

Pipeline bandage with marigold essence in pediatric bee sting lesions

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ABSTRACT

The aim of this article was to demonstrate the pipeline-bandage treatment with marigold essence, as an alternative treatment for bee sting wounds. By observing a treated patient and the relatively rapid healing of the sting wound, the treatment was proven to be an adequate and efficient method to treat the patient's bee stings. No side effects were observed.

KEY WORDS: Bee sting, child, pediatric, marigold essence

INTRODUCTION

When a bee stings, it leaves its sting apparatus behind, attached to the victim's skin. It then dies. In comparison, a wasp retains its sting apparatus after stinging. Thus, it is possible to differentiate between the appearance of a bee sting as opposed to that of a wasp sting.

The common reaction to a bee sting is localized pain, swelling, and erythema at the site of the sting [1], which usually subsides within several hours. More extensive local reactions are common, however. Lesions which are more than 20 mm in diameter and characterized by induration and erythema, are defined as an "exaggerated reaction" [2]. Swelling may extend from the sting site over a large area, often peaking within 2 days and lasting up to 1 week [1]. The cause of these large local reactions has not yet been determined; however, it is assumed that they are brought about by IgE antibodies [1]. The usual treatment for these large local reactions are acetylsalicylic acid, antihistamines, or, if the swelling is extensive, systemic steroids [3]. These drugs can cause several adverse reactions. Acetylsalicylic acid, for example, can cause bleeding or ulcers [4], and steroids can cause facial rounding, hirsutism, diminished carbohydrate tolerance, or vague abdominal distress [5]. In children, in particular, it is difficult to predict the extent of adverse reactions or interactions. Consequently, alternative remedies are essential for the treatment of sting wounds.

A treatment alternative for large inflamed lesions is the pipeline-bandage, which has proven to have several advantages. It helps provide a moist environment, especially for non-exudating wounds, which reduces pain [6]. The bandage is applied by integrating a tube system into the dressing so that parents can administer solutions with a syringe.

We conducted a case study for the purpose of observing the positive effects of a marigold (*calendula officinalis*-plant) essence pipeline bandage treatment on the healing process. We used marigold essence as an adequate lubricant because it has anti-inflammatory and anti-bacterial properties, as well as a soothing effect on irritated tissue [7].

CASE REPORT

A 5-year-old child who had been stung by a bee 3 times developed a large round lesion (5 cm in diameter) which was painful, swollen, and very red. A pipeline-bandage was applied, and the mother was instructed to inject marigold essence through the dressing tube several times per day. Figure 1 shows how the tube system is applied under the dressing. The child had no other illnesses, nor did the child have a fever. No allergies were present, and no other medication was given. Pictures were taken before, and 1 day after, beginning therapy. In order to obtain an objective assessment, these pictures were presented to two independent pediatricians.



Figure 1: Lesion before start of the therapy

RESULTS

Both pediatricians confirmed a significant change in color of the lesion area from dark red [Figure 2] to a lighter shade of red and partially, to skin color. Independent of one another, each of them stated that he could detect an improvement in the healing of the lesion. Aside from this objective evaluation of the pictures, after the 1st day of therapy, the child stated that the pain had almost completely subsided. No side effects were detected.

DISCUSSION

A conventional wound dressing immobilizes the affected limb and protects against infection. Especially for dry wounds and inflamed lesions, a moist environment with an anti-inflammatory agent is beneficial. Since marigold essence has proven to be an effective ointment for skin infections, bee stings, and burns [8], its constant application to an inflamed lesion is very advantageous. This can be difficult, however, especially with small children. By using the pipeline-bandage, parents can apply marigold essence to a lesion several times a day, without having to change the wound dressing. Thus, the lesion is continuously covered with marigold essence underneath the bandage, which results in rapid healing.

In our case study, a significant change in both color and size could be detected after 24 h, although the usual healing process of such a large inflamed lesion usually peaks after 2 days, and can last up to 1 week [1].

Occasionally, large local reactions to bee stings can be mistaken for cellulitis; however, cellulitis rarely occurs after insect stings [1]. Infections are characterized by lymphadenopathy and general symptoms such as fever or fatigue. No such symptoms were present in our case.

Since bee stings can cause allergic reactions, they should generally be regarded with caution, i.e., allergic reactions are life-threatening and immediate medical treatment is vital. Thus, this possibility must first be ruled out or treated accordingly. Symptoms of an anaphylactic reaction include breathing and swallowing problems, wheezing, swelling of the face, throat, and mouth, a rapid pulse, marked blood pressure drop, dizziness, and anxiety.



Figure 2: Lesion day 1 after application of marigold essence

An allergic reaction is not common; however, it can cause cardiac arrest, shock, and unconsciousness within 10 min, and can begin within minutes after a sting. These allergic reactions are treated with epinephrine (adrenaline). In some allergic reaction cases, intravenous fluids, oxygen, and other treatment are required to save the victim's life.

The general recommendation for removing a bee sting is to remove the sting apparatus by scraping it out with a credit card or a dull blade. Pulling the stinger out with tweezers or pinching it out with the fingers can worsen the reaction since this can release more venom through the victim's skin. Of course, it is an important priority to remove the stinger as soon as possible in order to prevent it from further pulsating venom into the victim.

CONCLUSION

Due to a large amount of venom, the bee had injected into our patient's skin after three stings, the child developed a very large inflamed lesion. Nevertheless, after 24 h, considerable visible healing had taken place, and our patient stated that the pain had almost completely subsided. 1 day is a relatively short period for the healing process since the usual course of healing peaks after 2 days, but can last up to 1 week. In our case study, the child was successfully treated with marigold essence using a pipeline-bandage, and there were no observed side effects.

Of course, the prevention of a bee sting by avoiding perfumes and by wearing appropriate clothing when in wooded areas, for example, should be kept in mind.

Since we cannot recommend the measure for general treatment based only on this one case, we plan to conduct further studies with more children.

REFERENCES

1. Reisman RE. Insect stings. *N Engl J Med* 1994;331:523-7.
2. Ozden MG, Yildiz L, Aydin F, Senturk N, Canturk T, Turanlı AY. Is it really possible to differentiate insect bite-like reaction and nodular

- variant of eosinophilic cellulitis in a healthy person? Eur J Dermatol 2009;19:635-6.
3. Przybilla B, Ruëff F. Insect stings: clinical features and management. Dtsch Arztebl Int 2012;109:238-48.
 4. Gut A, Halter F, Ruchti C. Nonsteroidal antirheumatic drugs and acetylsalicylic acid: adverse effects distal to the duodenum. Schweiz Med Wochenschr 1996;126:616-25.
 5. Bollet AJ, Black R, Bunim JJ. Major undesirable side-effects resulting from prednisolone and prednisone. J Am Med Assoc 1955;158:459-63.
 6. Witthoff M, Körber A, Grabbe S, Dissemond J. The Pipeline-Bandage. Zentrum fuer Weiterbildung 2005;1:276-8.
 7. Mohammad SM, Kashani HH. Pot marigold (*Calendula officinalis*) medicinal usage and cultivation. Sci Res Essays 2012;7:1468-72.
 8. Basch E, Bent S, Foppa I, Haskmi S, Kroll D, Mele M, et al. Marigold (*Calendula officinalis* L.): an evidence-based systematic review by the Natural Standard Research Collaboration. J Herb Pharmacother 2006;6:135-59.

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