



BACKGROUND

- ❖ Preterm birth and low birth weight are among the most frequent causes of infant and neonatal death in the United States.
- ❖ Complications of prematurity and complexity of medical management of these fragile newborns are often inversely related to gestational age at delivery and birth weight.
- ❖ Cutaneous congenital candidiasis (CCC) is frequently secondary to Candida chorioamnionitis, which is considered the pathogenesis of fetal infection.¹⁻³
- ❖ CCC is a very rare disease with less than 100 cases published in the medical literature.¹⁻³

Dehydrated Human Amnion/Chorion Membrane⁴⁻⁵

- ❖ Amniotic membrane has been used as a skin graft substitute and as a covering for various wound types for over a century, with the rationale that these allografts provide both a scaffold for cell migration and extracellular matrix deposition as well as exogenous growth factors and cytokines important for wound healing.
- ❖ Widespread utilization of placental tissue for allografts has been limited by many factors including the ability to preserve biological activity during processing.
- ❖ Recently, a method called the PURION® Process (MiMedx®, Marietta, GA) was developed that gently cleans, dehydrates, and sterilizes placental tissue obtained from screened and tested donors.

OBJECTIVE

The objective of this case report is to detail the use of dehydrated human amnion/chorion membrane (dHACM) in the treatment of extensive life threatening wounds related to CCC in a premature infant.

METHODS

Case Description

- ❖ We present the case of a 615 gram dizygotic twin infant delivered at 24 weeks gestation with congenital candidiasis, who developed severe skin and tissue loss, successfully treated with dHACM.
- ❖ The infant had a complicated medical course, including treatment for patent ductus arteriosus (PDA), necrotizing enterocolitis (NEC), and neonatal abstinence syndrome (NAS).
- ❖ The infant's wounds were calculated to manifest approximately 10.5% total body surface area (TBSA) to the back and 1.5% TBSA to the lower abdomen.

Treatment

- ❖ Initially, a temporary allograft was placed for 10 days to allow clinicians to address other medical issues.
- ❖ In the operating room after debridement, dHACM was placed over all abdominal and back areas of skin loss and covered with a non-occlusive, non-adherent silver dressing which was then changed weekly at the bedside.
- ❖ This dressing regimen was chosen in an effort to provide not only topical antimicrobial coverage but also to maintain a non-shear, moist wound healing environment so important in the dry incubator environment of the neonatal intensive care center.

RESULTS

- ❖ Ten days after the first dHACM application, the wounds were estimated to have closed by 15% and a second application of dHACM was placed to both the abdominal and back wound sites.
- ❖ By day 15 post dHACM application, the overwhelming majority of the wounds had reepithelialized and by 6 weeks the few residual small scattered areas were noted to be completely closed.

RESULTS

Figure 1. Wound at transfer to UCSD 7 weeks post-delivery. Deep partial thickness to full thickness in depth with a granular appearance.



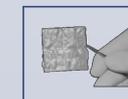
Figure 2. Frontal wounds upon admission to UCSD. Tight band like strictures were noted at the regions just caudal to the large open wounds both ventrally and dorsally and extended onto the hips, thighs and perineum.



Figure 3. Close-up image of frontal wound.



Figure 4. After gently cleansing, dHACM was placed directly on the wound surface.



dHACM = EpiFix®
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RESULTS

Figure 5. After 6 weeks and two dHACM applications.



Figure 6. Frontal wounds 11 months post first dHACM application. Genitalia and identification plaque are photographically obscured.



Figure 7. Back wounds 11 months post first dHACM application.



CONCLUSIONS

This report is unique and to our knowledge, is the first documented case on the use of dHACM in a neonate with CCC and illustrates successful complex management of extensive life threatening wounds.

REFERENCES

1. Diana A, Epiney M, Ecoffey M, Pfister RE. White dots on the placenta and red dots on the baby: congenital cutaneous candidiasis – a rare disease of the neonate. *Acta Paediatrica* 2004;93:996-99. [PMID:15303819]
2. Roque H, Abdelhak Y, Young BK. Intra amniotic candidiasis. Case report and meta-analysis of 54 cases. *J Perinat Med* 1999;27:253-62.
3. Ito F, Okubo T, Yasuo T, et al. Premature delivery due to intrauterine Candida infection that caused neonatal congenital cutaneous candidiasis: a case report. *J Obstet Gynaecol Res.* 2013 Jan;39(1):341-3. doi: 10.1111/j.1447-0756.2012.01938.x. Epub 2012 Jul 6.
4. Fetterolf DE, Snyder RJ. Scientific and clinical support for the use of dehydrated amniotic membrane in wound management. *Wounds* 2012;24:299-307.
5. Koob TJ, Rennert R, Zabeck N, et al. Biological properties of dehydrated human amnion/chorion composite graft: implications for chronic wound healing. *Int Wound J* 2013 Oct;10(5):493-500.