

Minimizing complications in post-separation care of omphalopagus conjoined twins with hydrophobic technology.

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DACC

DACC (dialkylcarbamoyl chloride) is a hydrophobic fatty acid derivative

- Bacteria & fungi are inactivated once bound to the dressing and prevented from proliferating or releasing harmful toxins.
- Microorganisms are removed from the wound bed along with the dressing, reducing the bacterial load
- No cell wall disruption/no bacterial death therefore no systemic inflammatory reaction

DACC dressings use in repaired abdominal repair care:

- **Incision protection from the environment**
- **Bacterial/Fungal decolonization**
- **Bacterial/fungal infection prevention**
- **Non-adherent dressing**
- **Absorptive dressing**

Case

In the NICU initial ultrasound confirmed shared liver. Abdominal x-rays didn't not show obvious obstruction, so enteral feds were initiated. On day 4 medical team noted that twin A was eating greater volumes, yet was losing weight and had poor urine output; Twin B had slightly borderline HTN.

By Day 6, oliguria and hypotension on twin A and hypertension on twin B led to MRI/MRV/MRA leading to diagnosis of umbilical venous connections between umbilical veins and circulation imbalance leading to systemic morbidities. Emergency separation took place on DOL 6. Liver was divided midway; shared vessels transected and xyphoid cartilaginous connection resected with a mild xyphoid modification in one baby.

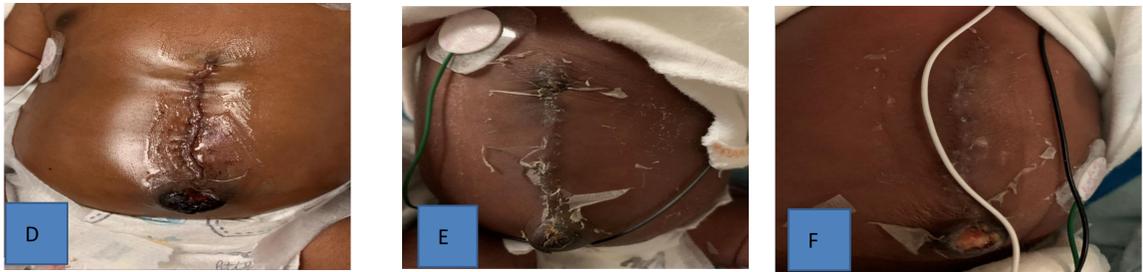
Case Cont.

Primary skin closure was achieved, albeit tight. Plastics requested petrolatum and Bismuth Salicylate infused gauze dressings over both incisions on Day1(A-twin A and B). 24 hours later routine MSSA/MRSA skin surveillance cultures were done(unit protocol). Both babies were found to be colonized with MSSA(Methicillin-sensitive Staphylococcus aureus) Dressings were changed to hydrophobic technology(Cutimed Sorbact™ Gel(B) covered by Cutimed Sorbact™ Ribbon gauze) in hopes to decolonize the skin, minimize risk of infection and potential dehiscence, need for non-adherent dressing & continuous prevention of bacterial colonization.



Results

Repeat skin cultures 72 hours later were negative(D). Incisions were intact, dry and healed extremely well. After 4 days we discontinued the gel and only kept the ribbon gauze(C). Patients were discharged home in less than 2 weeks with no complications. (E- twin A before DC. F-twin B before DC)



Conclusions

DACC* technology effectively binds and removes hydrophobic organisms without:

- *Systemic/local absorption of chemicals from an antimicrobial
- *Release of bacterial by-products, which may act as exogenous inflammatory agents

***Endogenous systemic reaction, chemokines production**

We recommend considering hydrophobic technology in the care of patients, including neonates undergoing high-risk abdominal repair and closure as it provides effective physical protection, maintains either a moist or dry wound environment, physically binds and removes microorganisms without the use of an antimicrobial, while allowing non-toxic, easy-to-apply dressing care that can support healing without the need for daily manipulation.

Conjoined twins are a rare phenomenon of a monochorionic monoamniotic twins. The incidence varies from 1 in 75 000 live births. Five types of conjoint twins are commonly identified, omphalopagus is the least recurring with incidence of 0.5%. In omphalopagus configuration twins are joined at the abdomen, potentially sharing liver, intestines and may have connection up to xiphoid process. Umbilical cord and its vessels can have complex configuration, with 6 separate vessels or abnormal number of shared vascular connections.

AIM

Omphalopagus twins born in our institution required early (DOL 6) separation secondary to clinical instability due to twin-to-twin ex-utero transfusion. Primary repair with complete skin closure was achieved. Post-repair skin was noted to be colonized with MSSA. Outer dressing was changed to hydrophobic technology to decolonize skin, prevent infection and risk of wounds dehiscence.



- Skin care challenges :**
- *Skin Decolonization
 - *Need for non-adhesive dressing
 - *Incision protection
 - *Infection prevention

