Case report

Thymoma-associated multiorgan autoimmunity

Chien-Tzu Hung,1 Tsen-Fang Tsai,2 Jin-Shing Chen,1 Min-Shu Hsieh3,4

SUMMARY

Thymoma-associated multiorgan autoimmunity is a relatively new term to describe the rare paraneoplastic syndrome that complicates thymoma, which can involve the thyroid, liver and intestine in addition to the skin. The pathology often indicates a graft-versus-host-like pattern commonly observed in recipients of an allogeneic haematopoietic cell transplant. We report a case of type B2 and B3 thymoma with invasion to the lung and pleura in a patient who presented with oral lichen planus and graft-versus-host-like erythroderma. The cutaneous lesions improved after complete resection of the thymoma in combination with systemic glucocorticoids, which was subsequently complicated by cytomegalovirus pneumonitis.

BACKGROUND

Thymomas are the most common tumours arising from the anterior mediastinum. The association of thymoma with myasthenia gravis has long been recognised, and other paraneoplastic disorders are considerably rare.1 Herein, we report a case of thymoma with oral lichen planus and graft-versus-host-like erythroderma. The cutaneous lesions improved after complete resection of the thymoma with systemic glucocorticoids. Literatures on thymoma-related lichen planus and graft-versus-host-like erythroderma are also reviewed.

CASE PRESENTATION

A 61-year-old man was admitted to the hospital because of masses in the mediastinum and right pleura with a massive pleural effusion in the right lung. Four years before this admission, he had received a diagnosis of oral lichen planus and autoimmune thyroiditis. Recurrent oral mucosal and lip erosions were refractory to oral prednisolone at a daily dose of 20mg for 4 years and 100mg of azathioprine for 3 months. One year later, erythematous, scaling and nonpruritic plaques over the lower limbs developed, which gradually extended to the trunk and upper limbs 4 months before this admission, without response to topical steroids. One month before this presentation, dysphagia, dry cough, dyspnea on exertion and hoarseness developed. The patient reported a weight loss of 8kg and decreased appetite in the past 6 months. A chest radiograph revealed a mediastinal tumour with a pleural effusion (figure 1A), and a diagnosis of mediastinal tumour with pleural metastases was made. He was referred to the surgery department of our hospital.

INVESTIGATIONS

Physical examination revealed that the blood pressure was 126/71 mm Hg, the temperature 36.9°C, the pulse rate 84 beats/min and the respiration rate 18 breaths/min. Oxygen saturation was 95% while the patient was breathing ambient air. Confluent erythematous patches on the face and numerous ill-defined and scaling plaques of various sizes were noted over the trunk and extremities involving more than 90% of the body surface area (figure 2). Bilateral leg erythema, swelling, discharge and tenderness on palpation were reported for 1 week.

The laboratory test, including complete blood cell count and biochemistry, showed a mildly elevated white blood cell count (11×10^9/L) and aspartate aminotransferase level (54 U/L). The acetylcholine receptor autoantibody level (5.34 nmol/L) and anticardiolipin IgM (13.4 MPL) were elevated, the antibodies against extractable nuclear antigens were positive and the titer of antinuclear antibody was 1:40 with homogeneous pattern. Other tests for autoantibodies, including antithyroglobulin antibodies, antithyroidperoxidase antibodies, anti-double stranded DNA antibody, anti-SSA, anti-SSB, IgG anticardiolipin, anti-phospholipid IgG and IgM, basement membrane zone antibody, intercellular substance antibody, lupus anticoagulant test C3 and C4 quantification and thyroid hormones were negative or within normal ranges. Cultures of the discharge from the skin lesion over the leg revealed growth of methicillin-susceptible Staphylococcus aureus and meticillin-resistant S. epidermidis. The first skin biopsy from the abdomen showed lichenoid interface dermatitis. The second skin biopsy from the left arm showed interface dermatitis, and direct immunofluorescence staining showed no evidence of pemphigus and pemphigoid (figure 3). CT of the chest revealed a tumour in the anterior mediastinum with the greatest dimension measuring 14.0×10.2×8.2cm (figure 1B), multiple pleura-based tumours and a massive pleural effusion with septation of the right lung. A diagnosis of thymoma was confirmed through sonography-guided biopsy of the mediastinal mass.

DIFFERENTIAL DIAGNOSIS

The interface changes of the skin may be presented in various diseases such as lupus erythematosus, lichen planus, drug reaction and graft versus host disease (GVHD). There was no identifiable culprit drug, and the clinical manifestation did not meet the 2012 systemic lupus international collaborating clinics criterias. Direct immunofluorescence staining showed no evidence of pemphigus.
Rare disease

or pemphigoid. Based on the patient’s clinical history, physical findings and histopathology, the lesions of the skin were mostly consistent with graft-versus-host-like erythroderma, a manifestation of thymoma-associated multiorgan autoimmunity (TAMA), which was complicated with cellulitis of the legs.

TREATMENT
The patient underwent sternotomy and right thoracotomy for thymectomy, partial pleurectomy and excision of the tumour involving the diaphragm and right lung. A diagnosis of thymoma, Masaoka stage IVA and WHO type B2 and B3, with invasion to the right lung and metastasis to the right pleural cavity was made (figure 4). Cellulitis of the legs resolved with the administration of vancomycin. Erythrodermic changes of the skin improved but the oral erosion persisted postoperatively and after the administration of intravenous methylprednisolone at a daily dose of 80 mg, which was tapered to 10 mg/day of oral prednisolone as maintenance therapy (figure 5).

OUTCOME AND FOLLOW-UP
One month after the operation, cytomegalovirus (CMV) pneumonia with respiratory failure developed, which responded to ganciclovir therapy.

DISCUSSION
Thymomas are the most common tumours arising from the anterior mediastinum. The presentation of thymoma could be asymptomatic, related to the mass effects from tumour compression of the mediastinal structure, or as paraneoplastic syndromes. Approximately 30%–44% of the patients with thymoma present with myasthenia gravis. Other autoimmune

Figure 1  (A) Chest radiography reveals a mediastinal tumour and multiple pleura-based masses with a pleural effusion of the right lung. (B) CT reveals a mediastinal tumour with invasion to the anterior chest wall and pleura-based masses with a pleural effusion.

Figure 2  Skin lesions of the trunk 7 days after the operation.

Figure 3  (A) H&E, 200×: interface dermatitis with dyskeratotic cells and confluent parakeratosis; dermis shows a perivascular infiltrate of lymphocytes with scattered eosinophils. (B) H&E, 400×: frequent dyskeratosis (arrows) and confluent parakeratosis. (C) Direct immunofluorescence staining: several cytoid bodies (under IgG, IgA, IgM and C1q staining) in the lower epidermis, dermal–epidermal junction and upper dermis. There was no intercellular or linear basement membrane pattern deposition.

Figure 4  (A) H&E, 40x type B2 thymoma with a bluish appearance at low magnification and lung invasion. (B) H&E, 200x, type B2 thymoma with small lymphocytes mixed with some aggregates of epithelial cells. (C) 40x, type B3 thymoma with a pink appearance at low magnification (D) type B3 thymoma with a predominance of polygonal epithelial cells.
Thymoma-associated multiorgan autoimmunity (TAMA) is a rare paraneoplastic syndrome that complicates thymoma, which can involve the thyroid, liver, intestine and skin.

Complete resection of the thymoma could lead to resolution of graft versus host disease-like erythroderma related to TAMA.

Intractable oral lichen planus may warrant further investigation for thymoma.
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REFERENCES