Use of honey as a treatment for severe echtyma gangrenosum

Mohamed Oulad Saiad, MD [1]
Hamza Hokoumi, MD [1]
Mohamed el Bouaychi, MD [2]
Noureddine Rada, MD [2]
Ghizlane Draiss, MD [2]
Mohamed Bouskraoui, MD [2]

1. Paediatrics General Surgery Unit, Mohamed VI Hospital, Cadi Ayyad University, Marrakech, Morocco
2. Paediatrics Unit, Mohamed VI Hospital, Cadi Ayyad University, Marrakech, Morrcco

Corresponding author:
Mohamed Oulad Saiad, MD
Paediatrics General Surgery Unit, Mohamed VI hospital, Cadi Ayyad University, Marrakech, Morocco
Phone number: 00212673083983
Email: mouladsaiad@gmail.com

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For more than 25 years, honey has been employed to facilitate the healing of complex wounds with excellent results. Here, we report the case of a two-and-a-half-year-old agammaglobulinemia patient admitted in our unit for severe sepsis with extensive skin necrosis in the groin, penis and scrotum. An Ecthyma Gangrenosum was corroborated by the isolation of Pseudomonas aeruginosa in wound swab culture. The child was treated by broad-spectrum antibiotics. Following resuscitation, the prognosis of external genitalia remained reserved. An extended necrosectomy was performed on the groin, leaving a large and deep wound. No improvement occurred with standard local therapy; moreover, the striking particularity of the present immunosuppressed case was that necrosis extended and engaged the genitalia. Such condition left us with no alternative except to try honey dressings without much conviction, which, surprisingly, resulted in an improvement in the wound, until total healing was achieved. Honey seems to be the local treatment of choice for ecthyma gangrenosum.

Keywords: ecthyma gangrenosum, immunodeficiency, penis, honey.

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INTRODUCTION

For a long time, honey has been used for its antibacterial activity, wound healing properties and anti-inflammatory activity. For more than 25 years, it has been utilized in many hospitals in developed countries to facilitate the healing of very complex wounds.

CASE REPORT

A two-and-a-half-year-old child with agammaglobunemia was admitted with an 8 day history of severe sepsis revealed by an isolated 40 ° C fever. Four days into the investigation, we noticed a bullous lesion in the groin that ruptured, leaving an ulcer coated by a black eschar extending to the external genitalia (Figure 1 A). The child was apathetic, dehydrated and hypotonic. Clinical examination revealed an ulcero-necrotic lesion coated with a black eschar, surrounded by erythema in the groin, and a swollen painful scrotum with a necrosis of the penis. Laboratory tests showed an elevated leucocyte count of 17690/ml, and 360 ng/ml C reactive protein (CRP). Wound swab Samples and hemocultures showed a Pseudomonas aeruginosa. The patient was managed with intravenous fluid resuscitation and antibiotics combining ceftazidime and aminoside with an immunoglobulin perfusion. The sepsis was controlled and the patient was stabilized, yet the prognosis of the external genital organs remained unclear. The patient underwent excision of the necrotic tissue from the groin, leaving a deep and wide wound, with the necrotic glans remaining undebrided (Figure 1 B). After the failure of standard local therapy, thyme honey dressings

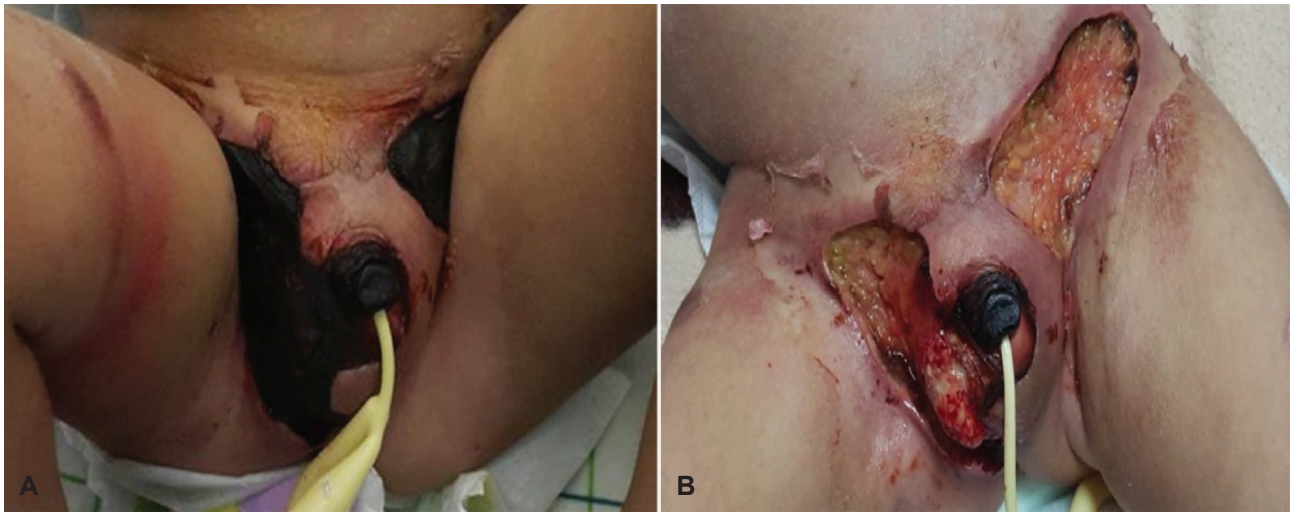

Figure 1. (A) Large lesion in the groin coated with eschar and Necrosis extended to the penis and scrotum. (B) Wound after debridement. The gangrenous glans and distal penis are left.

were used. The wound was primarily irrigated with a sterile saline solution; honey was then applied directly on the wound and the gangrenous penile glans was covered with sterile gauze. The dressing was applied twice a day. After four days of treatment, granulation of the tissue occurred (Figure 2 A). Eight days later, the healing process was partially achieved, and on the 18th day, the wound healing was completed; the penis and the subtotal part of the glans appeared reepithelialised and vascularised (Figure 2 B).

