

Topical Breast Milk as an Alternative Prevention Intervention of Omphalitis in Newborn: Case Study

Ernawati

Bachelor of Midwifery Program, Karsa Husada Garut College, Garut, Indonesia

Abstract: Two newborns were analyzed for the fall of the umbilical cord. One of the babies received intervention with topical breastmilk 3 times a day until pupation, while baby B was given dry method intervention. The data collection technique was interviews and observation. The process of releasing the umbilical cord in babies with topical breast milk until the 4th day without odor appearing. In baby B, the detention occurred on the 7th day by leaving a smelly and wet at the base of the umbilical cord. The Topical Breastmilk method was effective and faster in pulling the umbilical cord than the dry method. So that, it can be used as a recommendation in umbilical cord care.

Keywords: topical breast milk, prevention intervention, newborn

Received: 27 March 2024

Revised: 29 April 2024

Accepted: 5 Mei 2024

Published: 10 Mei 2024

Author Name*: Ernawati

Email*: ernawatikoesendang@gmail.com

© 2024 The Authors. This open access article is distributed under a (CC-BY License)



Phone*: +6285882479337

Introduction

The use of breast milk for umbilical cord care has been studied as a strategy to prevent cord infection and promote healing. Research shows that breast milk contains bioactive proteins that help fight infection, reduce inflammation, and accelerate the time of cord separation. Studies have compared the effectiveness of breast milk with other methods like chlorhexidine and dry cord care. Results indicate that breast milk can reduce bacterial colonization in low-resource settings and is a better alternative to dry cord care, although chlorhexidine remains very effective in reducing pathogenic bacteria colonization of the cord (Aghamohammadi et al., 2012; Hartono & Purwanto, 2016; Lyngdoh et al., 2018; Hernayanti et al., 2018). The bacteria commonly found at the end of the umbilical cord include *S. Epidermis*, *S. Aureus*, *E. Coli*, and *Klebsiella Pneumoniae*. Breast milk's benefits for cord care stem from its immunoglobulins

A, G, M, lactoferrin, and lysozyme, which act as anti-bacterial, anti-viral, and anti-microbial agents (Mahrous et al., 2012; Brugman et al., 2015; Bagus et al., 2019; Agakidou et al., 2022).

Method

The two newborns were analyzed for their umbilical cord care. This study was approved by both mothers and both of babies in good health. One of the babies received an intervention topical breast milk to the umbilical cord 3 times a day until it fell. The following table is the comparison of two methods.

Result and Discussion

The two newborns were analyzed for their umbilical cord care. This study was approved by both mothers and both of babies in good health. One of the babies received an intervention topical breast milk to

How to Cite:

Ernawati, E. (2024). Topical Breast Milk as an Alternative Prevention Intervention of Omphalitis in Newborn: Case Study. *Nursing Case Insight Journal*, 2(1), 6-9. <https://nci.journalhealth.org/index.php/nci/article/view/12>

the umbilical cord 3 times a day until it fell. The following table is the comparison of two methods.

Tabel I: The Comparison of Outcomes Care Between Case 1 and Case 2							
Topical breast milk				Dry method			
Day 0-1	Day 2nd	Day 3rd	Day 4th	Day 0-1	Day 2nd-4th	Day 5th-6th	Day 7th
Cord condition							
Moist	Dry	Dry, sign release	fall	Moist	Wet Base	Wet base (Dry end rope center), sign release	Wet in base on the rope center
Color							
Yellow	Blur, black outline	Black		White, shiny, transparent	All yellow surface	yellow, black line appear	black
Consistency							
Mushy	Starting to harden	Loud, mummified		Mushy	-	Starting to harden	Loud, mummified
Smell							
No smell	No smell	No smell		No smell	-	smelled	smelled
Sign of infection							
-	-	-		-	-	-	appeared
Release time Central rope							
4 days without odor at insertion center				7 days with smells all over the place insertion			

Table I showed that the intervention of giving topical breast milk 3 times a day shows a rapid change in the process of umbilical cord discharge. This starts with changes in color, consistency, smell, and size of the umbilical cord. In addition, it did not leave an odor at the base or insertion of the umbilical cord.

