

# A Case Report of Neonatal Pediculosis: A Simple Challenge, yet Complex

Viveka Santhosh Reddy Challa<sup>1</sup>, Soundarya Mahalingam<sup>1\*</sup>, Kamalakshi Bhat<sup>1</sup>

1. Department of Pediatrics, Kasturba Medical College and Hospital, Mangalore, Manipal Academy of Higher Education, Karnataka, India

## ABSTRACT

**Background:** Neonatal pediculosis is a problem the magnitude of which has not been estimated; however, it is regarded as a diagnostic challenge and becomes one of the management challenges for which there are very few management options in terms of age, gestation, and the potential effects of drug toxicity.

**Case report:** Here, we report a case of preterm who developed pediculosis capitis in the neonatal intensive care unit following contact with the mother during kangaroo mother care (KMC). She was successfully treated with a combination of topical extra virgin coconut and olive oil. Other radical treatments could not be administered due to cultural barriers.

**Conclusion:** Furthermore, maternal lice were treated with 1 % permethrin, and the KMC re-initiated. For a successful outcome, the education of the mother was equally important. The neonate was found to be free of lice on follow-up. Therefore, it is concluded that in neonatal pediculosis, topical oils are safe alternatives where drug toxicity is a constraint.

**Keywords:** Extra virgin coconut oil, Head lice infestation in new born, Olive oil

## Introduction

Pediculosis capitis is an infestation of the scalp by pediculosis capitis (head louse) and is the most common ectoparasitic infestation among children in resource-limited countries (1). Despite the common misconception that this disease is observed in dirty hair, pediculosis capitis can infest any scalp and is seen equally in clean hair with normal scalp conditions (2). The clinical features include erythema, pruritus, and excoriations in the scalp due to itching.

Complications occur when there is a superadded secondary bacterial infection where cervical lymphadenopathy can also be present. There are three main modalities of treatment available for pediculosis capitis including (a) topical pediculicides, (b) wet combing, (c) oral therapy (3, 4) using the medications, such as ivermectin, co-trimoxazole, and even albendazole which have been given to school children.

Most of the topical medications, including benzyl alcohol, lindane, permethrin, spinosad, and

occlusive agents have been used in this condition. The Food and Drug Administration approves permethrin, topical ivermectin, benzyl alcohol, and spinosad for the treatment of pediculosis capitis in children (5); however, none of these drugs are approved for infants and young children. The same challenging situation is present when a preterm neonate in the neonatal intensive care unit (NICU) developed pediculosis capitis from her mother and the treatment of this condition proved to be a diagnostic dilemma.

## Case report

We report the case of a preterm female neonate with a gestational age of 35 weeks weighing 1.1 kg at birth (small for gestational age) who was delivered by emergency lower segment caesarean section because of severe intrauterine growth restriction and oligohydramnios. Though the neonate cried soon after birth, she developed respiratory distress due to hyaline membrane

\* Corresponding author: Soundarya Mahalingam, Department of Pediatrics, Kasturba Medical College and Hospital, Mangalore, Manipal Academy of Higher Education, Karnataka, India. Tel: +919845526499; Email: soundarya29@gmail.com

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Figures 1 and 2. Nits and louse in the scalp of the preterm neonate (Pediculosis Capitis)

disease requiring surfactant therapy along with mechanical ventilation and supportive preterm care in the NICU. Over the next 3 days, the neonate was gradually weaned off the ventilator support and later extubated. We initiated feeding with expressed breast milk, and kangaroo mother care (KMC) was gradually started. Over the next few weeks, the neonate continued to receive KMC for 6-8 h/day and expressed breast milk through pallada feeds followed by the supplement initiation.

On day 25 of life, we were informed by the nursing staff that the neonate had lice on the scalp and the louse was seen crawling on the baby's swaddling sheet. Upon identification of the head louse, a detailed examination of the scalp was done that showed head lice with nits along with few areas of erythema (Figures 1 and 2). The mother was subsequently examined, and she was found to have pediculosis capitis.

Our dilemma began when we had to plan treatment for the pediculosis capitis in the neonate which had been transmitted from the mother by close contact during KMC. The mother's pediculosis capitis was treated using permethrin 1% topical crème rinse. We reviewed the literature for the approved drug therapy for neonatal pediculosis capitis and found almost no specific studies on its management. Our case was even more challenging as this was a preterm neonate whose skin was much more permeable than a term neonate; therefore, topical drug therapy could result in systemic toxicity of the drug.

The medications, such as permethrin and lindane are known to be absorbed through the skin and can result in neurological side effects; accordingly, these pediculicides were deferred. Finally, a conservative approach was adopted using extra virgin coconut and olive oil application to the scalp of the neonate and the lice were manually removed using a fine soft comb over 3 days. The scalp was inspected daily for the next 7 days and she was discharged once the neonate was found to be free of lice. The mother was educated about hygiene as well as the care of her preterm and neonatal scalp care. On the follow-up, the infant showed adequate weight gain, and the scalp was found healthy.

