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CASES WITH A MESSAGE

Atorvastatin-induced dermatomyositis

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Abstract A 49-year-old man with no previous history of musculoskeletal or cutaneous problems who had a myocardial infarction (MI) was treated with atorvastatin, prasugrel, enoxaparine, and diltiazem following percutaneous coronary intervention. He was referred to our rheumatology outpatient clinic for rash and papules on the knuckles, face, and neck, as well as proximal muscle weakness. In the physical examination, a reddish rash on the face and Gottron's papules on the knuckles were detected. The skin biopsy performed indicated interface dermatitis with hydropic degeneration of basal keratinocytes, supporting the clinical impression of dermatomyositis. He was started on prednisolone 1 mg/kg/day. After 30 days of prednisolone therapy, all symptoms disappeared.

Keywords Atorvastatin · Dermatomyositis · Statin-induced dermatomyositis

Dermatomyositis is considered as an autoimmune-mediated process that evolves in genetically predisposed individuals and is triggered by environmental factors including infectious agents and drugs. Statins have been widely used for both the prevention of cardiovascular disease in coronary artery disease patients [1] and in previously healthy individuals [2] and also the medical treatment of patients with acute coronary syndrome. Commonly defined side effects of statin therapy are hepatotoxicity and myopathy; in addition, autoimmune diseases are rarely observed. We would like to report a case of dermatomyositis occurring after atorvastatin therapy.

A 49-year-old man with no previous history of musculoskeletal or cutaneous problems, who had a myocardial infarction (MI) in September 2014 and following percutaneous coronary intervention(PCI), was treated with atorvastatin 10 mg/day, prasugrel 10 mg/day, enoxaparine 160 mg/day, and diltiazem 90 mg/day.

In November 2014, 2 months after his MI, he developed a rash on his face, knuckles and neck and applied to the cardiology outpatient clinic. His laboratory analysis indicated creatinine phosphokinase (CPK) level at 2850 U/ml (Normal: <250), and the myoglobine level at 307 ng/dl (Normal: 0–58). He also complained about new on-set muscle weakness. As medication induced rhabdomyolysis was suspected, treatment with atorvastatin, prasugrel, enoxaparine, and diltiazem was stopped, and he was started on only clopidogrel treatment 150 mg/day.

He was referred to our rheumatology outpatient clinic in January 2015 due to rash and papules on the knuckles, face and neck (Figs. 1, 2).

In the physical examination, reddish rash on the face and Gottron's papules on the knuckles were detected. Heliotrope rash, calcinosis, dyspnea, or sclerodactily could not be identified. Musculoskeletal examination revealed proximal muscle weakness affecting the hip and shoulder girdle muscled. Electromyography was performed and bilateral upper and lower proximal myopathy were reported. Complete blood count, liver transaminases, renal function tests, and CPK were within normal limits.

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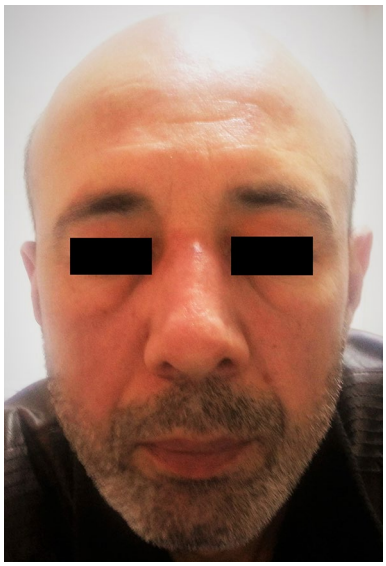

Fig. 1 Reddish rash

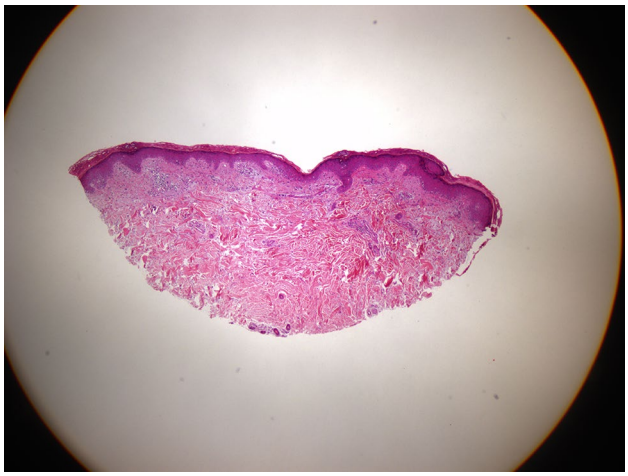

Fig. 3 The histological examination of the punch biopsy revealed an interphase dermatitis composed of a hyperkeratotic and acanthotic epidermis with hypergranulosis, perivascularlymphocyte and histiocyte infiltration, and melanin-laden macrophages within superficial dermis. HEX40

