Case Report
Central Eur J Paed 2023;19(2):152-155
DOI: 10.5457/p2005-114.351

Scabies in a Preterm Infant Younger than 2 Months: What Do We Have?

Victor Aguilar [1,3], Aniza Giacaman[2], Cristina Maroto[1], Ana Martín[2]

[1]Pediatrics Service, Hospital Universitari Son Espases, Palma, Spain; [2]Dermatology Service, Hospital Universitari Son Espases, Palma, Spain; [3]Fundació Institut d'Investigació Sanitària Illes Balears (IdISBa), Palma, Spain

Correspondence: *victor.aguilar@ssib.es*; Tel.: + 34 871 206000

Received: September 14 2023; **Accepted**: November 9 2023

Abstract

Objective – To present a case of scabies in a preterm neonate treated with an off-label treatment (oral ivermectin) without any adverse effects. **Case Report** – A preterm female neonate (29+3 weeks of gestation) was diagnosed with scabies at 35 days of life (34+3 weeks of corrected gestational age), after her parents had been diagnosed, having been admitted at birth to the neonatal unit of a tertiary hospital. Treatment was initiated with topical off-label permethrin 5%, with the informed consent of the parents. Concomitantly with the patient, the parents received treatment with permethrin 5% and oral ivermectin on days 0, 7, 14 and 21 after diagnosis. No adverse effects resulting from the use of these treatments were reported. On physical examination, active lesions due to scabies were still observed two weeks after permethrin treatment, so it was decided to re-administer the treatment with topical 5% permethrin on days 0 and 14, associated with oral Ivermectin at 200µg/kg on days 0 and 7. The treatment was administered to the patient and her entire family. Fourteen days after completion of ivermectin treatment, the patient presented with complete resolution. **Conclusion** – After our experience with this case, and given the increasing prevalence of scabies in our environment, we propose that ivermectin is a useful alternative in the treatment of scabies in this age group; however, larger series of patients are needed to establish a recommendation in this regard, evaluating its risks and benefits.

Key Words: Scabies ▪ Preterm ▪ Treatment ▪ Permethrin ▪ Ivermectin.

Introduction

Scabies is a disease caused by the Sarcoptes scabei parasitic mite(1), whose mean annual incidence between 2011 and 2017 in patients attending Primary Care in Spain is estimated at 488 cases per million inhabitants (95%CI 482-494), with 24.9% of cases in patients under 14 years of age (2). Due to post-pandemic confinement, this incidence has increased (3). Approved treatments in the general population are summarized in Table 1(4).

In addition, decontamination measures should be applied for elimination of the parasite in fomites, and other cohabitants should undergo the same treatment simultaneously (4, 5). Permethrin is not approved for use in children under two months of age because of its possible neurological toxicity resulting from its cutaneous absorption (4). Furthermore, according to clinical practice guidelines, oral ivermectin can only be used in patients weighing more than 15 kg. In the case of preterm neonates, there is no literature data on the use of these treatments.

For this reason, we present the case of a preterm neonate (29+3 weeks of gestation) diagnosed with scabies at 35 days of life, and its subsequent treatment and evolution.

Case Presentation

We present a preterm female neonate (29+3 weeks of gestation), diagnosed with scabies at 35 days

Table 1. Approved Treatment for Scabies

Treatment	Route	Form of presentation	Posology	Level of evidence*	Contraindications
Permethrin	Topical	Cream 5%	Apply 8-12 h Repeat in 7-14 days	Ib; A	Under 2 months old
Ivermectin	Oral	_	200 µg/kg Repeat in 1 week	Ib; A	Pregnancy under 15 kg
Ivermectin	Topical	Cream 1%	Single dose	Ib, A	-
Sulfurated solution	Topical	Cream, ointment or lotion 6-33%	Apply for 3 consecutive days	Ib; A	_
Malation	Topical	Aqueous solution 0.5%	Single dose	IV; C	Pregnancy
Benzyl benzoate	Topical	Solution 10-25%	Apply on days 1,2 and repeat in 7 days	IC; C	-
Synergized pyrethrins	Topical	Foam	Single dose	IIA; B	-

*Grade of recommendation.

of life (34+3 weeks of corrected gestational age), after her parents had been diagnosed, and she had been admitted from birth to the neonatal unit of a tertiary hospital. On physical examination, a papular rash was observed on her back, right wrist and right forearm, respecting the rest of the body. Acarine furrows were also observed using dermoscopy imaging at the dorsal level (Figure 1).

