CORRESPONDENCE

Intramuscular haemorrhage in a patient with dermatomyositis and anti-TIF1γ-antibodies

A short title: Intramuscular hemorrhage in dermatomyositis

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Dermatomyositis (DM) is an idiopathic inflammatory myopathy with characteristic skin lesions. There have been several reports of dermatomyositis causing hemorrhagic myositis (1). Here, we report a 73-year-old Japanese man who presented with a 3-month history of skin erythema with symmetrical muscle weakness and was diagnosed as having dermatomyositis with anti-TIF1γ antibody. The anti-TIF1γ antibody is well known to be associated with cancer-associated DM (2). During the therapy, he was complicated with intramuscular hemorrhage. This is the first report of a DM-specific autoantibody being identified in a DM patient with intramuscular hemorrhage.

The patient's medical and family histories gave no abnormal findings, including for hemorrhagic diathesis. He presented with a 3-month history of skin erythemas that included heliotrope rash (Fig. 1a) and Gottron's sign (Fig. 1b) with symmetrical muscle weakness. No purpura was seen. The laboratory findings were as follows: creatine kinase 1282IU/L, aldolase 11.0U/L and lactate dehydrogenase 404IU/L. An anti-nuclear antibody test was positive, with a titer of 1:80 (speckled pattern). Anti-TIF1γ antibody was positive at 61 index (cutoff value: 32) (MBL, Nagoya, Japan). High-resolution computed tomography (HRCT) did not show interstitial changes of lung

disease, and computed tomography (CT) did not detect any internal organ malignancies. An electromyography of the deltoid muscle showed myogenic change. On the basis of these findings, he was diagnosed with DM.

Intravenous methylprednisolone (500 mg/day for 3 days) was given, followed by oral prednisone at 25 mg and azathioprine at 50 mg per day. Unfractionated heparin (UFH) (10,000 IU) was also started to prevent venous thrombosis. After these treatments, the patient had spontaneous intramuscular hemorrhage in the right pectoralis major muscle. The episode occurred 1 day after the methylprednisolone pulse therapy. He complained of rapid-onset breast pain and subsequently showed purpura on the right arm and upper trunk (Fig. 1c). A CT image revealed intramuscular hemorrhage in the right pectoralis major muscle (Fig. 1d, 1e). The patient's hemoglobin content had fallen from 12.2 to 7.4 g/dl. Although the patient's activated partial thromboplastin time (APTT) was prolonged (169.1%), other coagulation parameters were all within normal ranges. Twenty-one days later, the level of APTT found to be decreased (120.1%). The same episode did not recur after the second methylprednisolone pulse therapy without UFH.

There have been seven reported cases of DM accompanied by spontaneous

intramuscular hemorrhages (Table 1) (1, 3-7). Methylprednisolone treatment was administered in 6 cases (1, 4-7) out of 8, including our case. In all of these 6 cases, heparin was used in combination. The heparin dosage was from 3,750 units/day to 10,000 units/day. There was no case whose intramuscular hematoma was directly associated with the prognosis.

Previous reports showed immune complex in the wall of intramuscular venules and arterioles, indicating that complement had deposited, bound and activated to completion within the intramuscular microvasculature in patients with DM (8, 9). Kissel et al. (8) found immune complexes in the wall of intramuscular venules and arterioles, indicating that complement is deposited, bound, and activated within the intramuscular microvasculature in patients with DM. These capillary changes were not revealed in polymyositis. As far as we know, there have been no reports of intramuscular hemorrhages observed in polymyositis.

In the previous cases, shown in Table 1, anti Jo-1 antibody was investigated in 3 cases, but all of which were negative (1, 6, 7). There were no descriptions of other DM-specific antibodies, probably due to unavailability of methods for measuring those

autoantibodies in these 7 cases. Our case is the first case report of intramuscular hemorrhage in a DM patient with anti-TIF1γ antibody. Recently, it was reported that anti-TIF1γ antibodies are closely associated with the presence of dense C5b-9 deposits in the capillaries and the presence of vacuolated fibers that are described as a pathologic characteristic of myovasculopathies (10). Even in the previous reports with intramuscular hemorrhage, some patients had muscle biopsy performed (1, 3-5); however, no immunocytochemical results were shown. Although intramuscular hematoma is a rare complication of DM, future histological studies including immunocytochemistry in such cases are important to elucidate the contribution of anti-TIF1γ antibodies.

