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Case report

Self-immolation after forehead flap

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ABSTRACT

Background and aim: Aside from topical skin preparations and surgical drapes, the medical literature inadequately addresses the flammability risks associated with the use of other potential fuel sources. The flammability risk of petroleum-based topical ointments and wound dressings requires particular attention. The purpose of this case report is to highlight the potential risks associated with these products.
Methods: Clinical charts of adult patients who underwent facial reconstruction between 2007 and 2016 were retrospectively reviewed. Demographics, clinical information, and treatment outcomes were analyzed. The main outcome measure was self-inflicted burn injury secondary to ignition of facial wound dressing by a tobacco product. In addition, the MEDLINE, Cochrane, and PubMed databases were reviewed for articles published on the fire risk associated with petrolatum-based products.
Results: A total of 39 patients who underwent 40 forehead flaps for facial reconstruction were identified. A 5% incidence of self-inflicted burn injury secondary to ignition of a facial wound dressing by a tobacco product was found in our patient population.
Conclusions: Despite the widespread use of petrolatum-based products and their role as potential fuel sources, the flammability potential of these products is poorly described in the literature. Nonetheless, petroleum-based products are associated with potential risks, especially for patients who smoke or for those who engage in activities or occupations that pose a greater risk for fire

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exposure. Surgeons must be explicit in communicating this risk to patients to prevent acutely devastating complications.

Introduction

There are numerous case reports in the literature regarding patient burns in the surgical and procedural setting. A number of these injuries have involved flammable medications in the form of prepping agents, lubricants and ointments, and wound dressings, and have resulted in accidents and serious injuries. The diversity of the causative agents underscores the multitude of potential risks that must be properly mitigated to avoid patient burns.[1]

The flammability risk of topical ointments and wound dressings composed of petrolatum (or petrolatum fractions such as paraffin) requires particular attention. Petrolatum-based products are described in literature as potential fuel sources,[1,2] yet there is little information conveyed or publicized about its flammability potential.

Here, we present two specific cases in which patients underwent facial reconstruction with subsequent self-inflicted thermal injury secondary to ignition of a post-operative xeroform dressing or Vaseline impregnated gauze while smoking cigarettes. These cases demonstrate the need to raise awareness about the potential risks, especially for patients who smoke or for those who engage in activities or occupations that pose a greater risk for fire exposure and improve communication among both physicians and patients. In certain patients, it may be prudent to utilize alternative wound dressings or preparations to prevent such events. In addition, a literature search was performed to identify other cases documenting the fire risk associated with petrolatum-based products and/or wound dressings, and better characterize the nature of this risk.

Patients and methods

Clinical charts of adult patients who underwent facial reconstruction between 2007 and 2016 were retrospectively reviewed. Demographic and clinical information, including clinical presentation, etiology, comorbid conditions, and treatment outcomes, was reviewed and analyzed (Table 1). The main outcome measure was self-inflicted burn injury secondary to ignition of facial wound dressing by tobacco product.

Additionally, a review of the literature was performed to identify reported cases of burns caused by the ignition of wound dressings, specifically those that are petrolatum-based. Databases searched included MEDLINE, Cochrane, and PubMed. Search terms included “petrolatum,” “petroleum,” “paraffin,” “xeroform,” “dressing,” “bandage,” “head and neck,” “plastic surgery,” “oculoplastic,” “face,” “surgical procedure,” “surgery,” “operating,” “burn,” “ignition,” “fire,” and “flammable.” Titles and abstracts were reviewed to identify potentially relevant studies. Studies were included if ignition of wound dressings involved human patients and an English abstract was available. References of the search results were reviewed to acquire outstanding articles not found in the initial literature search.

Results

In our patient population, we identified 39 patients who underwent 40 forehead flaps for facial reconstruction. Two of these patients suffered from facial injuries secondary to ignition of the facial wound dressings while attempting to light cigarettes, resulting in a 5% incidence. Both patients were aggressively advised to quit throughout the course of their care, but continued to smoke.