

Purpura caused by Emla[®] is of toxic origin

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Emla[®] cream has been widely used as a local anaesthetic for superficial procedures. Blanching and redness are commonly observed side-effects. We observed purpura in 5 patients after application of Emla[®]. Other authors have not reported this before. In 4 patients, purpura was observed after 30 min Emla[®] application before the treatment of mollusca contagiosa. In 1 patient, Emla[®] was used for 60 min before taking a lip biopsy. In these patients, patch tests were performed with the individual ingredients of Emla[®] cream, Emla[®] cream itself, placebo cream, and Tegaderm[®] plaster. All tests were negative at an early reading after 30 min as well as after 2 and 3 days. We concluded that the purpuric reaction was not of an allergic nature. Possibly, it was caused by a toxic effect on the capillary endothelium.

Key words: purpura; Emla[®] cream; local anaesthetics; side-effects; drug reactions; medicaments; irritant contact reaction. © Munksgaard, 1997.

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Purpura is a discolouration of the skin or mucous membranes due to extravasation of red blood cells. It is a physical sign with many causes, which can be divided into purpura from platelet disorders, vascular or non-thrombocytopenic purpura, coagulation disorders and several miscellaneous clinical syndromes of varying etiology, such as painful bruising syndrome and purpura simplex. Vessel damage may be caused by a direct toxic or allergic contact effect or some immunological disturbance. There is a wide variety of substances capable of causing capillary damage, with or without any change in platelets. They may be directly toxic or cause an allergic reaction.

Non-thrombocytopenic purpura may be caused by various textile fabrics, rubber, antioxidants, other chemicals and pressure. Wool, textile finishers, optical whiteners in washing powders, fibreglass and pressure can induce clothing purpura (1-3). Allergic contact purpura can be produced by the rubber anti-oxidant N-isopropyl-N-phenyl-para-phenylenediamine (IPPD) and para-phenylenediamine (PPD) used as hair and fur dye. It has been suggested that IPPD acts as a toxin or allergen with an affinity for vascular endothelium (4, 5).

Purpuric drug reactions may also occur. Exposure to d-limonene, the predominant monoterpene in citrus oil, caused a purpuric reaction in a

healthy 39-year-old man, who was exposed to d-limonene for 2 h by immersing the left hand in a glass jar of solvent (6). A purpuric contact dermatitis from benzoyl peroxide was reported, in which a primary and selective toxic effect on the capillary endothelium may have led to pericapillary infiltration. Alternatively, those authors also suggested a primary antigen-induced lymphocytic reaction in the pericapillary region, which could have liberated toxic lymphokines and may have been directly responsible for endothelial damage (7).

During the past 8 years, we have used Emla[®] cream in at least 3500 patients, as an anaesthetic for removing molluscum contagiosum and for other indications, without serious side-effects. Emla[®] cream is a eutectic mixture of lidocaine and prilocaine (2.5% each). Emla[®] cream is applied for at least 30 min, after which the intervention may be made almost painlessly (8-10). We observed purpura in 4 patients with molluscum contagiosum 30 min after the application of Emla[®] cream (Fig. 1). Purpura was observed after application of Emla[®] cream for 60 min in another patient, in whom it was used as a local anaesthetic for taking a lip-biopsy. The purpura disappeared within several days.

In the present study, we used patch tests to investigate whether these purpuric eruptions were of an allergic nature.



Fig. 1. Purpuric reaction after 30 min application of Emla[®] before the treatment of mollusca contagiosa.

Materials and Methods

Patients and study design

All 5 patients were recalled for patch test investigation. All patients and their parents were provided with verbal and written information on the study and were willing to participate. 4 of the 5 patients had atopic dermatitis. These 4 patients were treated for molluscum contagiosum.

Methods

All the individual ingredients of the Emla[®] cream, Emla[®] cream itself, placebo cream (Emla[®] without lidocaine and prilocaine) and Tegaderm[®] (3M) plaster in large Finn Chambers[®] (Bipharma) were applied to the skin. The series consisted of: carboxypolymethylene 0.1 mg/ml–1 mg/ml–10 mg/ml; Arlatone 289 0.1 mg/ml–1 mg/ml–10 mg/ml; prilocaine (ASTRA) 0.25 mg/ml–2.5 mg/ml–25 mg/ml; lidocaine (ASTRA) 0.25 mg/ml–2.5 mg/ml–25 mg/ml; placebo cream; Emla[®] cream and Tegaderm[®] plaster.

The tests were read for the 1st time 30 min after application of the test substances to the skin. The

tests were read for the 2nd time after 2 days, when the test substances were removed. The tests were read for the 3rd time after 3 days.

Results

The tests were negative in all 5 patients at the early reading after 30 min, as well as after 2 and 3 days.

Discussion

Blanching and redness are commonly observed side-effects of Emla[®] application (9, 10). In the literature, purpura has not been described, although anecdotal oral communications confirm that it sometimes develops after prolonged application of Emla[®]. Despite the widespread and frequent use of Emla[®] cream as a local anaesthetic, we only found 2 cases of allergic contact dermatitis caused by Emla[®] in the literature. The 1st patient was treated with Emla[®] because of a painful arterial ulcer, and reported by Van den Hove et al. (11). Thakur & Murali (12) described the 2nd patient, who was treated with Emla[®] because of intractable post-herpetic neuralgia. In both patients,

patch tests for Emla® and prilocaine were positive. We have observed only 1 patient with an eczematous reaction after Emla®. We could not perform patch tests in this patient, because of the parents' refusal. However, the mother informed us that the child had been treated with Emla® several times following this reaction without suffering any reaction. To our knowledge, purpuric reactions after Emla® application have not been reported before by other authors (9). Purpura is not mentioned as a possible side-effect in the product information provided by the manufacturer.

Purpuric reactions were observed once after application of Emla® cream in the 5 patients in our study. The 4 patients with mollusca contagiosa also had atopic dermatitis. Since the barrier function of the skin is reduced in atopic dermatitis, increased penetration of substances can occur (13). In the 5th patient, Emla® was applied on the lip. Locally applied anaesthetics are absorbed very rapidly through the mucous membranes (14).

In our patients, the purpuric reaction was seen 30 min after Emla® application on the skin and after 60 min application on the lip. Since this purpuric reaction could not be reproduced on patch testing, we concluded that the reaction was not of an allergic nature. It may be that the purpura were caused by a toxic effect on the capillary endothelium, inducing extravasation of erythrocytes. One of the explanations of the purpuric phenomenon could be overlong application of Emla® in these particular cases, though we did not observe a purpuric reaction after the application during patch testing. Mollusca contagiosa are often surrounded by eczematous skin. In an eczematous skin, epidermal barrier function is disturbed, permitting more rapid penetration of local anaesthetics. Relative to the skin, mucous membranes allow faster penetration of local anaesthetics. This could be an explanation in the case of a purpuric reaction after Emla® application as a local anaesthetic for taking a lip biopsy.

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