The use of breast milk for umbilical cord care has been studied as a strategy to prevent cord infection and promote healing. Research shows that breast milk contains bioactive proteins that help fight infection, reduce inflammation, and accelerate the time of cord separation (Abbaszadeh et al., 2016; Hartono & Purwanto, 2016; Hernayanti et al., 2018; Lyngdoh et al., 2018). The bacteria commonly found at the end of the umbilical cord include *S. Epidermis*, *S. Aureus*, *E. Coli*, and *Klebsiella Pneumoniae*. Breast milk's benefits for cord care stem from its immunoglobulins A, G, M, lactoferrin, and lysozyme, which act as anti-bacterial, anti-viral, and anti-microbial agents (Abbaszadeh et al., 2016). The release of the umbilical cord depends on treatment, and the duration of release with the topical breastfeeding method is faster than other methods. Wet conditions

in the base area prior to discharge are physiological because of colonization of the cord area. When there is a meeting of the skin of the abdomen and the umbilical cord, it causes leukocyte infiltration and digestion of the umbilical cord, leading to the mucosa becoming cloudy, sticky, and wet. The umbilical cord turns yellow, then black, and a dividing line appears. Within a few days, the umbilical cord detaches and leaves a granulation wound that forms the umbilicus (belly button). Discharge usually occurs in the first 2 weeks, ranging from 4 days to 10 days (Abbaszadeh et al., 2016; Hartono & Purwanto, 2016; Hernayanti et al., 2018; Lyngdoh et al., 2018).

Interventional administration of topical breast milk showed a faster time for releasing the umbilical cord, which is for 4 days. While using the dry method, it takes longer, 7 days. The physical changes in the umbilical cord were obvious, especially in cases of intervention during treatment. The umbilical cord did not experience odor and dries quickly. The acceleration of umbilical cord pupation in the topical breastfeeding method is due to the content of essential substances in breast milk, especially protein as the

body's essential bond formers that have a direct effect on the cells so that they can regulate fluid balance, body pH and form antibodies. Physiologically, antibodies will be active and proliferate with macrophages in response to foreign bodies resulting in mitotic division Kartikasari et al., 2019; Indrayani et al., 2021; AS & Fithriany, 2022; Harahap et al., 2022; Dahlan et al., 2023).

Histologically, colostrum contains polymorphonuclear leukocytes (PMN) which are formed on days 1-4 postpartum with a content of 5 million leukocytes/mm³. PNM can form a demarcation zone so that pathogenic bacteria cannot penetrate blood vessels and important tissues in the walls of polymorphonuclear leukocytes, proteolytic enzymes and other immunological compounds contained therein. Due to the high protein content in colostrum and the presence of polymorphonuclear leukocytes, it accelerates the repair of damaged cells in the wound healing process and reduces the colonization of microorganisms on the umbilical cord to speed up the time for umbilical cord detachment (Lyngdoh et al., 2018b; Dewi et al., 2023).

Conclusion

The release of the umbilical cord in the case of treatment with topical breastmilk occurred on the 4th day, leaving no odor.

Acknowledgments

I would like to thank the patients who were willing to be respondents and participated in the intervention well.

