

FLAMINAL® FOR WOUND HEALING FOLLOWING LIMB-SPARING SURGERY IN A 13 YEAR OLD FEMALE WITH SYNOVIAL SARCOMA

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Summary

This communication describes the wound management following foot sparing resection in a 13 year old female with synovial sarcoma of her left foot involving the first and second metatarsals.

Synovial sarcoma

Synovial sarcoma is a rare type of soft tissue sarcoma that mainly occurs in the extremities. It is an aggressive tumour and tends to occur in adolescents and young adults. Treatment depends on the age of the patient, location of the tumour, its size, its grade and the extent of the disease. The most common treatment is surgery with radiotherapy or chemotherapy.

Case study

The patient, a 13 year old female, was diagnosed with synovial sarcoma. Treatment of the tumour consisted of three cycles of chemotherapy and surgical excision, however histology revealed some satellite nodules within soft tissue and further excision with insertion of a cement spacer was performed one month later to achieve clearance. This wound healed within 8 weeks of surgery. A further round of chemotherapy was completed and, due to the age of the patient and the aggressive nature of the tumour, a course of radiotherapy was also completed.

Both patient and parents preferred foot sparing surgery although this was complex due to the involvement of the toe and so required reconstructive surgery which was performed three months later. Reconstructive surgery of the second metatarsal was performed with free fibula osteocutaneous flap. Unfortunately this flap failed after 2 days and the patient returned to surgery for re-exploration of free flap, salvage of artery, vein and re-insertion of fibula segment with a flap to dorsum of foot. The wound failed to heal and the patient was taken back to theatre after 5 weeks for debridement and application of a skin graft plus Vacuum assisted closure (VAC) therapy to assist healing. Progress of the wound was slow and after five months the decision was made to remove the metal plates and reapply VAC therapy (Figure 1). The wound was still slow to progress; microbiology confirmed the presence of Staphylococcus aureus and coliforms. The fibula transplant remained completely exposed and so the bone graft was removed and VAC therapy once more applied.

Again, wound healing remained slow and with the wound at 5 x 1cm VAC therapy was stopped and Flaminal® Forte applied to the wound (Figure 2).

Figure 1. Plates in foot remain exposed



Figure 2. Day 0 - wound measured 5 x 1cm prior to Flaminal® treatment



Results with Flaminal®

The dressing was changed after 3 days and the wound had considerably improved; granulation tissue was evident in the wound bed with reduced wound margins and no visual signs of infection (Figure 3). Dressing changes were made twice per week until complete healing was achieved three weeks after commencing Flaminal® Forte. These dressing changes were less traumatic than under the previous regimen. Flaminal® Forte reduced dressing associated pain and ensured the wound remained free from infection. The patient found Flaminal® Forte to be comfortable, and as the dressing is not bulky the patient was able to wear normal footwear and her mobility was improved.

Figure 3. Day 3 - granulation tissue evident, reduced wound margins and no visual signs of infection after 3 days



Discussion

The patient and parents were keen to preserve the toe although only if the foot remained functional. Osteocutaneous flaps represent a real alternative to amputation. However, they, like any wound, can be susceptible to complications. Complications may be divided into surgical and specific. The surgical complications are related to the site involved but include the general complications of wound infection, wound breakdown, neurologic or vascular injury, and hematoma or seroma formation. Specific complications associated with this tumour are local recurrence and distant metastases. The risk of local recurrence is directly proportional to the adequacy of surgical clearance. Therefore, a wide excision is mandatory to reduce this risk.

In this patient, the free fibula osteocutaneous flap failed, the plates in the foot had to be removed and the bone graft was removed. After each intervention VAC therapy was applied, however the wound never progressed towards healing and microbiology identified Staph aureus and coliforms. At this stage the team decided to change wound treatment and selected Flaminal®, an antimicrobial alginate dressing. Flaminal® has a unique dual mode of action: it removes potentially damaging wound fluid from the wound bed and it has a broad spectrum antimicrobial effect with no demonstrable cytotoxicity.

Conclusion

Flaminal® Forte kept the wound free from infection and facilitated healing in this complex surgical wound, thus preventing amputation in a young patient.

