MANAGEMENT BY ENZYME ALGINOGEL® OF A DEHISCED ABDOMINAL WOUND IN A NEONATE WITH MECONIUM ILEUS

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Introduction

Meconium ileus (MI) is a bowel obstruction that occurs when the meconium (contents of a baby's bowel) in the intestine is even thicker and stickier than normal meconium, creating a blockage in the ileum. Some percentage of patients with MI are preterm very-low-weight babies in whom intestinal obstruction caused by the impaction of the bowel lumen by meconium results from immature or ineffective peristalsis of the fetal intestine, followed by excessive water absorption.[1] Surgical intestinal disorders such as MI are serious morbidities in extremely low birth weight (<1000g) infants.

This communication describes the management of Clara (pseudonym), a premature baby (born at 25.2 weeks, weighing 686g) who developed a meconium ileus with a totally underdeveloped colon necessitating immediate surgery. She developed an abdominal sepsis and became severely ill; the concomitant oedema of the abdominal wall caused a dehiscence of the laparotomy wound.

Methods

Clara now had a heavily exuding and extensive abdominal wound measuring approximately 10x4cm containing 65% slough and 35% granulation tissue. It was initially treated by a combination of an alginate dressing, and a foam secondary dressing with paraffin cause to protect the stoma, held in place with a nappy. The dressings were renewed 2-3 times a day due to saturation, for 9 days with little improvement.

The aims of treatment were to autolytically debride the sloughy tissue thus reducing the wound bioburden, control the exudate and ultimately to heal the wound. Clara's abdominal wound was redressed on a daily basis, with an enzyme alginogel® containing two antimicrobial enzymes (glucose oxidase and lactoperoxidase), a foam secondary dressing, held in place with a nappy negating the need for tape which was not appropriate.

Results

There was an improvement with the dressing regimen within 10 days with a reduction in exudate noted.

Discussion

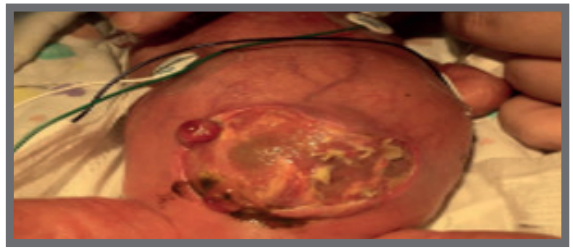
MI is an intestinal obstruction caused by the impaction of thick, inspissated, protein-rich, adhesive and dessicated meconium filling the distal part of the terminal ileum[2]. It is often the first sign of pancreatic insufficiency linked to cystic fibrosis. MI occurs at birth in 13%-17% of all cystic fibrosis (CF) patients[3] and is the earliest clinical manifestation of CF occurring in up to 20% of patients with CF (Carlyle et al, 2012). CF is known to coexist in 75% of neonates with MI.

Devitalised tissue is a barrier to healing with slough acting as a reservoir for microorganisms and biofilm formation[4] which impedes healing. Flaminal® (Flen Health) with its alginate polymers and enzymes has a proven broad-spectrum antibacterial activity[5] with the ability to inhibit biofilm formation[6], thereby helping to control bioburden whilst absorbing exudate. Flaminal® has the capability of absorbing excess exudate whilst remaining in a gelled state, it promotes debridement and controls wound bioburden.

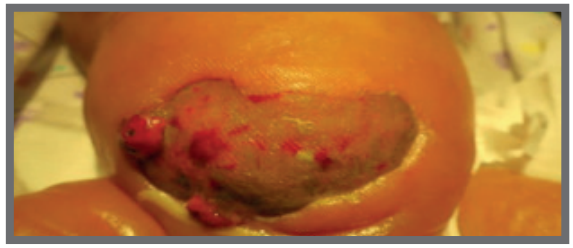
Conclusion

This case study demonstrates the effectiveness of Flaminal® in assisting autolytic debridement coupled with control of exudate and the promotion of healing in this complex dehisced abdominal surgical wound.

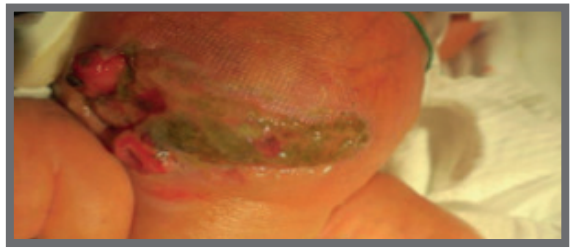
Day1



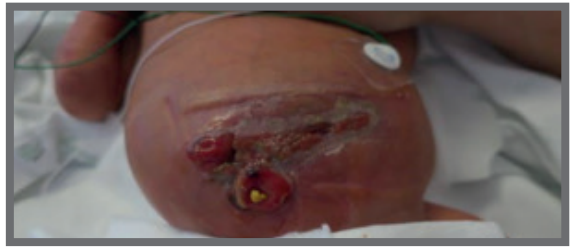
17 days



26 days



37 days



References

1.Gorter RR, Karimi A, Sleeboom C et al (2010) Clinical and genetic characteristics of meconium ileus in newborns with and without cystic fibrosis. JPGN 50:569-572

2.Carlyle BE, Borowitz DS, Glick PL (2012) A review of pathophysiology and management of foetuses and neonates with meconium ileus for the pediatric surgeon. J of Pediatric Surgery 47 (4): 772-781

3.Kappler M, Feileke M, Schroter C et al (2009) Long term pulmonary outcome after meconium ileus in cystic fibrosis. Pediatr Pulmonol 44:1201-6

4.Percival SL, Suleman I (2015) Slough and biofilm: removal of barriers to healing by desloughing. J Wound Care 24 (11):498-510

5.De Smet K, Van den Plas D, Lens D, Sollie P (2009) Pre-clinical evaluation of a new antimicrobial enzyme for the control of wound bioburden. Wounds 21 (3): 65-73

6.Cooper RA (2013) Inhibition of biofilms by glucose oxidase, lactoperoxidase and guaicol: the active antimicrobial component in an enzyme alginogel. Int Wound J 10 (6):630-7