Funding

The research was not funded by any party

References

1. Abbaszadeh, F., Hajizadeh, Z., & Jahangiri, M. (2016). Comparing the impact of topical application of human milk and chlorhexidine on cord separation time in newborns. *Pak J Med Sci*, 32(1), 239-243.
2. Agakidou, E., Agakidis, C., Kontou, A., Chotas, W., & Sarafidis, K. (2022). Antimicrobial Peptides in Early-Life Host Defense, Perinatal Infections, and Necrotizing Enterocolitis – An Update. *Journal of Clinical Medicine*, 11.
3. AS, E., & Fithriany. (2022). The Effectiveness of Topical Breast Milk (Breastmilk) Methods, Sterile Gauze and Non-Treatment Methods on The Duration of The Umbilical Cord Detachment. *JKM (Jurnal Kebidanan Malahayati)*, 8(1), 47-53.
4. Bagus, P., Saputra, T., Rochmah, N., & Wiqoyah, N. (2019). The Comparison of Breast milk from Mother with Preterm Infant at 4 o C Temperature in 0, 24 and 48 Hours on Bacterial Growth. *Biomolecular and Health Science Journal*, 02(02), 121-124.
<https://doi.org/10.20473/bhsj.v2i2.15410>
5. Brugman, S., Perdijk, O., Neerven, R. J. J., & Savelkoul, H. F. J. (2015). Mucosal Immune Development in Early Life: Setting the Stage. *Archivum Immunologiae et Therapiae Experimentalis*, 251-268.
<https://doi.org/10.1007/s00005-015-0329-y>
6. Dahlan, F. M., Lail, N. H., & Ma, S. (2023). The Influence of Corner Care Using Topical Breast Milk and Dry Gauge Methods on The Time of Crap Delivery. *Nursing and Health Sciences Journal*, 3(2), 197-201.
7. Dewi, N. M. R., Prabawa, I. P. Y., & Samsarga, G. W. (2023). Effect of neutrophil extracellular traps (NET) on thrombosis: A literature review. *Intisari Sains Medis*, 14(3), 1092-1095.
<https://doi.org/10.15562/ism.v14i3.1896>
8. Harahap, R. F., Ramadani, D. S., Yusnidar, C., & Dea, D. (2022). The Effectiveness Of Umbilical Cord Care With Topical Breast Milk On The Length Of Umbilical Cord Detachment In Newborns At The Yusniar Clinic Pangkalan Berandan In 2022. *Science Midwifery*, 10(5).
9. Hartono, A., & Purwanto, N. H. (2016). Comparison Effectiveness Breast Milk and Dry Sterile Gauze to Treatment Umbilical Cord. *Open Journal of Nursing*, 6(February), 94-99.
10. Hernayanti, M. R., Purnamaningrum, Y. E., & Kusmiyati, Y. (2018). Breast Milk and Umbilical Cord Care in Newborn. *International Journal of Scientific Research and Education*, 06(02), 7820-7825.
11. Indrayani, T., Dominggus, G., & Widowati, R. (2021). The Effectiveness of Colostrum Use on Acceleration of Umbilical Cord Release Among the Infants at the Work area of Mekar Wangi Public Health Center Bogor City 2019. *Advances in Social Science, Education and Humanities Research*, 535, 479-482.
12. Kartikasari, R., Wijayanegara, H., & Syarief, O. (2019). Comparison between effectiveness of umbilical cord care using topical breast milk application and dry techniques in accelerating umbilical cord separation and preventing omphalitis. *The New Indian Journal*, 6(April), 3-10.
13. Lyngdoh, D., Kaur, S., Kumar, P., Gautam, V., & Ghai, S. (2018a). Effect of Topical Application of Human Breast Milk Versus 4% Chlorhexidine Versus Dry Cord Care on Bacterial Colonization

- and Clinical Outcomes of Umbilical Cord in Preterm Newborns. *Journal of Clinical Neonatology*, 25-30. <https://doi.org/10.4103/jcn.JCN>
14. Lyngdoh, D., Kaur, S., Kumar, P., Gautam, V., & Ghai, S. (2018b). Effect of Topical Application of Human Breast Milk Versus 4% Chlorhexidine Versus Dry Cord Care on Bacterial Colonization and Clinical Outcomes of Umbilical Cord in Preterm Newborns. *Journal of Clinical Neonatology*, 25-30. <https://doi.org/10.4103/jcn.JCN>
15. Mahrous, E. S., Darwish, M. M., Dabash, S. A., Marie, I., & Abdelwahab, S. F. (2012). Topical application of human milk reduces umbilical cord separation time and bacterial colonization compared to ethanol in newborns. *ImedPub Journals*, 3(1), 1-8. <https://doi.org/10.3823/432>