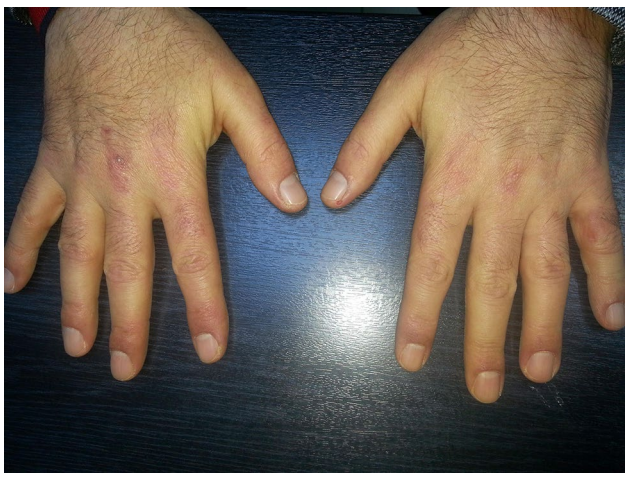

Fig. 2 Gottron's papules

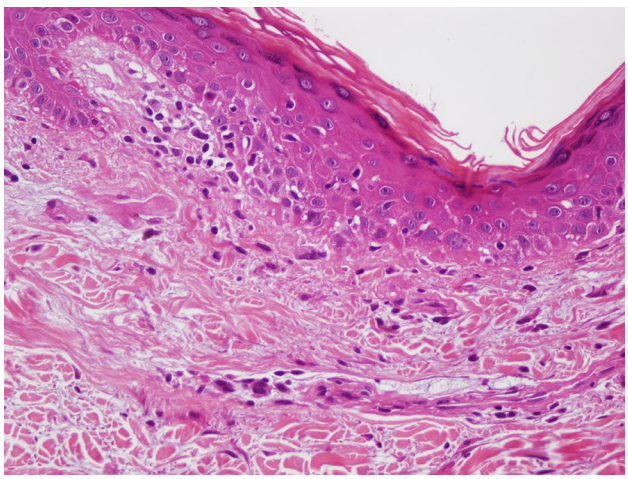

Fig. 4 There was hydropic degeneration and apoptotic cells at the basal layer of the epidermis. HEX400

Antinuclear antibodies (ANA), anti double-stranded DNA antibodies, and Jo-1 were negative. Subsequently, a skin biopsy was performed and interface dermatitis with hydropic degeneration of basal keratinocytes (Figs. 3, 4) was detected, supporting the clinical impression of dermatomyositis.

Malignancy work-up was performed with contrast-enhanced thorax and abdomen CT, gastroscopy, and colonoscopy. There has not been any suspicious finding for malignancy and also any additional pathologic finding has not been found.

There was no previous publication about diltiazem, enoxaparine, prasugrel-induced dermatomyositis in literature; in addition, there is no reported interaction between these drugs. He was started on Prednisolone 1 mg/kg/day. After 30 days of prednisolone therapy, the rash on his face and neck has cleared and, his proximal muscle weakness has regressed.

Statins are associated with inflammatory myopathies including polymyositis, dermatomyositis, and necrotizing autoimmune myopathy that are characterized by elevated CK levels and proximal muscle weakness. Severe statin myotoxicity occurs in nearly 1 out of 10,000 patients under statin theraphy [4]. There are no common risk factors for the devolopment of necrotizing myopathy during statin theraphy [5].

Dermatomyositis is a rare consequence of statin therapy. There are three previously reported cases of DM syndrome in patients recieving atorvastatin [6, 8]. All three cases included both skin and muscle involvement. One of the patients was reported to have rhabdomyolysis and compartment syndrome and another one to have Sjogren syndrome. Dermatomyositis occured between 2 months to 10 years after initiation of atorvastatin theraphy. Lupus is also associated with atorvastatin theraphy [9].

The mechanism of statin-induced dermatomyositis remains unknown. Although mitochondrial dysfunction, impaired sarcoplasmic reticulum cycling, and vitamin D deficiency are possible risk factors, there is no "primary mechanism" for pathogenesis of statin-induced dermatomyositis [10]. A recent review on the topic has noted that the presence of autoantibodies against 3-hydroxyl-3-methylglutaryl coenzyme A (HMG-CoA) reductase is associated with this autoimmune condition [11]. Class II HLA allele DRB1*11:01 is strongly associated with the anti-HMG-CoA reductase autoantibody in statin-exposed patients. Statin triggers autoimmune disease in this susceptible genetic group.

Statins are an extensively used class of drugs. Myopathy is an uncommon, but well-described side effect of statin therapy. The aim of this case report is to emphasize the potential role of statins in immune systemic diseases. Although the risk for developing statin-associated DM appears to be rather low, pysicians must be careful about the muscle complaints of patients who are receiving statin therapy.

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