Localization of Drug Rash over the Sites of Neuralgia

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Of various types of drug eruptions, only fixed drug eruption has been found to localize over sites of local injury, e.g. insect bites, vascular lesions, healed herpes zoster or cellulitis [1]. However, no such predilection for localization has been observed regarding maculopapular rash or erythema multiforme. A case of phenytoin-induced maculopapular rash over the hemiplegic side in a patient with cerebral contusion was earlier reported by us [2]. We herein describe 2 other cases where drug rashes were localized predominantly over the sites of neuralgia.

Case 1, a 48-year-old male, presented with a maculopapular rash over the face developing 3 days following intake of ampicillin for a sore throat. The rash was mostly localized in the turban area, i.e. the dermatome supplied by the mandibular division of the trigeminal nerve on the right side. Other areas on the right side of the face were minimally affected. There was total sparing of the left side of the face as well as other parts of the body. The patient gave a history of paroxysms of excruciating pain over the lips, gums, cheek and chin on the right side lasting for 10 s to 1.5 min for the last 2 years. There was no difference in pulsations of facial and superficial temporal arteries nor a difference in temperature between the right and left sides of the face. No sensory or motor deficit could be elicited. Ampicillin was substituted by erythromycin, and the rash completely subsided within 4 days. A neurology opinion was sought, and a diagnosis of right-sided trigeminal neuralgia was made. He was put on carbamazepine, 100 mg daily to start with, and it was gradually increased to 200 mg 4 times daily. There was 70% relief of pain after 6 weeks.

Case 2, a 58-year-old male, presented with erythematous macules and large blisters over the left thigh and leg of 2 days’ duration. He gave a history of taking diclofenac sodium tablets for pain over the left thigh and leg 2 days prior to the development of the skin rash. The pain used to start at the lower back and to radiate to the left thigh and leg for the last year, and it was diagnosed as sciatica by a neurologist. Examination revealed erythematous papules and bullae of variable sizes arising on an erythematous base. A few discrete iris lesions were seen at the periphery of the blisters. Nikolsky’s sign was positive. A diagnosis of erythema multiforme was made, and diclofenac sodium was incriminated as the probable etiologic agent. The drug was stopped, blisters were aspirated and application of a topical steroid-antibacterial combination was advised. All the lesions healed within 5 days.

In both cases, the drug rash was localized to the areas of neuralgia. It needs further knowledge to explain this peculiar localization of a rash. Neuralgia might be due to an irritative lesion of the nerve root which can result in vasomotor instability at the cortical or subcortical level [3,4].
Regional vasodilation arising from such vasomotor instability may serve to localize inflammatory/immune reactions and account for the peculiar distribution of drug-induced rashes [2]. Moreover, many nociceptive afferents contribute to the formation of pain pathways. Nociceptive signals are conveyed to the spinal cord by unmyelinated and small myelinated sensory axons. Substance P, which comes from local nerve endings, contributes to the production of pain and is a strong vasodilator as well [5]. This could explain the increased circulation to a limb affected by neuralgia. Drug-induced rashes are mostly mediated by T lymphocytes of immune/inflammatory origin. Vasodilatation by substance P also causes expansion of intercellular adhesion molecule on the endothelium leading to localization of these immunocompetent T cells and in turn the drug reactions in that area. This might explain why drug rashes often remain limited to a particular limb or particular area of the body.

References
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