CASE REPORT

Unusual burn injury due to application of white vinegar and aspirin mixture

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Key words
Aspirin; Burn; Injury; White vinegar

Abstract

Traditional medicine remedies are believed to provide relief from pain; nevertheless, it can be a risky procedure if these remedies are prepared inappropriately. Here, we describe a patient who suffered from a split-thickness leg burn after applying a self-inflicted mixture consisting of white vinegar and aspirin prepared for knee pain. This case report highlights a rare cause of a chemical burn that could become more common with increasing use of traditional remedies worldwide.

Introduction

Increased use of chemical materials augments the rate of exposure to dangerous chemicals (1–4). These exposures are mostly accidental. Unlike alkalis, acids bond to tissue proteins and it requires prolonged irrigation to mitigate their injurious effects. Irrigation with water or saline solution is the primary choice in emergency management of these exposures (1,3,4). In the presence of these injuries, irrigation should continue until the patient is transferred to a burn centre. In this case report, we present a patient with acid burn caused from application of a traditional medicine remedy prepared for pain relief.

There has been no previously reported case of chemical burn of the skin caused by white vinegar and aspirin mixture. We report the first ever case of this kind.

Case report

A 60-year-old male patient with second-degree burn injury on both his legs was admitted to the clinic. The patient reported applying a mixture consisting of white vinegar and aspirin to his right and left legs for knee pain. He prepared the mixture by adding white vinegar to five aspirin tablets, mixed together in a container and applied the concoction to his legs on the painful area with the help of a bandage impregnated with the mixture. He had become aware of a burning sensation immediately after applying the bandage; yet had ignored it considering this sensation to be normal. He went to sleep having applied the remedy and woke up with an intensive burning pain 1 hour later. He removed the bandage and washed off the concoction with cold water under the tap. The mixture spread widely on his right leg because of washing, and increased the pain. He was admitted to the emergency department with ongoing pain and skin burn 1 day after application of the mixture. Physical examination findings were circumferential burns and split thickness in the right and left knees and legs (Figure 1). The leg was swollen but there was no neurovascular involvement. The initial management consisted of continuous washing with water, pain management and elevation of the leg to reduce the swelling.

The patient was hospitalised, and wound care was performed with daily dressings and he was started on antibiotics. The burns were covered with tulle dressings that were changed every 2 days and physiotherapy was performed. The burn healed without causing any permanent scar tissue. He was advised to massage and moisturise the area and to use sunscreen protection (Figure 2).

Discussion

White vinegar is a liquid material consisting mainly of acetic acid (CHCOH) and water, the acetic acid being produced through the fermentation of ethanol by acetic acid bacteria. It is mainly used in the kitchen for food preparation. Historically, it was also used for medical and cleaning purposes. In this report, we present the first ever case of a chemical burn of the skin caused by white vinegar and aspirin mixture. We believe that this is a rare cause of chemical burn that could become more common with increasing use of traditional remedies worldwide.

Key Messages
• people have faith in that the folklore medicine remedy provides pain relief however it is clearly a wrong formulation and a dangerous procedure

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purposes owing to its availability and light acidity. Some of these utilizations are still promoted (3,4). Household vinegar is a sour-tasting liquid containing 4% to 5% acetic acid and is used as a condiment, salad dressing, preservative, mild disinfectant, medicinal tonic and ‘softener’ or ‘deodorant’ in cooking. Although this weak acid can cause corrosive and ulcerative injury of the upper digestive tract, the complication reported here has rarely been reported in the medical literature (1–4).

Aspirin (acetylsalicylic acid) belongs to a class of medications called non-steroidal anti-inflammatory drugs. Its use can cause mucosal damage owing to its acidic nature. The acid tends to bind to the epithelium and denatures the proteins of cells, leading to coagulation necrosis. There is erythema and oedema with the formation of white pseudo-membrane covering underlying ulceration, which can bleed very easily. It can affect any mucosa but more commonly labial and buccal mucosa and vestibule (5).

Aspirin and white vinegar mixture can have a high acidity level. Although pH value of the applied mixture is unknown, the burn was consistent with very low pH levels. Direct contact with acids causes acidic chemical burns of varying severities depending on the type of acid, the length of exposure and initial management (1–4).

We describe an unusual case of a patient who suffered from a split-thickness chemical burn following application of a concoction containing white vinegar and aspirin. In this case, the patient presented to the emergency department of a hospital with a burn unit and therefore received appropriate and effective management in a timely fashion. We fear that if this patient had further delayed presenting or if the injury had gone unrecognised, the outcome might have been much more serious.

Traditional remedies are very popular and widely used for relief of pain ranging from chronic backache to various joint pains (5–9). There have been previously reported individual chemical burn cases of oral tissue and oesophageal mucosa caused by aspirin and white vinegar, respectively (3,5). However, there is no report of burn injury of the skin caused by white vinegar and aspirin mixture in the literature. Traditional medicine remains popular in the developing countries and is increasing in popularity throughout the industrialised world. However, the lack of published literature about such practices means that much little of its potential side effects is known.

Conclusions

This case report confirmed that applying white vinegar and aspirin mixture to the skin could cause burn injury. Its use in pain relief should be strongly discouraged. It is dangerous using chemicals considered as harmless in traditional medicine remedies, because such behaviour can result in serious injuries and disability. Early recognition and immediate and appropriate management are essential for minimising the damage caused from such injuries. Nevertheless, the best approach is to prevent such attempts through education of the general public.

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References