## Discussion

Neonatal pediculosis in the NICU is an uncommon clinical scenario that is diagnosed clinically. The main challenge was not the diagnosis of the condition but its management. When the various options in the management were reviewed, the application of topical pediculicides, topical oils, occlusive agents, and other physical therapies were the common modalities used in the literature. Among the topical pediculicides, permethrin, ivermectin, and pyrethrin have an excellent safety profile in children; however, no evidence is available in the literature regarding their safety profile in infants, especially preterm neonates (6). These drugs have been known to have neurological toxicity and organophosphate like toxic effects with systemic absorption even from skin. This case was a

preterm neonate whose skin was thin with a relatively poorly developed stratum corneum (7). Therefore, this modality of treatment was deferred and occlusive physical therapies were reviewed.

Few studies have reported the use of topical herbal oils (1), such as tea tree and lavender oil for the treatment of pediculosis capitis in infants (2). However, their safety has not been established in preterm infants and the side effects, including local burning, erythema, allergic reactions and even hormonal effects has been reported with their use (8). Newer medications, such as spinosad also have local effects on burning and redness (9).

In view of these concerns, a combination of locally accepted safe oils, such as olive and extra virgin coconut oil, which are routinely applied to newborns was used for our case. Few other studies conducted in Israel showed the efficacy of such herbal oils in the treatment of head lice; however, this was in school children, and a combination of coconut, ylang-ylang, and anise oil was used in this study (6). Isolated manual extraction using a fine-toothed comb is another treatment that has been discussed in the literature; however, in a preterm neonate, the scalp is very tender; therefore, frequent combing and manual extraction could result in abrasive trauma to the scalp and was not performed. Other treatments (10), such as topicalivermectin, oral co-trimoxazole, and radical treatments, including the shaving of scalp was not administered to this case owing to the prematurity and local cultural practices, respectively. For a successful outcome and to prevent reinfection, treatment of the source needs to be conducted, and therefore, the mother was treated as well as educated about scalp hygiene. Retreatment of the neonate and her mother was carried out after 7 days to ensure complete removal of the eggs. The KMC was continued after the successful treatment of the mother. It is worth mentioning that the mother and her neonate were discharged after being free from the pediculosis. This case is one of the few cases in the literature explaining the challenges in the management of pediculosis in a preterm neonatal scalp. Moreover, this study confirmed a new therapy of locally available safe oil as a successful outcome.

## Conclusion

Neonatal pediculosis is a simple clinical

diagnosis; however, it presents a challenge concerning the management options. Conventional medication therapy and other physical occlusive therapies have side effects, especially in infants and preterm neonates. Therefore, topical treatment with extra virgin coconut and olive oil, as well as gentle removal is recommended in the case of neonatal pediculosis. Mothers have to be screened for pediculosis of scalp before initiating KMC for their preterm neonates to avoid infestation. It is concluded that a combination of culturally accepted topical safe oils can be used to treat neonatal pediculosis.

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## Conflicts of interests

The authors declare that they have no conflict of interest regarding the publication of the study.

## References

1. Dagne H, Biya AA, Tirfie A, Yallew WW, Dagne B. Prevalence of pediculosis capitis and associated factors among schoolchildren in Woreta town, northwest Ethiopia. *BMC Res Notes*. 2019; 12(1):465.
2. Yetman RJ. The child with pediculosis capitis. *J Pediatr Health Care*. 2015;29(1):118-20.
3. Nutanson I, Steen CJ, Schwartz RA, Janniger CK. *Pediculus humanus capitis: an update*. *Acta Dermatovenerol Alp Pannonica Adriat*. 2008;17(4): 147-54.
4. Verma P, Namdeo C. Treatment of pediculosis capitis. *Indian J Dermatol*. 2015;60(3):238-47.
5. Bohl B, Evetts J, McClain K, Rosenauer A, Stellitano E. Clinical practice update: pediculosis capitis. *Pediatr Nurs*. 2015;41(5):227-34.
6. Mumcuoglu KY, Miller J, Zamir C, Zentner G, Helbin V, Ingber A. The in vivo pediculocidal efficacy of a natural remedy. *Isr Med Assoc J*. 2002;4(10):790-3
7. Albakri L, Goldman RD. Permethrin for scabies in children. *Can Fam Physician*. 2010;56(10):1005-6.
8. Integrative PD. Aromatherapy with essential oils (PDQ®). PDQ cancer information summaries. Maryland: National Cancer Institute (US); 2005.
9. Villegas SC, Breitzka RL. Head lice and the use of spinosad. *Clin Ther*. 2012;34(1):14-23.
10. Madke B, Khopkar U. Pediculosis capitis: an update. *Indian J Dermatol Venereol Leprol*. 2012; 78(4):429-38.