DISCUSSION

Modern medicine is facing various problems and new challenges. Increased resistance to antibiotics and the high cost of healthcare has led many to make use of natural therapies, particularly apitherapy, as new interests. Scientific studies have shown that honey and other natural products have important roles in the treatment of many diseases. Honey has antibacterial activity owing to its high osmolarity and low Ph (range between 3.4 and 5.5) which dries the infected wound and inhibits bacterial growth [1]. It exerts antibacterial activity against the clinical isolates of staphylococcus aureus, methicillin-resistant staphylococcus aureus, vancomycin-resistant enterococci, and B-hemolytic streptococci [2]. Honey retains its bactericidal activity

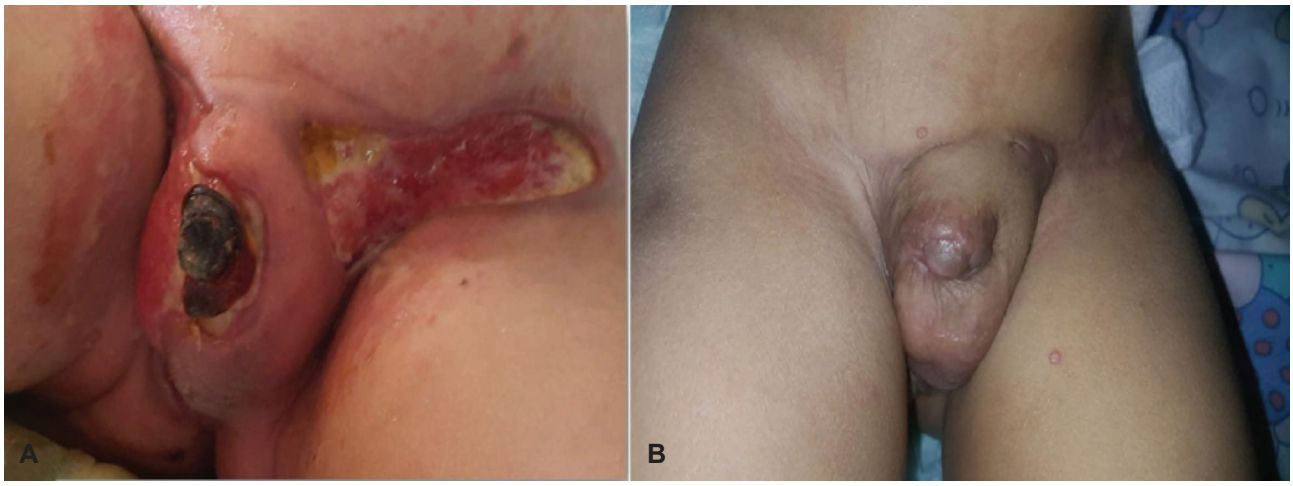

Figure 2. (A) After honey dressing granulation tissue formation is induced. (B) Final result, excellent healing without hypertrophic scar and glans regeneration.

in vitro even following dilution [2]. In a laboratory study, the minimum inhibitory concentration when honey was diluted by wound exudates was 5, 5 to 9% for pseudomonas [3]. The presence of nitric oxide metabolites in the honey explained its antiviral effects against the DNA and RNA of many viruses [1]. The antibacterial action of honey against the anaerobic bacteria that causes malodour is a factor for its odor control properties [2]. Honey not only accelerated the wound healing process [4] but also reduced the rate of hypertrophic scars and postburn contractures [5]. Animal experiments showed that fetal wounds healed with no scar formation due to the high concentration of hyaluronic acid in the extracellular matrix of the fetal wounds [6]. At the wound surface, the glucose in honey converted into hyaluronic acid, forming extracellular matrix that promoted wound healing [6]. Honey exerted anti-inflammatory activities and reduced edema through its hygroscopic effect, which ameliorated microcirculation and resulted in the availability of dissolved oxygen and nutrients required for tissue regeneration [4,2]. Furthermore, honey augmented angiogenic activity which, in turn, promoted wound healing mechanisms, inducing the formation of granulation tissues as well as skin reepithelialisation [7]. The treatment of ecthyma gangrenosum is particularly difficult when the genitalia are involved. Penile ecthyma gangrenosum was reported as a complication of drug addiction [8]. Penile gangrene most of the time needs debridement in addition to partial or total penectomy [9,10]. Nevertheless, in our reported case, only the groin was debrided, and the glans was left undebrided and a total healing was achieved with a satisfactory result. Whether or not this is due to the angiogenic activity of honey is yet to be explained.

Honey meets all the criteria for ideal wound antiseptics, allowing for a rapid onset of bactericidal activity, accelerating the physiologic process of wound healing with a low cost and no side effects [2].

CONCLUSION

Honey is currently recognized as a practical and meaningful local treatment that can truly conduce to healing wounds. Based on cumulative experiences with honey, it should now become a routine part of every wound management process.

Conflict of Interest: None declared.

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