Cancer Treatment Communications (2013) 1, 9–10

Available online at www.sciencedirect.com

SciVerse ScienceDirect

www.elsevier.com/locate/ctrc

Polymyositis and myocarditis after chemotherapy for advanced thymoma ☆

Taketsugu Yamamoto*, Yasushi Rino, Hiroyuki Adachi, Keita Fujii, Shizu Saito, Munetaka Masuda

Department of Surgery, Yokohama City University, 3-9 Fukuura, Kanazawa-ku, Yokohama-shi, Kanagawa-ken 236-0004, Japan

Received 15 November 2012; received in revised form 17 March 2013; accepted 28 April 2013

KEYWORDS
Polymyositis;
Myocarditis;
Thymoma;
Chemotherapy;
Steroid pulse therapy

Abstract
Polymyositis and myocarditis very rarely develop during chemotherapy for thymoma. Most reported cases of myocarditis and polymyositis associated with thymoma were found at autopsy of patients who died of acute progression of myocarditis. We describe our experience with a 64-year-old man who had recurrent thymoma accompanied by polymyositis and myocarditis. Lower-extremity myalgia and palpitations developed on day 25 of chemotherapy with weekly paclitaxel. Steroid pulse therapy was effective for the management of polymyositis and myocarditis associated with thymoma. Polymyositis and myocarditis after paclitaxel monotherapy have not been documented previously. Whether paclitaxel induced polymyositis and myocarditis is unclear and these symptoms might have been a paraneoplastic phenomenon associated with thymoma. However, our experience suggested that patients with thymoma who received paclitaxel-based chemotherapy should be carefully observed for polymyositis and myocarditis. If such patients have high serum creatine phosphokinase and troponin levels, steroid pulse therapy should be considered without delay.

1. Introduction

Polymyositis and myocarditis very rarely develop during chemotherapy for thymoma. Most reported cases in myocarditis and polymyositis associated with thymoma have been found at autopsy of patients who died of acute progression of myocarditis [1–4].

2. Presentation of case

A 64-year-old man was given a diagnosis of thymoma, myasthenia gravis, and Isaccs syndrome and received an extended thymectomy (WHO typeAB) in 2005. The patient was subsequently followed up at regular intervals and received oral cyclosporine (100 mg/day) and prednisolone (7 mg/day) to treat myasthenia gravis and Isaccs syndrome. On exacerbations of Isaccs syndrome, steroid pulse therapy or plasmapheresis was

*Corresponding author. Tel.: +81 45 787 2645; fax: +81 45 786 0226.
E-mail address: taketugu@yokohama-cu.ac.jp (T. Yamamoto).

2213-0896/$ - see front matter © 2013 The Authors. Published by Elsevier Ltd. All rights reserved.
http://dx.doi.org/10.1016/j.ctrc.2013.03.001

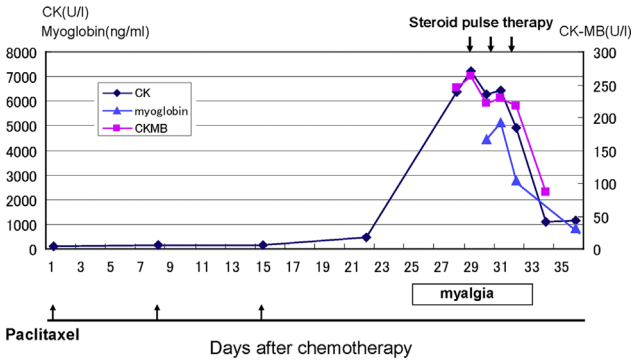

Fig. 1 Clinical course.

performed. There was no elevation of the serum creatine phosphokinase (CK) level at that time. In July, 2011, a follow-up computed tomographic scan revealed multiple pleural nodules. A biopsy of the nodules yielded a diagnosis of recurrent thymoma. Chemotherapy was initiated. Because the patient wanted to receive chemotherapy on an outpatient basis, a regimen of weekly paclitaxel 80 mg/m^2 was selected. Lower-extremity myalgia and palpitations developed on day 25 of chemotherapy and persisted. Because laboratory tests revealed elevated serum levels of CK (6353 U/l), CK-MB (246 U/l), myoglobin (4432 ng/ml), and troponin I (1.539 ng/ml), and an electrocardiogram showed frequent supraventricular extrasystoles, he was hospitalized for a suspected diagnosis of polymyositis and myocarditis associated with thymoma. The serum antiacetylcholine receptor antibody level (0.9 nmol/l) was not elevated as compared with previously. Because myalgia of the extremities worsened after admission, he received steroid pulse therapy (methylprednisolone 1 g/day intravenously for 3 days). After that, serum CK and myoglobin levels decreased (Fig. 1) and symptoms of myalgia and palpitations rapidly improved. He was discharged on the 12th day after steroid pulse therapy. Subsequently, a computed tomographic scan showed no response to paclitaxel therapy, and he refused further chemotherapy. He was observed, with no treatment for thymoma. There was no further recurrence of polymyositis and myocarditis up to patient's death in August 2012.