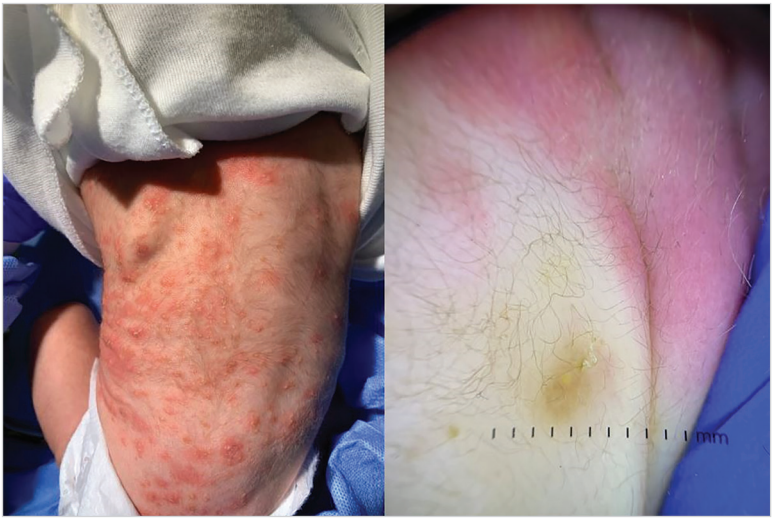

Figure 1. *Left: Papular rash on the baby's back at diagnosis; Right: Acarine furrow seen by dermoscopy imaging on the right wrist.*

The patient presented in excellent general condition with no signs of systemic involvement, maintaining an adequate diet and normal behaviour. Treatment was initiated with off-label topical 5% permethrin, with the informed consent of the parents. A summary of the treatment applied is shown in Table 2. Concomitantly with the patient, the parents received treatment with permethrin 5% and oral ivermectin on days 0, 7, 14 and 21 after diagnosis.

Since the patient presented adequate progress, she was discharged, and underwent a follow-up examination in the dermatology outpatient office of our centre two weeks later. No adverse effects derived from the use of the treatment were reported. On physical examination, active lesions due to scabies were still observed, so it was decided to re-administer treatment with topical 5% permethrin on days 0 and 14, associated with oral Ivermectin at 200 µg/kg on days 0 and 7. The treatment was administered to the patient and her entire family. Fourteen days after completion of oral ivermectin, the patient presented with complete resolution of the lesions, with no scarring or side effects from the treatment.

Table 2. Treatment Applied in the Neonatal Care Unit

Days after diagnosis	Days of life	Topical medication	Dose (%)	Duration (h)
0	35	Permethrin	5	5
1	36	Permethrin	5	5
7	42	Permethrin	5	5
8	43	Permethrin	5	5
13	47	Permethrin	5	5
14	48	Permethrin	5	5

Discussion

Cases of pre-term patients with a diagnosis of scabies have been described in the literature, but only patients older than 2 months were treated (6) because there is no approved treatment for patients in a younger age group. Permethrin is approved for patients older than 2 months and oral ivermectin is only approved for patients weighing >15 kg. Despite this, the use of topical 5% permethrin in children under two months of age is a clinical practice followed by various professionals, applying the same protocol as for patients older than 2 months (7, 8). No significant adverse effects have been reported following this treatment. However, none of these studies include pre-term patients. Regarding ivermectin, there are studies that show that it is a safe and effective treatment in patients weighing under 15 kg (9, 10), with few adverse effects, and these being mild (mostly eczema flare-up, diarrhoea and vomiting). However, none of these studies included preterm patients.

In our patient, topical treatment with 5% permethrin was started with a shorter duration than the usual protocol to avoid the possible toxicity it may cause, since the baby was a preterm weighing less than 15Kg, whose cutaneous absorption may be increased. Using a shorter duration may have contributed to lower treatment effectiveness. There are other topical treatments that could be used, but it was decided to use ivermectin because of its high effectiveness shown in several studies, despite being off-label. The patient did not present any side effects from the use of topical permethrin and oral ivermectin, so it could be a treatment to be taken into account, and it should be investigated whether its use can be extended to pre-term patients.

