

Seborrheic dermatitis treatment with natural honey

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Seborrheic dermatitis is a chronic recurrent inflammatory disorder thought to result from hyper secretion of sebaceous glands, metabolic changes in the cutaneous microflora, including yeast, and altered host immune function. *In vitro* studies have postulated that natural raw honey, including Manuka honey, reduced the healing time via a dual effect on the inflammatory pathway. Initially, honey suppresses the production and migration of inflammatory cells at the wound site; secondly, it enhances the proliferation of epithelial cells and fibroblasts, and the production of proinflammatory cytokines, allowing normal healing to occur (Tonks et al, 2001; Visavadia et al, 2008; Tomblin et al, 2014). The effect of honey and its constituents on the production of inflammatory cytokines has been demonstrated in *in vitro* studies through the use of primary human monocytes (Riches, 1996). In these studies, it was demonstrated that Manuka honey enhanced the production of inflammatory cytokines, IL-1 β or IL-6 and TNF- α , via a TLR4-dependent mechanism. Researchers were able for the first time to isolate a 5.8-kDa component responsible for cytokine induction in human monocytes via TLR4 (Tonks et al, 2007). Furthermore, different floral varieties of natural honey have variable moisture content, depending on the amount of water they contain, which ranges between 6–14%, thereby providing adequate moisture to the inflamed skin without causing maceration. The authors report successful treatment of a patient with seborrheic dermatitis through the topical application of natural honey.

Seborrheic dermatitis is a chronic, recurrent inflammatory condition manifested by hyperkeratosis, parakeratosis (abnormal formation of epidermal horn cells due to incomplete formation of keratin, persistence of nuclei, moistness and swelling of the horn cells), accentuated rete ridges, acanthosis and focal spongiosis (intercellular oedema of the epidermal layer of the skin).

It results from sebaceous gland hyper activity and exhibits itself through the formation of poorly defined erythematous patches coupled with fine scaling in regions of increased sebum secretion, including the face, eyebrows, nasal alar creases, ears, melolabial folds, scalp, central chest and genital areas.

The main cause of seborrheic dermatitis is yet to be identified, however, enhanced sebaceous gland secretions, the proliferation of *Malassezia*

(*M. globosa*, *M. spp* and *M. restricta*, alteration in the host immune system and subsequent inflammation, are thought to be some of the main causes. *M. restricta* and *M. globosa* causes lipolysis in the sebum to form triglycerides and free fatty acids. As a result, the unsaturated fatty acids penetrate the dermal layers and induce inflammation. Furthermore, proliferation of complements, elevated levels interleukins and natural killer cells (NK1+), CD16+ cells, and inflammatory interleukins, are clearly visible in the skin lesions. Generally, various topical therapies (corticosteroid cream, antifungal shampoo and cream) are used in the management of the condition, in order to improve the symptoms and eliminate the cause.

Case report

A 32-year-old male (Body Mass Index = 23) with no significant past medical history had not

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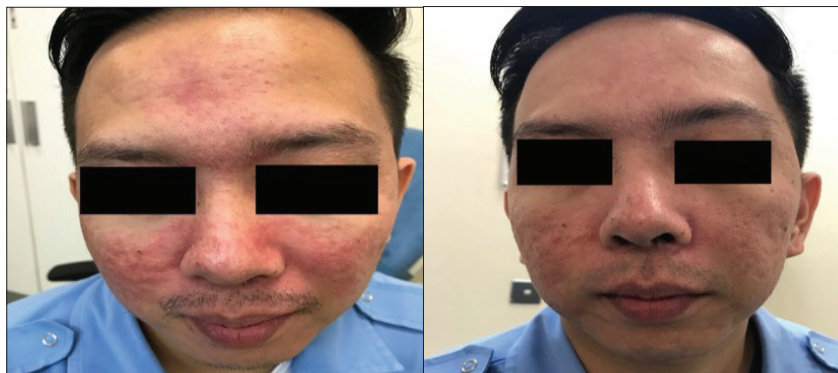


Figure 1 (left). Patient before treatment. Variable degree of ill-defined roughness, redness and scaling of the skin visible in the glabella, eyelids, ala of the nose and cheeks.
Figure 2 (right). Patient after treatment. The patient's facial skin lesions disappeared.

been managed at a dermatology clinic prior to presentation. The patient had a 2-year history of erythematous patches accompanied by non-painful itching in both nasal alar creases, both eye brows and the forehead [Figure 1]. The patient had used over-the-counter medications, including Dexapanthenol cream and fluticasone propionate, on occasion to treat his condition.

A topical natural honey treatment was chosen jointly between the senior consultant family physician with a special interest in dermatology and the patient, as he did not want steroids to be applied to his face due to the fear of side effects as a result of systemic absorption. The patient was instructed to gently clean his face with normal saline using cotton gauze and then allow it to dry. Afterwards, the patient was instructed to apply natural honey as a face mask and cover the honey with a cotton gauze, in order to maintain the honey on the face for as long as possible. This was repeated on a daily basis (nightly) for 1 week and then the patient was seen in clinic 1 week later for follow up. The natural honey used in this case was a sterile, homogenous, multi-floral, thick, white honey mixed with royal jelly produced in the alpine meadows of the Tien Shan mountains in Kyrgyzstan. One week later, there was complete resolution of redness, scales and itchiness [Figure 2] and the patient reported 100% satisfaction. The effect of honey lasted for 4 weeks before the return of redness only, but there was no return of itchiness or scales formation.

Discussion

Natural honey has various bioactivities, including its ability to reduce inflammatory cells in acute and chronic inflammation. It also enhances peripheral blood to draw B and T lymphocytes to the surface and

stimulate monocytes and phagocytes to produce cytokines, interleukin -1 α , IL 6 and tumor necrosis factor-1 (Ochoa Sosa, 2010). Reducing inflammation is a vital step in wound healing as it improves circulation, thereby delivering more oxygen and nutrients, which ultimately leads to enhanced tissue repair and healing (Abuharfeil et al, 1999). Honey possesses antioxidant activity through its phenolic content and stimulation of angiogenesis through many molecular markers, including VEGFA, HIF-1 α , and VEGFR2 (Barui, 2014). Furthermore, it has a broad spectrum antibacterial activity due to its low pH level (Pieper, 2009; Mohamed et al, 2012; 2014a; 2014b; 2015), release of hydrogen peroxide (Al-Lenjawi et al, 2015; 2016; Mohamed, 2016a; 2016b; Mohamed et al, 2017) and high osmolality. Honey provides adequate moisture wound necessary for tissue repair since 7–20% of its content is water depending on its floral origin (Al-Lenjawi et al, 2015; Mohamed et al, 2015).

Conclusion

In conclusion, the management of seborrheic dermatitis involves the use of topical corticosteroids and antifungals, however, some patients may be unresponsive to these classical treatment modalities and may opt for a safe and natural alternative, such as natural honey evidenced in this case. Nonetheless, future studies must include randomised controlled trials, in order to determine the most effective frequency, duration and type of honey (Mohamed et al, 2014). WINT

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