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Table 1. Intramuscular hemorrhages in dermatomyositis

Case	Age	Bleeding site	Heparin administration	Coagulability	Steroid pulse therapy	Blood transfusion	Reference
1	50	Left rectus abdominis	−	Normal	−	＋	2
2	11	Right retroperitoneum	−	Normal	−	−	2
3	80	Left rectus sheath, Oblique right thigh	＋	APTT prolonged	＋	＋	3
4	77	Left iliopsoas iliac, Retroperitoneum	＋	APTT prolonged	＋	−	4
5	64	Right retroperitoneum, Left rectus sheath	+	Normal	+	＋	5
6	65	Iliopsoas on both sides, Thigh	+	APTT prolonged	+	＋	6
7	60	Left trapezius	+	APTT prolonged	+	＋	1
8	73	Pectoralis major muscle	+	APTT prolonged	+	−	Our case

Figure 1

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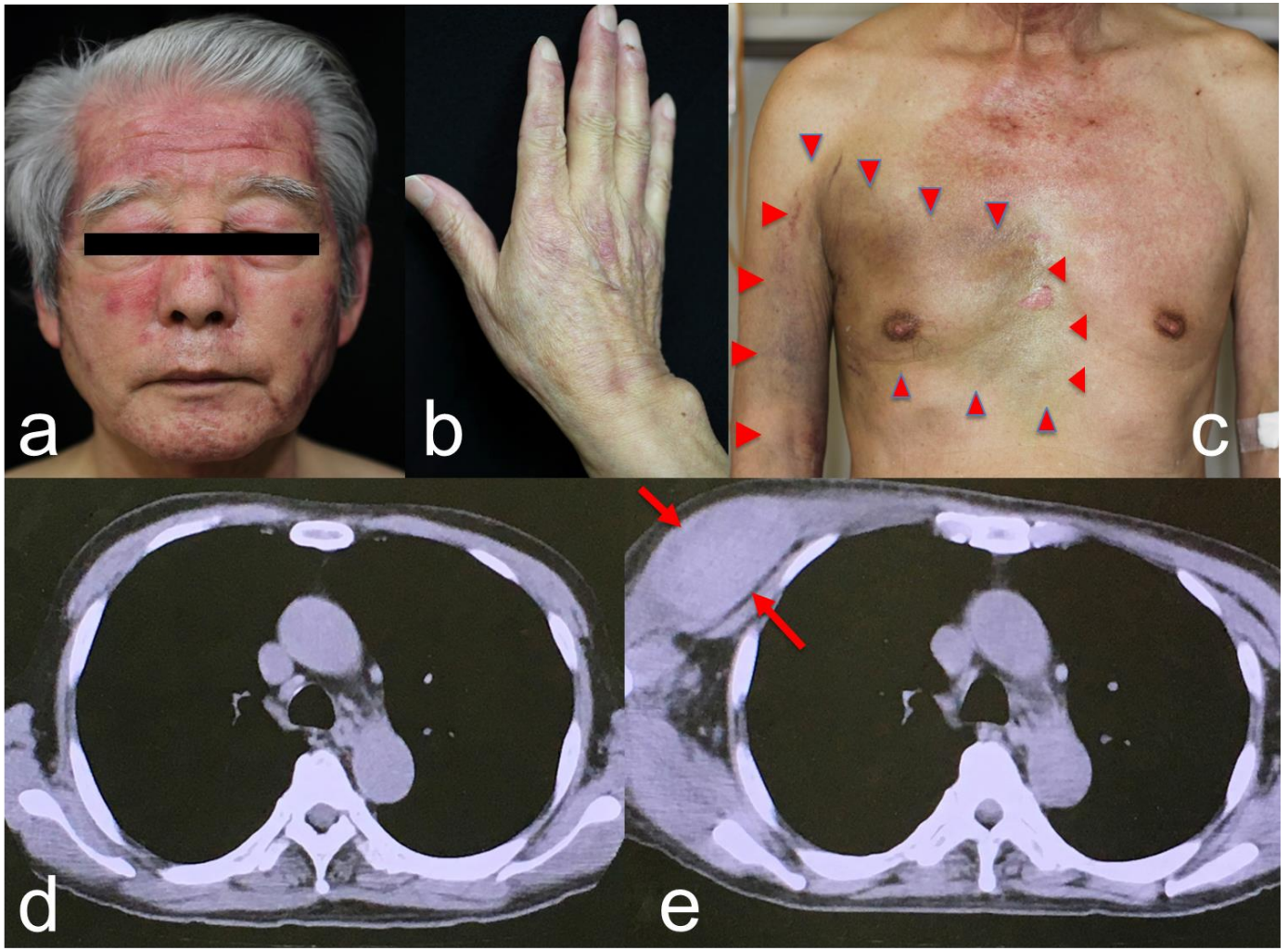

Figure legend

Figure 1. The patient's clinical features. Facial erythema (a) and Gottron's sign (b) are characteristic of dermatomyositis. He showed purpura on the right arm and upper trunk (arrowheads) with the V-neck sign (c). Although a CT scan of the chest showed no abnormalities at 1 day after admission (d), it did reveal intramuscular hemorrhage in the right pectoralis major muscle (arrows) at 24 days after admission (e).