Laser Recall Dermatitis

Chemotherapy-induced recall dermatitis is a phenomenon whereby the administration of a chemotherapy agent induces an inflammatory reaction at sites injured previously, days, months, or even years earlier. Radiation recall dermatitis, where the inflammatory reaction appears at a previously irradiated site, and reactivation of UV light–induced erythema after methotrexate therapy are the prototypes of recall phenomena. A few cases of chemotherapy recall phenomenon on a site of drug extravasation and on a previously scalded wound have been reported. The concept of recall dermatitis is not exclusive for chemotherapy drugs and may also be induced by tuberculostatic drugs, antibiotics, and simvastatin.

Report of a Case | A man in his 30s, evaluated for recently diagnosed hairy cell leukemia, developed multiple vesicles over his legs 12 hours after intravenous administration of iopamidol, a nonionic contrast media used for computed tomography (CT) scan. Three days before the onset of lesions, he had undergone his eighth session in a series of diode laser treatments for hair removal, which he tolerated well, showing no immediate injury. The patient denied taking any medication, applying any topical product, or exposing his skin to the sun. Physical examination showed multiple erythematous, vesicular, well-defined, monomorphic plaques all over the legs and thighs. The lesions appeared only on the laser application areas, with healthy skin around (Figure).

Skin biopsies revealed a moderate, polymorphous inflammatory infiltrate of lymphocytes, histiocytes, numerous eosinophils, and some neutrophils, with a superficial and deep perivascular and interstitial distribution. The epidermis showed spongiosis and a slight inflammatory exocytosis.

Oral and topical corticosteroid therapy achieved complete resolution of the lesions without pigmentation or scarring.

Discussion | Severe adverse events of laser treatment include hyperpigmentation and hypopigmentation, crusting, blistering, and scarring. The formation of vesicles after laser treatment is a byproduct of thermal epidermal damage. Epidermal necrosis is expected to be present in the histologic findings of the laser burn.

Histopathologic features of our case are similar to those observed in drug eruptions. Spongiosis and a dermal inflammatory infiltration composed mainly of lymphocytes with a variable number of eosinophils are present in the skin biopsies of cutaneous reactions to iodinated contrast media. In our patient, the distribution of lesions exclusively on laser application areas suggests that the damage caused by the laser was a decisive factor in the onset of drug reaction to the iopamidol used for CT scan.

The pathogenic mechanism of the recall phenomenon is unknown. The onset of the symptoms of recall usually occurs within days to a few weeks after exposure to the precipitating drug, frequently after the first dose, and sometimes during or immediately after intravenous administration.

The marked clinical and histologic differences between the cases induced by different drugs suggest that they are caused by different mechanisms. Any previous insult to the skin would result in increased susceptibility of the local area to the toxic effects of subsequent drug treatments, but probably mechanisms other than a direct toxic effect must be also involved. Some cases may be merely drug reactions confined to areas of previous damage. Although in our case there was no clinically apparent damage, the effect of the previous laser treatment could produce localized edema and vascular changes with increased tissue delivery of drug.

Recall phenomenon has not been associated with laser treatment for hair removal. There is a report of docetaxel-induced recall dermatitis on previous Nd:YAG laser treatment sites.

In conclusion, the temporal relationship between contrast media administration and the appearance of the cutaneous lesions and distribution exclusively on laser treatment sites suggest that this case would correspond to recall phenomenon.
Examination revealed a predominantly lobular neutrophilic infiltrate. The lesions were observed at the site of previous drug extravasation.

No other signs or symptoms were found, except for fever, malaise, and increased levels of acute-phase reactants. No other signs or symptoms corresponded to a “probable” diagnosis.

We considered subcutaneous Sweet syndrome, idiopathic infantile febrile panniculitis, and panniculitis associated with rheumatic disease.

The patient had periodic febrile episodes (temperature up to 40ºC) lasting for 3 days to several weeks, malaise, and increased levels of acute-phase reactants. There were no other signs or symptoms. Three skin biopsy specimens were obtained for histopathological evaluation, and all showed the same findings.

Discussion

In the multiple articles that describe clinical and genetic features of FMF, 10% to 40% heterozygous mutations were detected. In fact, there is a series of 94 patients carrying a single mutated allele and sharing clinical features with our case: a younger age of onset, longer febrile periods, and a majority of skin eruptions that were not typical ELE. The experts highlight the clinical and therapeutic importance of these single mutations and propose a therapeutic trial with colchicine to support FMF diagnosis. Finally, some authors warn about an expanded spectrum of FMF with new recurrent clinical manifestations that should be considered in cases with rare mutations and mutations in heterozygosis.

The genetic explanation for developing symptoms while carrying a single mutated allele lies in several hypotheses: a dominant inheritance with incomplete penetration under certain environmental backgrounds, oligogenism, difficulties in the detection of rare mutations, and pseudodominance phenomenon.

Letters

Figure 1. Recurrent Contusiform Nodules on the Lower Limbs

Tender, erythematous, contusiform, warm nodules with irregular shape, located on the lower limbs.