The Effective Management of Exomphalos Major Post-Surgical Wound using an Enzyme Alginogel®

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Introduction

Exomphalos (also known as omphalocele) is a condition that occurs very early in pregnancy, usually between 3 to 8 weeks of gestation. During early pregnancy the intestine develops outside of the abdominal cavity in the umbilical cord and is supposed to return to the abdomen by 10 weeks. Exomphalos is a defect in the development of the abdominal wall that allows the intestine, and frequently the liver, to stay outside of the abdominal cavity in the sac of the umbilical cord[1].

There are two types of Exomphalos: exomphalos minor where the opening is less than 4cm and containing only the intestine and exomphalos major where the opening is greater than 4cm and/or with the liver inside the cord. This condition affects around 2 in every 5000 children born each year[2]. All babies born with exomphalos will require surgery.

This case study involves a 1-year-old female infant, born at term in November 2019 with her intestines, liver, spleen and some of her stomach outside of the abdomen. The patient required neonatal intensive care for four weeks, stepping down to a high dependency unit and finally a ward. Surgery was performed in October 2020 for abdominal wall closure and bio design patch - a graft intended for implantation to reinforce soft tissue where weakness exists including repair of hernia or body wall defects.

The infant was presented at the emergency department in December 2020 with pyrexia and tachycardia. The post-surgical wound had dehisced, measuring 5cm length, 3.5cm width and a depth of 0.5cm. There was surrounding erythema and moderate volumes of purulent exudate. The peri-wound skin was generally healthy and intact. Intravenous antibiotics and fluids were commenced, and a positive staphylococcus aureus wound swab was indicated. An ultrasound was performed which indicated superficial wound infection without any underlying collection.

The Tissue Viability Specialist Nurse reviewed the patient, and a wound management plan was initiated using decontamination solution soaks, Flaminal® Forte an enzyme alginogel® primary dressing with a silicone secondary foam dressing; the peri-wound skin was protected with a barrier film. The patient was then discharged home, with the directed wound management plan, into the care of the Community Children's Nursing Team. Care was also provided by the Physiotherapist, Occupational therapist, and dietetics team. Dressings frequency initially was alternative days for approximately two months and every third day thereafter.

Method

The Community Children's Nurses utilised the TIMES acronym (Tissue, Infection, Moisture, Edges, Surrounding Skin) to manage the wound. The aims were to debride devitalised tissue, as this impedes wound healing, to reduce the wound bioburden and management of exudate, including preservation of the surrounding skin.

An enzyme alginogel®, Flaminal® Forte, was selected for its ability to facilitate autolytical debridement and its proven broad-spectrum antimicrobial properties. Its alginate polymer properties support exudate management whilst simultaneously maintaining an optimum moist wound environment to ultimately support wound healing.

12th Dec 20

16th Dec 20

24th Dec 20

1st Jan 21

13th Jan 21

6th Feb 21

18th Feb 21

3rd Mar 21

6th Apr 21

Result

Flaminal® Forte primary dressing use continued for four and half months with evidence to support that the wound dimensions persistently decreased throughout, until complete healing was achieved. During this period there was no further episodes of infection, deflecting the need for hospital admissions. The non-toxic antimicrobial components of the Flaminal® products permits its use indefinitely for the duration of the wound healing trajectory. Exudate management and surrounding skin preservation was also accomplished.

Discussion

Treatment of patients with Exomphalos represents a major challenge for involved caregivers. Despite significant improvements in neonatal intensive and surgical care over the last decades, the condition is still associated with high mortality rates and a high risk of severe morbidity in survivors[3].

Conclusion

The Community Children's Specialist Nurse concluded that the use of Flaminal® Forte was highly effective in the treatment and healing process of this unusual case. Healing was achieved much quicker than anticipated and without further complication.

The Community Children's Nursing Team had not previously used Flaminal® products prior to their involvement with this patient's wound management plan and were captivated by its application simplicity and ease of storage, emphasising that it would be included in their wound management armoury for use with future patients.

Additionally, the infant was unperturbed during dressing changes and did not appear to experience pain unlike that of traditional management methods of packing these types of wounds, which often results in pain and distress upon removal.

This case study emphasises the importance of holistic assessment and the significance of appropriate wound management to achieve uninterrupted wound healing.

References

1. National Perinatal Epidemiology Unit (2020). University of Oxford. www.npeu.ox-.ac.uk/baps-cass/surveillance/exo#background
2. Great Ormond Street NHS Foundation Trust (2016) The Department of Specialist Neonatal and Paediatric Surgery in collaboration with the Child and Family Information Group. www.gosh.nhs.uk/conditions-and-treatments/conditions-we-treat/exomphalos
3. Mack, AJ & Rogdo, B (2016) Research and Reports in Neonatology. Dove press journal. www.dovepress.com/getfile.php?fileID=31404

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