

Postoperative Wound Care After Dermatologic Procedures: A Comparison of 2 Commonly Used Petrolatum-Based Ointments

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ABSTRACT

An appropriate selection of topical agents for wound care is important to promote uncomplicated healing. Petrolatum-based ointments, such as Aquaphor Healing Ointment (AHO) and white petroleum jelly, are commonly employed to keep wounds moist postoperatively. While they have beneficial properties for wound healing, they also may cause wound redness and swelling. We decided to evaluate for wound reactivity postoperatively for these 2 commonly used petrolatum-based ointments. We found that surgical wounds treated with AHO had a higher incidence of wound redness (52%) than those treated with plain white petrolatum (12%).

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INTRODUCTION

Postoperative wound care is important to promote rapid, uncomplicated healing. Principles of topical postoperative wound management include protecting the wound and keeping the wound surface clean and lubricated. A common practice employed by dermatologists to create this environment is the topical application of a white petrolatum-based ointment.

Aquaphor Healing Ointment (AHO; Beiersdorf Inc, Wilton, CT) and Vaseline ointment (white petroleum jelly; Greenwich, CT) are 2 moisturizers commonly used for standard postoperative wound care. AHO is an over-the-counter skin protectant that contains petrolatum, humectants, and natural barrier lipids.

While AHO has beneficial properties for wound healing, it also has the potential to cause redness and swelling, likely as the result of contact dermatitis. A hypersensitivity reaction may present postoperatively with blisters, itchiness, oozing, swelling, and redness at the site of contact with the skin. Severe contact dermatitis may delay the process of wound healing.

In our practice, routine application of AHO to surgical wounds was noted to correlate with an increased incidence of wound erythema. We decided to compare the reaction of primarily closed wounds to the application of AHO, white petroleum jelly, or no ointment during the postoperative period.

METHODS

This prospective comparative study was performed at our office-based Mohs surgery practice. A total of 76 patients who underwent Mohs surgery on the head and neck with primary closure of the defect were randomized to use AHO (n=27), white petroleum jelly (n=32), or no ointment (n=17) for the postoperative wound care period. Wounds were cleaned daily with water and gently patted dry. Topical ointment was then applied, and the wounds were kept

covered with nonstick gauze until suture removal. No antibiotics were administered to the patients, and no wound infections related to the surgery were observed.

The postoperative wounds were evaluated for erythema, edema, and crusting/scabbing. The grading scale for erythema was none/absent (0), mild (1), moderate (2), and marked erythema with swelling (3). The presence of crusting was evaluated as none/absent (0) or present (1).

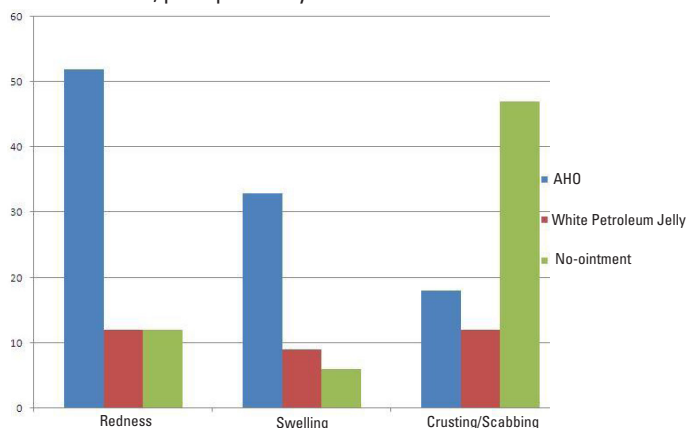
Statistical differences between topical treatments for these clinical parameters were determined using analysis of variance with a *t* test. Paired comparisons determined significant differences for types of wound cares.

