Pustules and Red Bumps on the Axillae and Abdomen of a 5-Week-Old Infant

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A 5-week-old infant presented with his parents to our outpatient pediatric facility with pustules and red bumps clustered on the right axillae and scattered on the abdomen (Figure). The patient's parents only spoke Spanish and had recently emigrated from Honduras.

The initial practitioner's concern was for a possible skin infection or varicella, but there was no known exposure to varicella. At presentation, the infant was irritable but afebrile. The decision was made to admit the infant to the hospital.

A partial sepsis workup was conducted, results of which revealed a complete blood cell count in the normal range. Swabs were taken from an unroofed pustule, and polymerase chain reaction tests for herpes simplex virus 1 and 2 were conducted, results of which were negative. Results of blood and urine cultures were also negative, and inflammatory marker levels in the normal range.

Intravenous clindamycin was initiated and then was switched to oral medication upon discharge. The patient and his parents followed up on the fifth day of antibiotics, at which time, the rash was unimproved and spreading to the back of the patient's neck.

Figure 1. Pustules and red bumps were noted on the right axillae and scattered on the abdomen.

What might be the cause of this rash?

A. Scabies
B. Mastocytosis
C. Impetigo
D. Langerhans cell histiocytosis
E. Contact dermatitis

Correct Answer: A. Scabies

To be fair, some important history was omitted, since it was obtained during the second outpatient visit with an interpreter after the author noticed some physical findings on the patient's mother. The 2 primary caretakers of the infant (mother and grandmother) both had pruritic rashes on their wrists that had not been noticed at the previous visit to our practice or in the hospital. Interestingly, a single center study published in 2017 showed that scabies is misdiagnosed by the initial provider nearly half the time.[1]

Discussion

Scabies is common worldwide, causing more than 150 million human infections per year.[2] Scabies is caused by the Sarcoptes scabiei mite, and household spread is very common since only about 15 to 20 minutes of close contact with an infected person is required for transfer of the infection. After mating, the female mite burrows into the skin (stratum corneum) and can lay up to 1 to 3 eggs daily and more than 180 eggs in a lifetime.[3] The larvae emerge 2 to 3 days after the egg is

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laid and can fully mature within 2 weeks.[4] Scabies has its highest prevalence in countries with hot, tropical climates like Honduras.[2] Very young children/infants and the elderly are more frequently affected by scabies.[2]

The clinical presentation can vary based on the age of the patient. Our patient was irritable because of the rash but was unable to communicate about the intense pruritus that is typically described by adults. The location of the rash and types of lesions can be dictated by the age of the patient as well, since infants can have lesions above the neck and are more likely to have vesicles and pustules.[4] Generally the lesions can be found in the finger webs, wrist flexors, elbows, axillae, abdomen, and diaper area. Additionally, impetigo is a common complication of scabies, especially in younger children and infants, so treatment with clindamycin was appropriate in our patient.[3]

As discussed above, clinical diagnosis can be very difficult without an accurate history, complete physical examination, and identifying other probable contacts. Scabies should be considered with any pruritic, papular rash with a classic distribution, especially if there is a known infested contact. For our patient, a clinical diagnosis of scabies was made. Some international experts have advocated for providing levels of certainty based on history, clinical findings, and visualization of mites.[5] Therefore, providers can utilize research-reliable categories such as "suspected," "clinical," and "confirmed."[5] The gold standard for diagnosis is visualizing burrows or finding mites/eggs, which can be facilitated by microscopy or dermoscopy. However, most pediatricians are not trained to use dermoscopes, so the procedure is more likely to be conducted in a dermatology office.[1] One report was published that found a serological immunoglobulin E test could improve diagnostic accuracy, but this apparently is not available in most centers.[6]

First-line treatment for scabies is permethrin, 5%, cream applied from the neck down to the bottom of the feet. Infants require coverage above the neck as well, which was done for our patient. The cream needs to stay on for 8 to 14 hours, so it is usually applied overnight and washed off in the morning. Even though the permethrin is scabicidal, the application process will need to be repeated within 1 week, since pediatric patients often may have had incomplete total body coverage initially. All household members should be treated at the same time, since some can be asymptomatic for up to 4 to 6 weeks.[5] All the adults in our patient's household—the mother, father, and grandmother—were also prescribed treatment. Even with effective treatment, many patients tend to have continued pruritus for 1 to 2 additional weeks.[7] All clothing, towels, and bedding should be washed in hot (50 °C) water and placed in a hot dryer. If this is not possible, these items can be placed in sealable bags for at least 3 days.[8]

Patient outcome

Our patient subsequently visited a dermatologist 2 weeks after being treated in our office, since the parents remained concerned about the papular rash. The dermatologist decided to conduct a biopsy of 2 affected areas, results of which were consistent with a treated scabies infection showing burrows and dead mite debris and inflammation. The dermatologist then provided steroid ointments for the continued itching.

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