Topical eosin for dyshidrosis



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Dyshidrosis is a chronic dermatitis accounting for approximately 5% to 20% of all hand dermatitis. Treatment often includes several options, most commonly topical steroids and other medications. Eosin is a staining agent used in several skin diseases, such as psoriasis, and due to its safety, it has been associated with positive outcomes as a substitute to more aggressive topical medications. This case report describes a successful result of hand dyshidrosis in a young man treated with topical eosin 2% only, as an alternative option to topical steroids where a complete skin recovery was achieved after a 2-week treatment window.

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Dyshidrosis is a chronic dermatitis, also called pompholyx or dyshidrotic eczema, characterised by small fluid-filled blisters, often very itchy, located on feet or hands that causes discomfort to the affected patients, such as: psychological and physical distress along with occupational impairment (Lofgren et al, 2006; Hsu et al, 2015). It affects fingers, palms and soles with small vesicles (1–2 mm) and it is considered a common skin disease accounting approximately 5% to 20% of all hands dermatitis (Lofgren et al, 2006). It is frequently exacerbated during the hot season and commonly seen in young adults (Hsu et al, 2015). Treatments can include several topical and systemic medications, often topical corticosteroids are considered the first-line choice, but other options are available, for example, topical immunomodulators, systemic gluco-corticosteroids, azathioprine, methotrexate, mycophenolate, cyclosporine and radiotherapy (Lofgren et al, 2006).

Eosin is a staining agent made of sodium or potassium salt of tetrabromofluoresceine (Tabolli et al, 2009) with several properties, used for treating different skin diseases: seborrheic dermatitis (Shohat et al, 1987), diaper dermatitis (Arad et al, 1999) and psoriasis (Tabolli et al, 2009; Zampetti et al, 2009; Capriotti et al, 2018). It does not have toxic effects as it is not absorbed (Agenzia italiana del farmaco [AIFA], 2016). In the past, it has been reported some contact dermatitis with its usage likely due to impurity in the solution rather than the eosin itself (Tomb, 1991). Due to its bright red colour, eosin could mask local inflammation, such as erythema and, therefore, it is important to assess thoroughly the lesion for other additional signs (Celsus signs) (Cavaillon, 2021) when this product has to be selected for topical usage, it is also worthy to remember eosin does not have antimicrobial effects as shown *in vitro* study (Leitch, 2015), therefore, its selection process should take into consideration properties and use indications.

Even if very little scientific literature is available on the eosin as topical treatment, it is important to consider how an innocuous topical agent could be used for treating a very common skin disease affecting approximately 5% to 20% of all hand dermatitis (Lofgren et al, 2006) without the need of using more aggressive topical or systemic medications. This case report describes a case of a young man affected by dyshidrotic eczema on one finger, treated with topical aqueous eosin 2% that was applied directly on the skin lesion and related success of this treatment with a complete *restitutio ad integrum* in 2 weeks after using eosin.

Figure 1. Dyshidrotic eczema on presentation. Wound was on first right hand finger.

Figure 2. Wound 1 week of eosin application.

Figure 3. Wound 2 weeks of eosin application.

Case description

A 30-year-old man was admitted to the International Centre for Wound Care Nursing (CINV) with dyshidrotic eczema previously diagnosed by the dermatologist on his first right hand finger without a positive outcome at the seventh day. Medical history did not show any relevant underlying condition. Physical examination showed an open lesion on the first finger, with xerosis on the surrounding skin and a painful and itchy feeling was described as a part of the most disturbing symptoms with impaired hand functionality due to the impossibility of using it *[Figure 1]*.

Topical application of aqueous eosin (Eosina Pharma Trenta 2%, Fadem) via TNT gauze was started twice a day and self-managed at home after gaining full consent from the patient followed by a thorough explanation of the product, potential side effects and the rationale of using it for the treatment of this skin disease as an off-label product. The lesion was covered with non-adherent gauze without any embedded medication. A tubular gauze was used as secondary dressing. The patient was informed about the red staining *[Figure 2]* and the time (usually 3 days) for the colour to completely disappear.

Figure 2 shows a positive result a few days following the treatment, with a partial resolution of the lesion, a reduced itchy feeling and a better hand functionality. After a period of 14 days the lesion was completely repaired without any need of using additional eosin *[Figure 3]*.

Discussion

Very little scientific literature is available on the eosin as topical treatment. As previously mentioned, good results have been achieved in the psoriasis treatment in one RCT comparing eosin vs topical steroids (Tabolli et al, 2009). To the authors' knowledge, there is nothing in the literature to suggest topical aqueous eosin 2% as treatment for dyshidrosis and, therefore, the authors wanted to share their experience and positive outcome the authors achieved in only 2 weeks. The authors are aware of a small potential impact of a case report on a clinical practice when a case report is compared to an randomised controlled trial (RCT) or a systematic review of RCTs, but the authors also believe anecdotal experiences could be valuable in enriching the knowledge of nurses and clinicians involved in the field of dermatology and wound care.

Conclusion

This case report highlights the importance of considering how an innocuous topical agent could be used for treating a very common skin disease affecting approximately 5% to 20% of all hand dermatitis (Lofgren et al, 2006) without the need of using more aggressive topical or systemic medications. WINT

Conflict of interest

Massimo Rivolo is a part time clinical consultant at Lohmann & Rauscher Switzerland. This case report has been written without any financial support.

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