Many people have heard of the seven-year itch, but what is it actually? You know the parasitic disease under the medical term scabies. CAVE: In 25%, scabies is initially misdiagnosed. The cause of the severe itching is Sarcoptes scabiei - the itch mite. In the following article, you can read what every physician should know about pathophysiology, diagnosis, and treatment.

**Definition**

It is a contagious superficial skin infection by the mite Sarcoptes scabiei.

It is a transmittable ectoparasite infection characterized by superficial burrows intense pruritus and secondary infection.

**Epidemiology**

Has a prevalence of 4-10% in epidemic areas.

Over 300 million cases have been reported worldwide with nodular scabies being more
common among children.

**Risk factors**

There are more common in institutions that are more than 30 years old, have a population of more than 120 beds and a beds: workers ratio of more than 10:1.

**Pathophysiology of Scabies**

The parasite is transmitted via three main mechanisms:

1. **Direct transmission of human to human via direct body contact**: playing children, bed warmth and intercourse are considered the main exposition risks.
2. **Environmental transmission of mites from dust and fomites as the parasite survive for 2-5 days outside the human body at room temperature and pressure.**
3. **Zoophilic transmission is rare.**

After mating, the 0.3 – 0.4 mm large female mites dig into the horny layer of the epidermis, where they form tunnel-like ducts for the deposition of their eggs. A few days later, they die there. 3 weeks after egg deposition, the mite grubs emerge from the eggs and then drill back to the skin surface. The life-cycle repeats.

**The infection takes the form of:**

- Initial infection: sensitization occurs in several weeks.
- Reinfestation: the patient is already sensitized, and pruritus occurs within 24 hours. In immunocompromised patients, there is an imminent risk of developing hyperkeratotic/ crusted scabies

**Symptoms and Diagnosis of Scabies**

![Image: “Acarodermatitis” by Sven Teschke. License: CC BY-SA 3.0](image)

A **severe nocturnal itching** is typical for scabies. This itching is caused by the mite
antigens, which are released during the decay of the mite bodies. As a clinical correlation of the mite ducts, convoluted and partially palpable skin efflorescences can be found. Later, papules and vesicles develop. Mainly, warm body regions with little horny skin are affected. This includes the mammilla region, the interdigital folds, the male genital, the axillary folds, and the wrists. Via scratching, secondary efflorescences like excoriations, crusts, and eczema formation develop. Bacterial superinfections of the skin can occur as a complication.

**Note:** Predilection sites of scabies should be remembered for exams!

**Characteristic primary and secondary efflorescences at scabies**

Primary efflorescences have a comma or dot shape. Straight efflorescences are mostly scratching marks!

<table>
<thead>
<tr>
<th>Primary Efflorescences</th>
<th>Secondary Efflorescences</th>
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<tbody>
<tr>
<td>Comma-like or irregularly convoluted mite ducts</td>
<td>Crusts</td>
</tr>
<tr>
<td>Papules</td>
<td>Scratching defects</td>
</tr>
<tr>
<td>Vesicles</td>
<td>Impetigo</td>
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<td></td>
<td>Rash</td>
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Source: Robert Koch Institute

Latency between infection and the onset of the symptoms amounts to roughly 3 weeks (see above: grub hatching); thus, one should ask for possibly previous expositions within this period of time in medical history (e.g. vacation). The attack of several persons within a family or a social facility (e.g. kindergarten, hospital wards) is especially suspicious.

For detection of scabies, dermatoscopy (detection of the mite ducts) and microscopy are appropriate measures. Skin samples for microscopic examination are gained via tape pull-off or abrasion.

**Scabies norvegica**

The massive mite infestation at immune-suppressed patients (AIDS, long-term glucocorticoid/cytostatic therapy, leukemia, DM) is referred to as Scabies norvegica. Due to the decreased immune reaction, there is no or only a slight itching. With dirty-brown papules, bark formation, and desquamation, the skin is ichthyosiform.

**Psychiatric differential diagnosis delusional parasitosis**

Especially in older patients with nocturnal pruritus, delusional parasitosis should be excluded. Also in the context of organic psychoses (e.g. at alcohol deprivation delirium or exsiccosis), this chronic tactile hallucinosis often occurs, whereas the patient is convinced that animals or insects live under his skin.

**Therapy of Scabies: The Best Medication Has No Effect Without Compliance!**

The three main pillars of successful therapy of scabies are hygienic measures, medicamentous therapy, and, most of all, the compliance of the affected person. The
first-resort agent is the antiscabetic agent permethrin. As a crème, it is applied to the whole integument including fingernails and the tip of the toes. Further options are e.g. benzyl benzoate, ivermectin and allethrin. In order to avoid auto-re-infection, clothes, bedding, and towels have to be changed and washed daily during therapy.

**Important Final Fact about Scabies**

Outside of the human body, the mites survive no more than 2 – 4 days at room temperature.

**References**


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