ProductZinc oxide andsnapshotichthammol



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Viscopaste and Ichthopaste bandages have been available in the wound care dressings market since the 1950s and 1930s respectively and are widely used within their clinical indications, primarily in lower limb management to treat leg ulcerations and the skin conditions associated with a leg ulcer. The products are commonly used within dermatology to manage chronic lichenified (thick and leathery) skin conditions, such as atopic eczema and dermatitis. Recently, Viscopaste and Ichthopaste bandages have been utilised in the management of skin conditions related to chronic oedema, for the treatment of patients with a diagnosis of red leg syndrome, which is often misdiagnosed as cellulitis (Elwell, 2014).

Viscopaste and Ichthopaste bandages have been used by clinicians for decades to treat patients successfully (Eagle, 1999; Williams, 1999). Few clinical trials relating to Viscopaste and Ichthopaste bandage have been reported in the literature; the majority referring to their active ingredients, zinc oxide and Ichthammol generically. Despite using either product for many years, clinicians and patients are often unable to explain the specific modes of action of zinc oxide or ichthammol. This snapshot feature provides an understanding of zinc and its clinical properties, an up-to-date perspective of its role in wound healing, along with further insight into the role of ichthammol when both compounds are combined.

ZINC OXIDE AND SKIN INTEGRITY



Figure 1. Viscopaste bandage.

Topical zinc has been used in the treatment of wounds for over 3,000 years, yet knowledge of the benefits of using it as an active ingredient appear limited. Zinc is a metallic trace element which is essential for health, second only to iron as the most abundant in the human body (Kogan et al, 2017). Around one-fifth of our total zinc content is contained within our skin, with the epidermis containing five to six times more than the dermal layer (Maher, 2015). Zinc is important for many functions in the body, including the immune function, growth, antibody production, tissue maintenance and wound healing (Kogan et al, 2017).

Zinc is located intracellularly and in the extracellular matrix of the skin in the form of protein complexes, where its role is to stabilise cell components and membranes to aid cell division, migration and maturation, all a vital part of the wound healing trajectory (Lansdown et al, 2007). Zinc is therefore vital for cell structure and integrity. Unlike other minerals and vitamins, there are no body stores of zinc, and therefore it is important to have a daily intake to maintain adequate bodily functions. A zinc-deficient diet is the most common cause of systemic deficiency. Individuals most susceptible to zinc deficiency are those who have the highest physiological demand, i.e. the elderly population who are affected most due to poor diet or an agerelated decline in zinc absorption. Additionally, it is the elderly population who are likely to suffer a higher prevalence of comorbidities predisposing them to hypozincaemia, including malignancy, chronic wounds such as venous or arterial ulcers, and dermatological disorders (Kogan et al, 2017). Consequently, wound or skin healing may be delayed. Lansdown et al (2007) reported that chronic leg ulcer patients often have an abnormal zinc metabolism and low serum zinc levels; therefore consideration should be given to maintaining normal zinc levels when treating these individuals.

The poor wound healing status in patients with zinc deficiency over several years resulted in studies being carried out to identify the effectiveness of oral zinc supplements versus topically applied zinc oxide, with the aim of developing therapeutic approaches to enhance healing. Agren (1990) identified that zinc oxide was slowly but continuously solubilised when applied topically on open wounds and that absorption of zinc oxide through human skin increased zinc levels in the epidermis, interstitial fluid and the dermis, thereby not only correcting a local zinc deficit and enhancing wound healing, but also acting pharmacologically. A literature review showed that oral zinc supplementation failed to confer any advantage in healing rates, however topical zinc oxide was found to improve the rate of wound healing in patients, regardless of their zinc status (Kogan, et al, 2017).

Studies have also shown that the application of topical zinc oxide:

- Soothes red and irritated skin
- Reduces wound debris
- Improves healing rates
- Promotes epithelialisation
- Provides antioxidant, antifungal and antibacterial actions (Fincham Gee, 1990; Stacey et al, 1997; Eagle, 1999; Lansdown et al, 2007; Pasquet et al, 2014; Maher, 2015; Kogan et al, 2017).

As zinc oxide is predominantly used to treat chronic dermatological conditions and lower limb ulcerations, Viscopaste PB7 (10% zinc oxide) and Ichthopaste (6.32% zinc oxide and 2% ichthammol) cotton bandages (*Figures 1* and 2) offer a convenient and easy method of using zinc oxide as a topical healing agent, and due to the comfort they offer, they may be tolerated well by patients (Stacey et al, 1997).

