CASE REPORT

Abolition of Beauty Marks – Calamitous Burn

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ABSTRACT

We present a case series of two young women presented with facial chemical burns after applying the mole removal products. In this series, we describe the potentially corrosive active ingredient that produces the chemical burn in the natural product and the off-label or unauthorised product. The burn on the delicate facial skin leads to irreversible disfigurement. However, with timely wound debridement and a full-thickness skin graft, the reconstruction can still achieve a satisfactory aesthetic result.

Keywords: Burns, Moles, Grafting, Skin, Natural Product

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INTRODUCTION

Moles are small, dark coloured spots on the skin and formed by clusters of pigmented cells. Moles are also fashionably known as the "beauty mark", which relates to the aesthetic value depending on the placement of the mole. As cultural, societal standards of a beauty mark have skewed the perception towards moles and some may yield a potential malignancy, numerous efforts were described medically for its removal through electrocautery, laser excision and excision with stitches. Mole removal has been a common practice in some cultures, especially when the placement of the mole was perceived as inauspicious.

In developing countries with limited access to advanced dermatological solutions, many still rely on low budget solutions from unauthorised cosmetic chemical mole removal products or alternative remedies. Our case series intends to illustrate the two different types of facial chemical burn resulting from an unauthorised cosmetic chemical mole removal product and alternative mole removal remedies.

CASE REPORT

Case Study 1

An 18-year-old lady presented with a painless necrotic patch over her right nasal bridge measuring 1.5 x 1.5cm (Fig. 1) resulted from a chemical burn from an unauthorised cosmetic chemical mole removal cream. The cream ingredients were lemon juice, cinnamon, and vitamin E. It was advised from the product manual to apply the cream on the selected mole 3 sessions a day for 20 minutes. After 24 hours of the first application, a scab was formed over the mole. She was advised to continue the application as instructed by the manual. However, she wishes for expeditious effect; she self-prescribed the application 5 times per day for more than an hour. Besides that, she also had sun exposure on the treated mole, which were strongly advice against throughout the treatment. The scab enlarged over seven days beyond the mole's boundaries, which referred to our unit for further management.

The necrotic patch was removed under local anaesthesia with the observed underlying full-thickness chemical burn wound (Fig. 1). The wound was debrided and covered with a full-thickness skin graft (FTSG) harvested from the posterior auricle. The recovery was uneventful, with a satisfactory result (Fig. 2).

Case Study 2

A 20-year-old lady with a full-thickness chemical burn wound measuring 3 x 3 cm over her right cheek, the wound base was clean, and the edges were well-demarcated (Fig. 3A). The injury resulted from a self-made mole removal solution, an alternative remedy from her local healer. The ingredients were vinegar, garlic paste and dishwashing detergent. The treatment involved dipping a cotton ball into the concoction and direct application to the mole with an occlusive dressing for an hour, twice a day. After 24 hours from the initial treatment, she felt a stinging sensation with skin exfoliation at the application site. On the third day, her skin started to exfoliate thoroughly with the mole. She continued to apply for another two days, of which

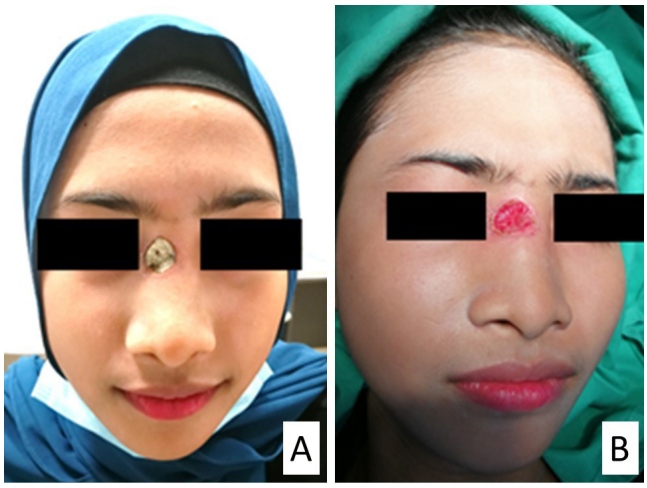

Figure 1: Fig. 1 (A) Necrotic patch (1.5cm x 1.5cm) at nasal bridge. (B) The full-thickness chemical burn under the necrotic patch.

