



Scabies

What is Scabies

- Scabies is a disease caused by a tiny insect known as a **mite** ,when a pregnant female mite burrows into the top layer of skin and lays eggs.
- Small blisters grow on the skin above each egg and the skin gets very itchy.
- The redness and small blisters look like a rash on the skin.



- The causative agent of human scabies is the mite, *Scarcoptes scabiei* (Figure 1).
- Mites are tiny arthropods related to spiders and ticks. They share with these organisms the feature of eight-jointed legs in the adult stage.
- Although mites in general are very diverse in terms of what they feed upon and where they live, the scabies mite is an obligate ectoparasite which must live on the outside of a mammal host to survive.



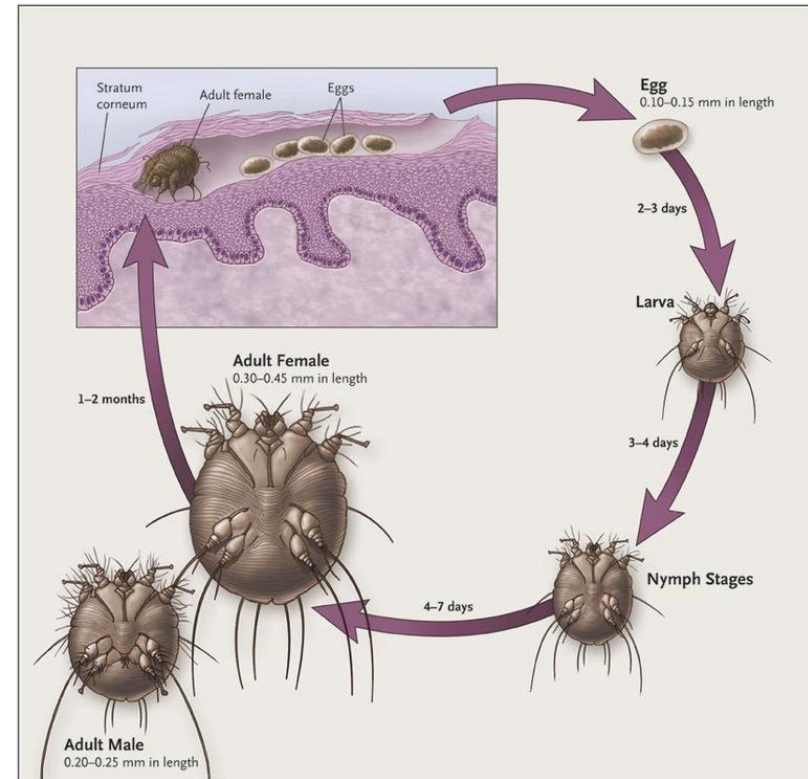
Epidemiology of Scabies

- It is estimated that more than 300 million cases of scabies occur worldwide every year
- Infestations can affect people from all socioeconomic levels without regard to age, sex, race or standards of personal hygiene.
- Scabies spreads rapidly under crowded conditions where there is frequent skin-to-skin contact between people, such as hospitals, institutions, child-care facilities, and nursing homes.

Mites life cycle

- *S. scabiei* undergoes 4 stages in its life cycle; egg, larva, nymph and adult.
- The adult *S. scabiei* are small and rounded in shape, with tiny pointed spines on their dorsal surface that assist them in burrowing.

- A saliva-like substance is secreted by the mite to aid in burrowing by dissolving the skin. Male and female mites mate within these burrows, after which the impregnated female emerges and excavates a permanent burrow in which to lay her eggs; the male mite dies. The female mite will spend the rest of her life (commonly 30-60 days) in this permanent burrow and will continue to extend the length of the burrow, usually burrowing a total length of 1 cm or more.



- Shortly after digging her permanent burrow, the female mite begins laying eggs, producing 2 or 3 each day. The eggs hatch in 3-4 days, and within one day of hatching, the larvae begin actively crawling out of the burrow towards the surface of the skin. They then excavate shallow burrows in which they feed and molt to nymphs



- *S. scabiei* infestation is specific to humans and is different from the mite infestations that affect dogs and other animals, which are more commonly known as **mange**. Mites from mange-infested animals can burrow into human skin but cannot reproduce, so they die within a few days.