Conclusion

Therefore, after our experience in this case, and given the increasing prevalence of scabies in our environment, we propose that ivermectin is a useful alternative in the treatment of scabies in this age group. However, larger series of patients are needed to establish recommendations in this regard, evaluating its risks and benefits.

Authors' Contributions: Conception and design: VA, AG, CM, AM. Acquisition, analysis and interpretation of data; VA, AG, CM, AM. Drafting the article: VA, AG, CM, AM. Revising it critically for important intellectual content: VA, AG, CM, AM. Approved final version of the manuscript: VA, AG, CM, AM.

Conflict of Interest: The authors declare that they have no conflict of interest.

References

1. Leung AKC, Lam JM, Leong KF. Scabies: A Neglected Global Disease. Curr Pediatr Rev. 2020;16(1):33-42. doi: 10.2174/1573396315666190717114131. PMID: 31544694.
2. Redondo-Bravo L, Fernandez-Martinez B, Gómez-Barroso D, Gherasim A, García-Gómez M, Benito A, et al. (2021) Scabies in Spain? A comprehensive epidemiological picture. PLoS ONE 16(11): e0258780. https://doi.org/10.1371/journal.pone.0258780.
3. Martínez-Pallás I, Aldea-Manrique B, Ramírez-Lluch M, Manuel Vinuesa-Hernando J, Ara-Martín M. Scabies outbreak during home confinement due to the SARS-CoV-2 pandemic. J Eur Acad Dermatol Venereol. 2020

Dec;34(12):e781-e783. doi: 10.1111/jdv.16879. Epub 2020 Sep 10. PMID: 32810303; PMCID: PMC7461221.

4. Salavastru CM, Chosidow O, Boffa MJ, Janier M, Tiplica GS. European guideline for the management of scabies. J Eur Acad Dermatol Venereol. 2017 Aug;31(8):1248-1253. doi: 10.1111/jdv.14351. Epub 2017 Jun 22. PMID: 28639722.
5. Bernigaud C, Fernando DD, Lu H, Taylor S, Hartel G, Chosidow O, Fischer K. How to eliminate scabies parasites from fomites: A high-throughput ex vivo experimental study. J Am Acad Dermatol. 2020 Jul;83(1):241-245. doi: 10.1016/j.jaad.2019.11.069. Epub 2019 Dec 17. PMID: 31857110.
6. Vijayan V, Marrero E, Gaspar A, Wisdom C, Honeycutt MD, Linam WM. Outbreak of scabies in a neonatal intensive care unit. Infect Control Hosp Epidemiol. 2019 May;40(5):613-614. doi: 10.1017/ice.2019.57. Epub 2019 Mar 28. PMID: 30919796.
7. Thomas C, Rehmus W, Chang AY. Treatment practices in the management of scabies in infants younger than two months. Pediatr Dermatol. 2021 Mar;38(2):431-435. doi: 10.1111/pde.14523. Epub 2021 Jan 24. PMID: 33486822.
8. Hoffmann JC, Mößner R, Schön MP, Lippert U. Topical scabies therapy with permethrin is effective and well tolerated in infants younger than two months. J Dtsch Dermatol Ges. 2019 Jun;17(6):597-600. doi: 10.1111/ddg.13854. Epub 2019 May 22. PMID: 31115965.
9. Levy M, Martin L, Bursztejn AC, Chiaverini C, Miquel J, Mahé E, Maruani A, Boralevi F; Groupe de Recherche de la Société Française de Dermatologie Pédiatrique. Ivermectin safety in infants and children under 15 kg treated for scabies: a multicentric observational study. Br J Dermatol. 2020 Apr;182(4):1003-1006. doi: 10.1111/bjd.18369. Epub 2019 Sep 29. PMID: 31344258.
10. Morgado-Carrasco D, Piquero-Casals J, Creus-Vila L, Fustà-Novell X. Oral Ivermectin to Treat Refractory Scabies in Children Weighing Less Than 15 kg: A Report of 4 Cases and Literature Review. Actas Dermosifiliogr. 2022 Jan;113(1):99-103. English, Spanish. doi: 10.1016/j.ad.2021.01.007. Epub 2021 Jul 7. PMID: 35249716.