

# Scabies Itch

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## KEYWORDS

• Itch • Pruritus • Scabies • *Sarcoptes scabiei*

## KEY POINTS

- Scabies is a parasitic infestation of the skin caused by *Sarcoptes scabiei*, a mite present worldwide that affects 100 to 130 million people yearly.
- Itch is nearly continuously present during a scabies infestation; it is intense, generalized, and more intense at night time.
- Secondary bacterial infections caused by scratching behavior can have dramatic long-term consequences, especially in tropical areas.
- Psychosocial complications of the itch in scabies are known to have a strong impact on quality of life.
- The latest insights into host-mite interactions open ways to better understand the mechanisms of itch in scabies.
- The itch in scabies is usually controlled after the use of specific treatments but in certain conditions it may persist up to 2-4 weeks.

## WHAT IS SCABIES?

Scabies is one of the first human diseases for which the cause was known in the 17th century.<sup>1</sup> It is a contagious parasitic skin infestation caused by a mite, *Sarcoptes scabiei* variety *hominis*. Scabies is present worldwide.<sup>2</sup> According to the Global Burden of Diseases study, 100 to 130 million people are infected yearly,<sup>3</sup> and scabies is responsible for 0.21% of disability-adjusted life-years from all of the 315 conditions studied, a relevant burden (even if scabies-related impetigo was not taken into account).<sup>4,5</sup> Scabies prevalence ranged from 0.2% to 71.4% depending on

different populations.<sup>6</sup> Tropical regions with low resources are the most affected regions.<sup>4</sup> In wealthier countries, scabies can occur in both sexes, in all age and in all socioeconomic groups. When it comes to low-resource life conditions, children (mostly under the age of 2) and disadvantaged populations are at greater risk.<sup>6</sup> In both conditions, outbreaks may be frequent, requiring considerable resources to be managed, especially when they occur in collectives or in institutions.<sup>2</sup>

The scabies mite is an obligate human parasite. The female mite burrows into the epidermis

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Disclosure Statement: C. Bernigaud reports receiving a research grant from MSD France; a research support from Bioderma Laboratoire Dermatologique and Codexial Dermatologie; and a travel grant from Medicines Development. O. Chosidow reports receiving drugs donated free of charge for research from Codexial Dermatologie and MSD France, lecture fees from Zambon Laboratoire, Codexial Dermatologie, and MSD France. No other potential conflict of interest was reported.

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Dermatol Clin ■ (2018) ■-■

<https://doi.org/10.1016/j.det.2018.02.009>

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after mating and lays eggs that hatch into a larvae, followed by a nymph that reaches adulthood in 10 to 14 days.<sup>1</sup> Scabies clinical manifestations are caused by the direct effect of the infestation by the mite, and by the hypersensitivity caused by the mites, their saliva, and other products. Besides an intense itch, classic clinical signs are burrows, vesicles, or papulo-nodular erythematous lesions localized on the finger webs, the wrists, the axillae, the breasts, the buttock, or the genitalia (**Fig. 1**). Atypical forms such as profuse or crusted scabies in immunocompromised patients, or superinfected scabies (impetigo) in children, can be seen among specific populations. Crusted scabies is a rare and severe clinical form, with localized or generalized hyperkeratotic lesions due to a huge mite proliferation.<sup>7</sup> Diagnosis is based on patient history and physical examination. Direct identification of mites, eggs, or feces by microscopy or dermoscopy in characteristic lesions is supportive. The confirmation of the diagnosis can be challenging in classic scabies, as only 5 to 15 adult mites live simultaneously on the host, whereas hundreds, thousands, or even millions live on the host in profuse/crusted scabies. Superinfection of lesions with bacteria may occur as the mite burrow provides an entry point for pathogens into the skin. These bacteria can cause local infections that can become invasive or lead to delayed complications.<sup>8,9</sup> The public health burden caused by scabies, far beyond just a simple itchy rash, was for a long time underappreciated. Recently, a global initiative driven by the International Alliance for the Control of Scabies (IACS, <http://www.controlscabies.org>), aiming to enhance the agenda for scabies control,<sup>10</sup> fostered the addition of scabies to the World Health Organization list of neglected tropical



**Fig. 1.** Papulo-nodular erythematous lesions and scratching lesions observed on the arms and the abdomen of a patient with a confirmed diagnosis of scabies.

diseases<sup>11</sup> ([http://www.who.int/neglected\\_diseases/diseases/en/](http://www.who.int/neglected_diseases/diseases/en/)).

## SCABIES ITCH: CLINICAL ASPECTS

### *Characteristics*

Itch is the cardinal symptom of scabies and is often used as a major criterion to diagnose scabies.<sup>12</sup> Scabies should be suspected whenever a patient is suffering from itch and should be ruled out by a careful physical examination and parasitology test if needed. Regardless of the clinical type of scabies, having an history of itch within the family members, relatives, or sexual partners is a strong diagnosis criterion. Its absence does not eliminate the diagnosis. Actually, in an article by Boralevi and colleagues,<sup>13</sup> an itch shared within the family was present in only 50% of the cases. The itch is described to be more intense during the night; however, this characteristic seems to not be highly specific, and also described in other dermatoses such as psoriasis or atopic dermatitis.<sup>14–17</sup> There are only a few clinical studies with a limited number of patients included that aimed to characterize the itch in scabies. The primary characteristics are presented in **Table 1**.

### *Prevalence*

In several prospective and retrospective studies, the itch is reported to be affecting more than 90% of classic scabies patients.<sup>18–21</sup> In the pediatric population, Boralevi and colleagues<sup>13</sup> described the clinical characteristics of 323 patients with scabies (divided into 3 age groups: <2 years old, 2 to 15 years old, and >15 years old). Overall, itching was present in 94.5% of the patients, regardless of their age. Looking into subgroups, the itch was less frequent in pediatric cases compared with adults, and increased with age: 90.3% before 2 years old and 95.4% in 2 to 15 years old.<sup>13</sup> In infants, the itch can be expressed by crying, discomfort, irritability or difficulty to eat, making the symptom difficult to assess and define.<sup>2</sup> This may justify the potential underestimation and lower frequency of itch in this population.

In 1976, Mellanby made the observation that “in man it is the active finger nails of the host which keep down the parasite population.”<sup>29</sup> This statement may explain the apparition of hyperinfested crusts in anatomic regions that lack cutaneous sensation, and indeed itch sensation (eg, after spinal injury, stroke, leprosy, or syringomyelia) in patients diagnosed with crusted scabies.<sup>26–28</sup> Historically, the itch was

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