RESULTS

All wounds were evaluated at an average of 10.9 days postoperatively. The clinical assessment of the wounds treated with AHO showed a 52% incidence in redness at the wound site, with 33% of patients showing both redness and swelling. The white petroleum jelly group had a 12% incidence of redness, with 9% having redness and swelling. Twelve percent of patients who did not apply ointment to their wounds had redness and 6% had redness and swelling. Patients who did not use an ointment had crusting and scabbing in 47% of the cases, in comparison with 12% and 18% of patients using white petroleum jelly and AHO, respectively (Figures 1 and 2).

AHO resulted in significantly more erythema and swelling than white petrolatum or no ointment ($P \leq .0002$ and $P \leq .001$, respectively). White petrolatum did not cause significant redness or swelling when compared with the use of no ointment ($P \leq .391$). However, crusting and scabbing of the wounds were significantly more common in the no-ointment group when

FIGURE 1. Percentages of redness, swelling and crusting/scabbing in patients using Aquaphor Healing Ointment (AHO), white petroleum jelly, or no ointment, postoperatively.



compared with either white petrolatum-treated or AHO-treated wounds ($P \leq .009$ and $P \leq .030$, respectively; Figure 1).

DISCUSSION

Topical postoperative wound care involves maintaining a protected wound and a clean, moisturized surface. The standard of care includes cleaning with either a cleanser or water, applying a topical ointment, and covering the wound with a dressing.¹ Above all, maintaining a moist environment is important in postoperative wound care.

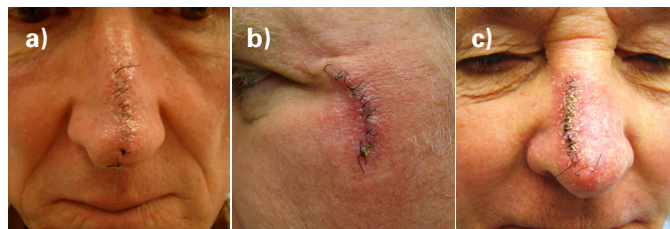
Some frequently used ointments contain antibiotics, such as neomycin and bacitracin, which are known to cause wound irritation as result of contact dermatitis. Antibiotic ointments have not been found to offer advantages over petrolatum in the process of wound healing.² In a landmark study, no significant differences in the rate of wound infections in dermatologic surgery wounds randomized to postoperative wound care with bacitracin or white petrolatum.^{2,3} In general, the rate of surgical-site infections with a clean surgical technique is exceedingly low (0.91%), and the use of topical antibiotics is not necessary for the prevention of infections.^{4,5}

Despite their high incidence of contact dermatitis, topical antibiotics are still commonly being used in dermatologic practice (6%).⁶ As part of our postoperative wound-care regimen, we (the authors) do not use antibiotic ointments. We only use petrolatum-based ointments.

Two frequently used petrolatum-based ointments are Aquaphor (AHO) and Vaseline (100% white petrolatum). Park et al reported AHO to be the most commonly used postoperative ointment (60%), followed by petrolatum (34%).⁷ We decided to evaluate for wound reactivity postoperatively for these 2 commonly used petrolatum-based ointments.

We found that surgical wounds treated with AHO had a higher incidence of redness (52%) than those treated with plain white petrolatum (12%). Patients who did not apply ointment to their

FIGURE 2. a) Patients using plain white petrolatum and b) Aquaphor Healing Ointment for postoperative wound care. c) Patient who did not apply ointment postoperatively.



wounds had a low incidence of redness similar to patients who used plain white petrolatum. The wound reactivity with redness and swelling is most likely due to contact dermatitis. Some AHO ingredients, such as lanolin, a wool wax alcohol, and bisabolol, a sesquiterpene alcohol, are well-known allergens.⁸

Adverse effects of contact allergies may be minimized with an appropriate selection of topical agents for wound care. Surgical wounds require the most favorable postoperative topical care to ensure patient satisfaction. Ideally, the treatment should promote healing with minimal or no irritation.

CONCLUSION

Postoperative wound redness and swelling decreased with the use of plain white petrolatum compared with AHO. Nonantibiotic ointments are preferred over those containing antibiotics for postoperative wound care.

DISCLOSURES

The authors have no relevant conflicts of interest to disclose.

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