Thymic carcinoid combined with myasthenia gravis

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Thymic carcinoid is a rare cancer and is categorized as one of the families of thymic carcinoma.¹⁻³ Many paraneoplastic syndromes were reported concomitant with thymic carcinoid, including Cushing syndrome, acromegaly, endocrine abnormalities,^{2,3} and so on. Myasthenia gravis is one of the concomitant paraneoplastic syndromes with thymic neoplasm. Its association with thymic carcinoma, however, has previously only been reported for the cell type of well-differentiated squamous cell carcinoma.^{4,5} Here we report the case of a patient with thymic carcinoid who underwent en bloc resection of the locally advanced tumor and in whom myasthenia gravis was diagnosed with acute respiratory failure 31 days after surgery.

Clinical Summary

A 47-year-old female patient was quite well before an anterior mediastinal mass was found during routine checkup. After thoracic computed tomographic examination (Figure 1), fine-needle aspiration was performed in a local hospital, but without a definitive diagnosis. The patient was then referred to our hospital for further management. During her first admission, physical examination revealed no abnormal neurologic signs. Because of an impression of thymic tumor with local organ invasion, the patient underwent en bloc resection of tumors, including complete thymectomy, tumor excision, partial pericardiectomy, wedge resection of the upper lobe of the left lung, and local mediastinal lymph node dissection. Grossly, two pieces of tumor mass measuring $8 \times 6 \times 4$ cm and $2 \times 1.5 \times 1$ cm were noted. Pathologic reports revealed

Figure 1. CT scans. **A**, $2 \times 1.5 \times 1$ cm nodule over right thymus. **B**, $8 \times 6 \times 4$ cm mass with direct invasion of pericardium and dense adhesion to upper lobe of left lung.

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that it was a thymic carcinoid with cellular atypia (Figure 2). The lung parenchyma was spared, but the subpleural connective tissue

Figure 2. Tumor was composed of polygonal cells with finely granular nuclei and moderate eosinophilic cytoplasm. Tumor cells were arranged in solid nests, festoons, and rosettelike pattern. (Hematoxylin and eosin, original magnification $\times 40$.)

and pericardium were invaded. The lymph nodes were free from metastasis. Results of immunohistochemical staining of tumors were positive for synaptophysin, focally positive for neuron-specific enolase, and negative for chromogranin.

The patient was discharged uneventfully 1 week after the operation. Twenty-four days after discharge, while waiting for radiotherapy, she had dyspnea, orthopnea, dysphagia, and dysphonia. She was sent to the emergency service. Results of edrophonium chloride (Tensilon) and repetitive stimulation tests were positive for a diagnosis of myasthenia gravis. Pulmonary function tests revealed a severe restrictive ventilatory defect. Respiratory failure developed, and the patient underwent endotracheal intubation 2 days after admission, although pyridostigmine was given. Plasma exchange failed because of complicated anaphylactic shock. As an alternative, the patient received intravenous immunoglobulin for 5 days (doses totaling 120 g). She was successfully weaned from the ventilator and extubated 13 days later. Postoperative radiotherapy was then given (total dose 5040 cGy). The patient has been followed up for more than 1 year in the outpatient clinic and is still receiving prednisolone treatment without symptoms or tumor recurrence.

Discussion

Of the 42 patients with thymic carcinoma in our institution from July 1988 to September 2002, 3 had a diagnosis of carcinoid, with 2 of them having no associated paraneoplastic syndrome. Consistent with reports in the literature,⁴ our previous data indicated that

thymic carcinoma with myasthenia gravis only occurred with the cell type of well-differentiated squamous cell carcinoma,⁵ and the symptoms of myasthenia gravis were always seen before thymic carcinoma was diagnosed.

To our knowledge, thymic carcinoid combined with myasthenia gravis has not been reported before. When a patient with thymic carcinoid demonstrates muscle weakness, no matter whether it develops before or after surgery, myasthenia gravis should be included in the differential diagnosis.

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