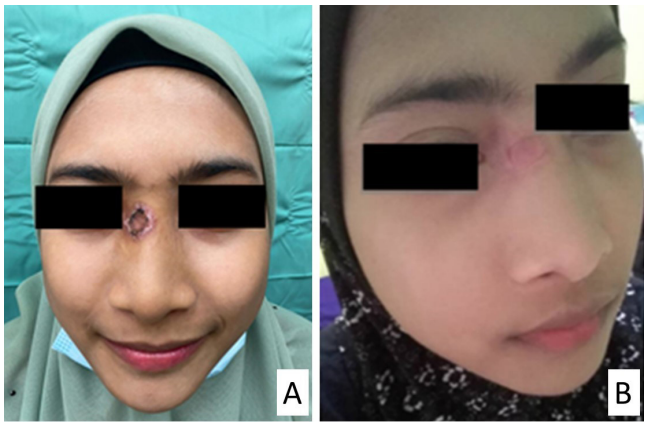

Figure 2: (A) FTSG after 5 days. (B) FTSG after 1 month

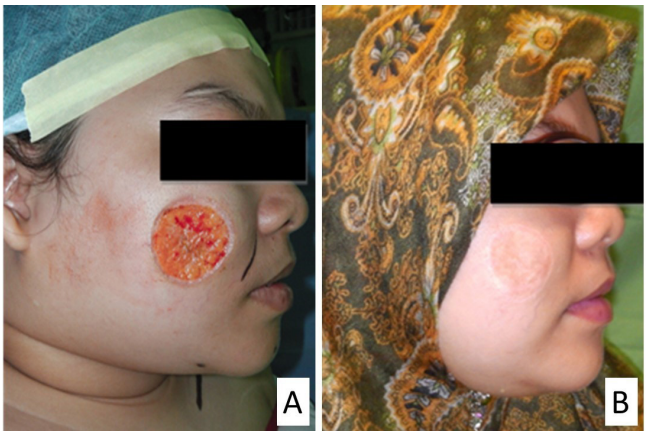

Figure 3: (A) Wound from a chemical burn of an alternative remedy (3cm x 3cm). (B) After FTSG and multi-session fractional carbon dioxide laser treatment

the treatment area enlarged and bled, and referred to our unit for further care.

She underwent wound debridement and FTSG harvested from the posterior auricle. The wound was complicated with a hypertrophic scar treated with multiple sessions of fractional carbon dioxide laser treatment with satisfactory aesthetic results (Fig. 3B).

DISCUSSION

Chemical burn causes variables of destruction from the epidermal to dermal or deeper tissues after exposure to corrosive acidic-based or alkaline-based substances. The severity of chemical burn directly relates to the duration of the contact agent with the skin (1). Alkaline burns tend to be more severe than acid burns. Acid agents cause coagulation necrosis and then form eschar, which limits the further extension of the agent. Alkaline agents cause liquefaction necrosis which involves fat cells saponification that allows unattached alkali molecules to penetrate deeper into the wound and cause more tissue destruction. Facial skin has a thinner layer of corneocytes with faster cell turnover than other body parts of the skin, making it vulnerable to insults (1).

There are many active ingredients from the natural product when admixed produced properties could cause a chemical burn. For instance, lemon contains furanocoumarins and psoralens, which are photosensitising chemical components. Coupling with the sun's ultraviolet radiation, the photochemical reactions damaged the cell membrane of the skin resulting in cell death, oedema and blistering. This condition is known as phytophotodermatitis.

Cinnamon is a common spice used for culinary purposes and alternative medicine. It is obtained from the Cinnamomum plant. Topical cinnamon application has shown to be beneficial in treating common dermatological conditions such as acne vulgaris. On the contrary, cinnamon-based essential oil and chewing gum may also cause severe chemical cutaneous burn and mucosal ulceration (2).

Vinegar contains 4-8% of acetic acid, and it can denature the protein of the skin, causing coagulation necrosis and slough formation. The degree of damage depends upon the vinegar's pH, contact time and skin type. Vinegar may cause deep ulceration and second-degree chemical burn on the delicate facial skin (3).

Garlic is another popular ingredient widely used in cooking and treating various health problems such as dyslipidemia, diabetes, inflammation and infection (4). Garlic contains monosulfides, disulfides and trisulfides (4). It also has alliin and alliinase, which is relatively stable and safe to tissue. However, when it is chopped or crushed, the enzyme alliinase changes the alliin into allicin which participates in cysteine metabolism (4). This active ingredient potentiates chemical burn by disrupting the skin's epidermal junction leading to coagulative necrosis. Chemical burn from garlic usually occurs around 8 hours after exposure expeditious by an occlusive dressing (4).

Household cleaning products were among the most common causes of skin injuries reported by far, as most contain corrosive substances (5). Hand dishwashing detergent contains anionic and non-ionic surfactants that help to remove grease. These surfactants decreased the skin's barrier function and subsequently causes skin irritations, dryness, redness, swelling and inflammation. Hand dishwashing detergent as a standalone product will not cause chemical burns. However, mixing the detergent with other ingredients may produce an unexpected reaction.

In our series, we preferred FTSG after considerations over the possible reconstructive options. Primary closure would risk a tension closure as the root of the nose has tighter skin that may cause wound breakdown and hypertrophic scar formation. A local flap from the forehead or eyelids was another option to consider, rebutted by potential distortion to the facial anatomy causing asymmetry from an additional scar. Similarly to the local flap, the FTSG may also have additional donor scar. Therefore, the donor site preferred was the posterior auricle region as the colour and the skin thickness matched the facial skin and was well obscured.

The off-label or unauthorised cosmetic mole removal cream led to unpredictable results due to the lack of evidence of its safety and efficacy. The active ingredients of the natural products used in both cases were either corrosive or photosensitive. A non-standard mixture with adhesive dressing augmented the result. A full-thickness skin graft provides a satisfactory aesthetic outcome in a chemical burn.

CONCLUSION

Natural products such as lemon, cinnamon, vinegar, and garlic are corrosive to the skin, with the unpredictable effect accentuated by overzealous application and adhesive dressing. Full-thickness skin graft complimented with carbon dioxide laser treatment yields a satisfactory aesthetic outcome in this chemical burn.

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