

# Hyalofill: a new product for chronic wound management

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## Introduction

**Hyalofill™ has been launched recently as a wound care treatment for the management of chronic wounds. Hyalofill consists of HYAFF™, a derivative of hyaluronic acid. The wound healing effects of Hyalofill may be attributed to its tissue organising role and its remarkable hydroregulatory properties, which help to produce a moist environment conducive to wound healing.**

**H**yalofill is a new wound care treatment for the management of chronic wounds, including diabetic foot ulcers. It is a cream-coloured non-adherent fleece which is placed in direct contact with the wound bed of an ulcer or can be used to lightly pack sinuses. It is available either as a flat sheet (Hyalofill-F) or as a rope (Hyalofill-R).

## Structure and function

Hyalofill is made of a unique biomaterial called HYAFF. This is a stable biocompatible derivative of hyaluronic acid (HA), a major component of the extracellular matrix. HA is a linear polysaccharide that can absorb up to 3000 times its own weight in water; it is nature's moisturiser and the body's hydroregulator. Other properties include free radical scavenging. HA is present in many tissues and its functions include:

- Facilitation of growth and movement of fibroblasts
- Cushioning in the eyes
- Lubrication in the synovial fluid
- Role in cell mitosis and migration
- Control of extracellular matrix hydration and osmoregulation (Chen and Abatangelo, 1999)
- Regulation of inflammation.

Angiogenesis, an essential step in the natural process of wound healing, is strongly induced by degradation products of HA (West et al, 1985).

HA may play a critical role in influencing the location of capillary networks (Fienberg and Beebe, 1983).

HA has an identical structure in all species and is completely conserved through evolution. Hence, it is of fundamental biological importance.

## Hyalofill in use

Application of HA to human chronic wounds, such as venous leg ulcers, has been shown to promote healing (Ortonne, 1996).

In its natural state, HA is a gel that is difficult to process and sterilise. It is degraded in vivo and breaks down rapidly when applied to wounds. To increase stability, HYAFF was produced from HA via a chemical esterification reaction linking it to a benzyl alcohol. When HYAFF comes into contact with serum of wound exudate, a hydrophilic gel is produced. The gel overlays the wound and creates an HA-rich tissue interface, thereby providing a moist wound environment conducive to granulation and healing. Hyalofill is 75% esterified and is presented in the form of a non-woven fleece. HYAFF is broken down to HA and benzyl alcohol; the latter is metabolised to hippuric acid and excreted in the urine.

Hyalofill is straightforward to use. It can be stored in the clinic cupboard and used as needed. Hyalofill should only be applied to clean wounds; necrotic and sloughy wounds should therefore be debrided before application.

Once infection has been controlled and any obviously dead bone removed, the sinus can be lightly packed with HYAFF to stimulate closure.

## ARTICLE POINTS

**1** Hyalofill is a new product for the management of chronic wounds.

**2** Hyalofill is available in dressing or rope form.

**3** The active ingredient of Hyalofill is hyaluronic acid.

**4** Hyaluronic acid is a highly conserved molecule occurring in many species, with multiple functions.

**5** Hyalofill may be more useful for ulcers complicated by sinuses and fistulae and deep exudating wounds.

## KEY WORDS

- Hyalofill
- Hyaluronic acid
- Chronic wounds
- Sinuses

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*Excised metatarsal head.*



*Hyalofill applied to wound.*



*Healed wound, after treatment.*

The wound site should be cleaned and the surrounding skin should be dry. Hyalofill is placed onto the surface of the wound and covered with a sterile secondary dressing. In the authors' practice, a secondary foam dressing has been used for the diabetic foot.

The interval between dressing changes will depend on the amount of exudate produced and the stage of wound healing. In the authors' practice, it is standard to lift the secondary dressing daily to assess progress in the wound. Ideally, Hyalofill should be applied every three days to maintain an HA-rich tissue interface, although in an outpatient setting a weekly change may be appropriate. When changing the wound dressing, residual Hyalofill is easily removed by irrigating the wound with sterile saline.

### Clinical evidence on Hyalofill

Recent studies have shown that pre-treatment of full-thickness wounds with an esterified HA results in a better organised dermis and vascularity, with evidence of angiogenesis (Navsaria et al, 1998).

In a recent randomised controlled study, HYAFF was used in patients with diabetes and indolent neuropathic ulcers (Foster et al, 1999). Of 30 patients in the study, 15 received HYAFF plus standard treatment (active group), and 15 received standard treatment alone (control). In the active group, there were 13 ulcers with sinuses and 13 with bone exposed. In the control

group, there were 9 ulcers with sinuses and 9 with bone exposed. In the active group 12 of the 13 sinuses healed compared with only 1 of 9 in the control group ( $P < 0.01$ ). In the active group, 10 of the 15 ulcers healed, compared with 3 of 15 in the control group ( $P < 0.05$ ). Thus, HYAFF application resulted in a higher degree of closure of sinuses and improved healing of indolent neuropathic ulcers.

Hyalofill is now available in the UK. Although evidence on its use in diabetic foot lesions is limited and more research is needed, early clinical experience suggests that it may prove useful for the treatment of ulcers complicated by sinuses and fistulae, and deep exudating wounds. ■

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### PAGE POINTS

**1** Frequency of changing Hyalofill dressings depends on the amount of exudate produced and stage of healing.

**2** Hyalofill has recently been launched in the UK.

**3** Although evidence on the use of Hyalofill in diabetic foot lesions is limited, early clinical experience suggests that it may be useful in the treatment of ulcers complicated by sinuses and fistulae, and deep exudating wounds.