICAL CASE REPORT

Case Presentation
A 40-year-old Chinese woman was admitted to our hospital in June 2008 for drooping right eyelid. The patient had been healthy all of her life. A chest computed tomography (CT) scan demonstrated a mediastinal mass. A median sternotomy for a radical thymectomy was performed, and the pathological diagnosis revealed thymoma, histologically classified as WHO type B1. With tumor invading into surrounding fatty tissue, she was indicated as [B] by the Masaoka staging system. We strongly recommended radiotherapy and chemotherapy after surgery but the patient refused any adjuvant therapy.

Unfortunately, assessed by a routine follow-up CT scan in January 2011, tumor recurred with left pleura dissemination. Positron emission tomography-CT (PET-CT) scan also demonstrated the recurrent lesion. Biopsy via video-assisted thoracic surgery (VATS) confirmed thymoma relapse (type B1, partial B2). Considered unresectable, she was given 3 cycles of chemotherapy consisting of cyclophosphamide, pirarubicin, and cisplatin from February to March 2011. For slight tumor progression, 2 cycles of pemetrexed and Nedaplatin were administered from April to May 2011, and the patient refused further chemotherapy, with stable disease for 30 months.

In 9 December 2013, a follow-up CT scan showed a significant progression of disease. Then, the patient experienced myasthenia gravis with the development of severe acute respiratory failure. She was classified as MGFA class IV. Endotracheal intubation was administrated for ventilator support immediately. In 12, 14, and 16 December, 3 sessions of therapeutic plasma exchange were performed for blood purification, in which 2000 mL plasma was separated from the blood, discarded in total, and replaced with 2000 mL plasma collected from healthy donors in each session. Each session was followed by perfusion of human immunoglobulins. To our surprise, after therapeutic plasma exchange, not only myodynia recovered and mechanical ventilation was terminated, but also a partial response of tumor was indicated from CT scan (27 December 2013) although contrasted-enhanced CT was not chosen for a not very well performance status of patient (Fig. 1). She slowly improved to MGFA minimal manifestation status (MMS).

In July 2014, after 7 months normal living, the patient was referred to us for anhelation. The CT scan showed tumor progression. She quickly progressed to dyspnea and encountered myasthenic crisis again. Given ventilation, the patient received plasmapheresis for 3 sessions in 28, 30 July, and 1 August 2014. The volume exchange of each session is 3000 mL, 2500 mL, and 2000 mL, respectively. Unfortunately, although the lesions showed a decrease in size in CT scan of 18 August 2014 (Figure 2) and myodynamia recovered, the patient failed of weaning for serious pulmonary infection and passed away in September 2014.
FIGURE 1. Comparison of CT scan between December 9, 2013, and December 27, 2013. A partial response of tumor following 3 sessions of plasmapheresis was indicated from CT scan. CT = computed tomography.

FIGURE 2. Comparison of CT scan between July 24, 2014, and August 18, 2014. A significant response of tumor following 3 sessions of plasmapheresis was indicated from CT scan. CT = computed tomography.
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CONSENT

Written informed consent was obtained from the husband of the patient for publication of this case report and any accompanying images. A copy of the written consent is available for review by the Editor of this journal.

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