Pustular Drug Eruption Induced by Ferrous Fumarate

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Key Words
Ferrous fumarate
Pustular drug eruption
Acute generalized exanthematous pustulosis
Generalized pustular psoriasis

Although ferrous agents are commonly used clinically, they rarely induce allergic skin eruptions. Moreover, drug eruptions of the pustular type are uncommon and include simple pustular drug eruption, acute generalized exanthematous pustulosis (AGEP) [1] and generalized pustular psoriasis (GPP) [2]. Here, we describe a case of pustular drug eruption induced by ferrous fumarate.

A 36-year-old woman was first seen at our clinic on September 14, 1994, because of a generalized exanthematous pustular eruption. She had been given ferrous fumarate (Ferrum®), carbazochrome sodium sulfonate (Adona®) and tranexamic acid (Transamin®), because of anemia caused by cancer of the uterine cervix and probable idiopathic thrombocytopenic purpura. Fifteen days after receiving these drugs, a skin rash developed on her bilateral thighs and spread gradually to her whole body. At this time, the patient had a high fever of 39.4 °C, and strong pain rather than itching developed. She had no history of psoriasis or AGEP. Physical examination revealed diffuse or various-sized patches of erythema and small papules up to miliary size. In addition, erosions, hemorrhagic vesicles and miliary-sized pustules were seen on the waist and bilateral thighs. There was no Nikolsky’s sign.

Laboratory data showed mild anemia and severe thrombocytopenia. There were no elevated leukocytosis with numerous neutrophils (the count of leukocytes was 5,600/mm3, neutrophils were 3,360/mm3). A bacterial culture of a pustule was negative. Histopathological examination of a skin biopsy specimen from the right thigh revealed subcorneal pustules filled with many neutrophils, subepidermal bullas, edema with neutrophil infiltration and perivascular infiltration composed of lymphocytes within the superficial dermis. There was no vasculitis and direct immunofluorescence was negative. From these clinical and histopathological findings, a diagnosis of pustular drug eruption was made.
Ferrous fumarate was discontinued and the patient was treated with mefhylprednisolone sodium succinate by drip infusion and oral prednisolone at a dose of 60 mg/day. Two days later, the rash and fever began to resolve; the rash completely disappeared in 2 weeks. After the rash had disappeared, a patch test and drug lymphocyte stimulation test were performed for the three drugs administered, but both tests gave negative results for all agents. A challenge test with ferrous fumarate was then performed. The following day, urticarial erythema appeared on the patient’s flank and abdomen at a dose of 1/10 the standard volume. We considered that this was a positive result because the patient claimed that it mimicked the initial appearance of the rash.

Judging from the positive result of the challenge test with ferrous fumarate, we considered that the present case was a drug eruption induced by this agent. To our knowledge, a drug eruption due to ferrous agents has never been reported. We regard our case as a pustular drug eruption because of the presence of small pustules on the thighs and lumbar region which were confirmed histologically. AGEP was considered in the differential diagnosis, but this case was not entirely typical of this condition, i.e. showing an increased number of peripheral neutrophils [1]. GPP was also a possibility [2], but the patient had no history of psoriasis or clinical and histopathological features of GPP. Recently, Suss and Korting [3] have defined a pustular drug eruption as a cutaneous adverse reaction developing after the onset of drug ingestion in a patient without a history of psoriasis. Histologically, the presence of eosinophils in the inflammatory infiltrate may be helpful for the diagnosis of the pustular drug eruption [2, 3]. In most reported cases, histopathological examination has shown subcorneal pustules; in some cases, Kogoj’s spongiform pustules or pustules with vasculitis were demonstrated [4, 5].

In conclusion, we emphasize that commonly used drugs such as ferrous agents may cause pustular drug eruptions.

References