Benefits to patient

- Comfortable
- Exudate management
- Reduced dressing associated pain
- Ability to wear normal footwear with dressing
- Improved mobility
- Wound remained free from infection until closure

NEONATAL MOISTURE LESIONS AND THE USE OF FLAMINAL® FORTE

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Introduction

Nappy dermatitis is one of the most common dermatological conditions experienced by neonates, with a prevalence of between 4% and 15%.¹ It is generally caused by prolonged contact with urine-soaked material, which can be exacerbated by frequent diarrhoea, or fungal colonisation by the resident gut flora, *Candida albicans*.²

The reduced barrier function of the stratum corneum places the neonate, and especially the preterm neonate, at risk of variable transepidermal water loss, which can be as much as 15 times greater in pre-term children compared with full-term, and leads to excessive heat loss from the constantly damp skin.² This can lead to dehydration and electrolyte imbalance, percutaneous toxicity, and microbial colonisation.³ The barrier function of the skin is also vulnerable to pH alteration leaving it more prone to bacterial colonisation.²

Moisture lesions present as erythema and are characterised by irritation and inflammation. They can be extremely painful and occur when the perineal or perigenital skin comes into contact with urine, faeces or both. Prolonged contact can result in tissue breakdown, increase the risk of infection and so minimising damage is extremely important.⁴

These two case studies describe the management of baby 1 and baby 2, both pre-term baby girls who suffered from moisture lesions caused by faeces and incontinence with superficial skin loss mirror imaged on both buttocks. Previously, both wounds had only been cleaned with water, but due to the location of the wounds there was a high risk of them becoming infected.

Baby 1 was born at 32 weeks and 6 days and weighed 2.1 kilograms. She was seen by the tissue viability nurse at 13 days, a day before moisture lesions appeared. Baby 2 was born at 32 weeks and weighed 1.99 kilograms. She was seen by the tissue viability nurse at 21 days old.

Method

Baby 1 had a moisture lesion that measured 3cm x 2cm on day 1 of treatment (Figure 1). Baby 2 had multiple small, open lesions on day 1 of treatment (Figure 2). A compromised skin barrier meant there was increased potential for chemicals to be absorbed through the skin and particularly in neonates, who are more susceptible to infection.² Ideally, any wound dressing used should be able to protect the wound while being atraumatic, i.e. prevent trauma and pain to the wound or surrounding skin on removal. Painful stimuli could be avoided by choosing dressings that were easy to apply, did not need to be changed too frequently, and promoted wound healing.²

The treatment plan for both babies was Flaminal® Forte (Flen Pharma) applied prophylactically 4 times daily into their nappies to prevent infection, act as a barrier to prevent the skin from further breakdown, and assist with healing the lesions already present. The use of other products, such as silver, honey & iodine dressings, was prohibited as they are contraindicated for use in neonates.

Results

By day 5 the wound in baby 1 had reduced in size to 1cm by 0.5cm (Figure 3), by day 7 it had reduced in size to 0.5cm x 0.3cm (Figure 4), and between day 7 and day 12 Flaminal Forte was used as a barrier until the baby was discharged (Figure 5).

In baby 2 the wound area and number of erythematous lesions had reduced by day 6 (Figure 6) and the skin was healing well. By day 10 the lesions had continued to reduce in size and wound healing was evident (Figure 7), and the baby was able to be discharged.



Figure 1: (Baby 1) Day 1



Figure 2: (Baby 2) Day 1



Figure 3: (Baby 1) Day 5



Figure 4: (Baby 1) Day 7



Figure 5: (Baby 1) Day 12



Figure 6: (Baby 2) Day 6



Figure 7: (Baby 2) Day 10

Discussion

A heavy bacterial burden in a wound encourages tissue degradation and slough formation, thus preventing healing. Flaminal® Forte (Flen Pharma), an enzyme alginogel, is a dressing that is indicated for preventing bacterial infections and acts as a biodegradable, soft and soothing wound interface reducing pain and trauma during wound care.

It contains 2 naturally occurring antimicrobial enzymes, glucose oxidase and lactoperoxidase which kill bacteria without damaging healing cells.⁵ Flaminal® has the capability to absorb excess exudate while remaining in a gelled state, promote debridement, control wound bioburden and reduce pain at dressing change.

Conclusion

Flaminal® Forte was extremely effective at healing the lesions in these neonatal babies, whilst acting as a barrier for further breakdown and preventing infection. It can be used on preterm babies with extremely sensitive skin, which was reassuring to the parents.

As an enzyme alginogel Flaminal® provided excellent conformability to the lesions despite their difficult location.

References

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