ICHTHAMMOL REVIEWED

Ichthopaste bandage (*Figure 2*) contains 6.32% zinc oxide and 2% ichthammol; a putty coloured paste impregnated cotton bandage with a distinctive aroma. One of its active ingredients, ichthammol, a multicomponent molecular mixture which is derived from sulfonated shale oil (Ichthyol-Gesselschaft, 2020) has been frequently used in dermatology departments since the 19th century, often being employed as a drawing salve to help hasten the 'pointing' of boils and abscesses. This led to reports that ichthammol improves blood flow (Boyd, 2010).

With a full history dating back to the early 1300s when the first recorded use of shale oil in medicine was recorded, ichthammol is now mined from bituminous schists in the French Jura, originating from ancient marine material. For decades, ichthammol has been employed in health care for the treatment of eczema, dermatitis, psoriasis, leg ulcers and furuncles, and today it remains an important medicament in the armoury of the dermatologist (Boyd, 2010). Gayko et al (2000) referred to the actions of ichthammol, stating that it has 'manifold pharmacological actions'. Its application for the treatment of inflammatory skin conditions has been well established all over the world, since the work carried out by Paul Unna (1882) (cited in Boyd, 2010). Besides its ability to treat inflammatory



Figure 2. Ichthopaste bandage.

skin disorders, ichthammol possesses antibacterial, antimycotic, and antipruriginous actions (Gayko et al, 2000), and is therefore useful in treating wet, itchy eczema and other skin conditions such as dermatitis and psoriasis, helping to break the itch-scratch cycle (Boyd, 2010; Eagle, 1999; Williams, 1999).

Containing fat, ichthammol provides a layer of oil on the skin surface, which helps to prevent moisture from evaporating, keeping the skin hydrated, which may be beneficial for patients with chronic lichenified skin conditions, such as eczema, or hyperkeratosis.

VISCOPASTE AND ICHTHOPASTE IMPREGNATED BANDAGES FROM EVOLAN PHARMA

Viscopaste and Ichthopaste bandages from Evolan Pharma provide a protective barrier, reduce inflammation, and provide a moist healing environment when skin integrity has been lost (Williams, 1999; Lansdown et al, 2007). They are soothing and cooling when *in situ*, and applying zinc oxide to the wound or skin surface may correct a local zinc deficit and aid healing. Patch testing for 48 hours is always recommended before initial use. Other preparations, such as steroid, antibiotic and retinoid preparations, may be used in conjunction with paste bandages, but clinicians and patients need to be mindful that the topical medicament may absorb more quickly due to the occlusive nature of the bandage, therefore reducing the period of effectiveness of the topical preparation.

Viscopaste and Ichthopaste bandages can be used as an adjunct to compression therapy systems as the



Figure 3. *Pleating the bandage following each turn.*

primary contact layer. Stacey et al (1997) found in trials that the application of a paste bandage in combination with compression therapy significantly improved healing rates. Each bandage is single use and, according to the manufacturer's instructions, can be left in place for up to seven days, thus potentially providing a costeffective treatment.

Viscopaste and Ichthopaste bandages are made of cotton and do not contain elastic fibres. They should be applied in a way which allows for swelling which may occur during the inflammatory phase of healing. Clinicians should use one of the following methods of application:

- Pleating the bandage following each turn (*Figure 3*)
- Cutting the bandage after each turn
- Cutting the bandage into strips before applying.

On removal of the bandage, always unwind and discard, do not cut.

CONCLUSION

Viscopaste and Ichthopaste bandages have been used by clinicians for decades to treat patients successfully. They provide a protective barrier, reduce inflammation, and provide a moist healing environment and are a useful adjunct in the treatment of wounds, especially of the lower limb.

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Clinician testimonial, tissue viability team, Torbay and South Devon NHS Foundation Trust

Within our tissue viability team at Torbay and South Devon NHS Foundation Trust, we have always viewed zinc dressings as an essential component of our wound care dressings armoury. Primarily, we have used zinc oxide-based dressings for lower limb cellulitis, red legs, and leaky legs, etc. We have progressed from just using it on the lower limb for leg ulceration, which is considered the traditional place for zinc dressing application, to using them for other types of wounds on different parts of the body, thereby utilising the healing qualities of zinc oxide in as many ways as we can. We recently started using Ichthopaste bandage for those patients who have red, swollen, wet legs and we have found this is working extremely well on reducing both the inflammation and subsequent pain levels. The dressing is very easy to apply, and our patients have reported how comfortable it is when in place. Having a lower dose of zinc does seem to be more comfortable for some of our patients, who have expressed issues regarding this and, in turn, allows an extended wear time between dressing changes. The 2% Ichthammol present in Ichthopaste bandages appears to soothe irritated and inflamed skin quickly, meaning an overall reduced length of time that dressings need to continue. As a tissue viability team, we are really pleased to have a variety of zinc oxide dressings from which to choose the most appropriate for specific wound issues, which assists in reducing wound healing times.

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