3. Discussion

Polymyositis and myocarditis have rarely been associated with chemotherapy [1–3] or tacrorimus [4], or thymectomy [5] during the clinical course of thymoma. To our knowledge, only three cases of myocarditis and polymyositis associated with chemotherapy for thymoma have been reported previously [1–3]. These patients received combination chemotherapy with carboplatin and paclitaxel. Our patient was given paclitaxel monotherapy. Polymyositis and myocarditis after paclitaxel monotherapy have not been documented previously. Whether paclitaxel induced polymyositis and myocarditis is unclear and these symptoms might have been a paraneoplastic phenomenon associated to thymoma. However, our experience suggests that patients with thymoma who received paclitaxel-based chemotherapy should be carefully observed for polymyositis and myocarditis.

Most reported cases of myocarditis and polymyositis associated with thymoma were diagnosed at autopsy, after the patients had died of rapid progression of myocarditis in the absence of effective therapy. The histopathological diagnosis at autopsy of nearly all reported cases was giant cell myocarditis. None of these patients had an antemortem diagnosis of giant cell myocarditis with thymoma owing to the risks of associated with biopsy and the fulminant course of disease. Our patient also did not have a histopathological diagnosis of myocarditis, but polymyositis and myocarditis were diagnosed clinically on the basis of the elevated serum CK and troponin levels and the presence of myalgia and arrhythmias. Steroid therapy has been used to treat polymyositis and myocarditis in patients with thymoma, but few have responded. Koul et al. reported a case of giant cell myocarditis with thymoma that responded to steroids and plasmapheresis [6]. In our patient, only steroid pulse therapy was effective against polymyositis and myocarditis associated with thymoma, myasthenia gravis, and Isaccs syndrome.

4. Conclusion

Chemotherapy with paclitaxel might trigger the polymyositis and myocarditis. In patients with thymoma who have high serum CK and troponin levels, steroid pulse therapy should be considered without delay.

Consent

Written informed consent was obtained from the patient for publication of this case report. A copy of the written consent is available for the review by the Editor-in-Chief of this journal on request.

Conflict of interest statement

The authors report no conflicts of interest.

References

[1] A. Gidron, M. Quadrini, N. Dimov, A. Argiris, Malignant thymoma associated with fatal myocarditis and polymyositis in a 32-year-old woman with a history of hairy cell leukemia, American Journal of Clinical Oncology 29 (213) (2006) 14.
[2] K. Isobe, K. Gocho, K. Kaburaki, K. Sugino, Y. Akasaka, S. Homma, An autopsied case of giant cell myocarditis and myositis associated with invasive thymoma, Nihon Kokyuki Gakkai Zasshi 48 (432) (2010) 38.
[3] H. Sasaki, M. Yano, O. Kawano, Y. Hirosaka, Y. Fujii, Thymoma associated with fatal myocarditis and poly myositis in a 58-year-old man following treatment with carboplatin and paclitaxel: A case report, Oncology Letters 3 (300) (2012) 02.
[4] N. Takanashi, H. Sato, S. Nogawa, T. Satoh, M. Kawamura, M. Shimoda, A case report of giant cell myocarditis and myositis observed during the course of invasive thymoma associated with myasthenia gravis, Keio Journal of Medicine 53 (30) (2004) 42.
[5] T.M. Joudinaud, E. Fadel, V. Thomas-de-Montpreville, S. Mussot, E.M. Flecher, P.G. Dartevelle, Fatal giant cell myocarditis after thymoma resection in myasthenia gravis, Journal of Thoracic and Cardiovascular Surgery 131 (494) (2006) 95.
[6] D. Koul, M. Kanwar, D. Jefic, et al., Fulminant giant cell myocarditis and cardiogenic shock: an unusual presentation of malignant thymoma, Cardiology Research and Practice 2010 (2010) 185896.