- Although a female mite can lay as many as 180 eggs in her life time, fewer than 10% of her offspring live long enough to hatch and reach the adult stage. Most eggs are removed from the skin by bathing, scratching, or rubbing of the skin. Once away from the human body, mites do not survive more than 48-72 hours.

Habits and Habitat

- The most frequent *S. scabiei* burrow sites are in the folds of skin around the wrists and in the webbing between the fingers. Other common sites are the elbows, feet, and ankles; axillae; buttocks; genital regions; and for women, breasts.
- Feeding activity and host immune system response to mite secretions and fecal matter are the sources of irritation that lead to scratching, scabbing, and subsequent secondary infections.
- The severity of scabies infestation is directly related to the number of mites residing on the skin and the length of time between initial infestation and subsequent diagnosis and treatment.

Transmission

- The most common means of scabies transmission is by direct contact between individuals when the mites are crawling on the skin surface. This contact needs to be direct, prolonged skin-to-skin contact for scabies to be transmitted (a quick handshake or hug will not usually spread the infestation)
- scabies is more usually passed from person to person in settings where people live in close quarters, including hospitals, nursing homes, prisons, child care facilities, and institutions.



- Scabies transmission can also occur via prolonged contact with bed linen, clothing, and other fabrics from infested hosts. The mites are able to survive 2-3 days at room temperatures when the relative humidity is more than 30%.
- A person is considered infectious from the time he/she becomes infested until treatment is successfully completed.

Identification

- When a person is infested with scabies mites for the first time, there is usually little evidence of infestation for the first month (range 2 to 6 weeks)
- The earliest and most common symptom of scabies is intense itching over most of the body, especially at night
- The accompanying itching usually leads to scratching of the affected areas, contributing to an eczema-like condition. Secondary bacterial infection can occur due to the excoriation of the skin.



- Another obvious sign of scabies infestation is a rash of the skin that can appear as red bumps, burrows (short, wavy thread-like lines in the skin).
- In some cases, a person with scabies develops skin nodules rather than a rash. These nodules can be up to 5 millimeters wide, and they usually occur on skin that is covered by clothing, such as the trunk and upper legs.

Diagnosis

- Most diagnoses of scabies infestation are made based upon the appearance and distribution of the rash and the presence of burrows. Some common testing methods are:
 - 1- **Microscopic exam of scrapings from suspicious lesions:** Scrapings are placed on a slide and examined under a microscope for *S. scabiei* mites.

2- **Burrow Ink Test (BIT):** The suspicious area is rubbed with ink, which is then wiped off. If infestation has occurred, the characteristic zigzag or S pattern of the burrow across the skin will appear.

3- **Topical tetracycline solution:** A topical tetracycline solution may be applied to the suspicious area as an alternative to the BIT. Then area examined under a special light to identify the characteristic zigzag or S pattern of the burrow.



4- **Shave biopsy:** A fine layer of skin is shaved off at the possible site of infestation and examined under a microscope for evidence of mite infestation.

5- **Needle extraction of mites:** A needle is inserted into the length of the burrow and the mite is extracted with the needle and placed on a slide to be examined under a microscope.



Treatment

- Common treatments (scabicides) are used. The choice of a specific medication is influenced by a person's age, pregnancy status, the presence of coexisting skin conditions and medical history.
- No new burrows or rashes should appear 24-48 hours after effective treatment.

Prevention

- Anyone who is diagnosed with scabies, as well as his or her sexual partners and persons who have close, prolonged contact with the infested person, should be treated for scabies to prevent further infestation.
- Practice good hand hygiene.
- Avoid sharing clothes or towels.
- If your child goes to sleepover parties, provide a sleeping bag, pillow and blanket from home.
- Wash any clothing, bedding, towels etc used by the infested person in the 48 hours prior to treatment in hot water (130° Fahrenheit) and dry in a hot dryer.

- Items that cannot be washed should be sealed and stored for approximately one week, because scabies mites die within one to four days if not in contact with human skin.
- Thoroughly vacuum any carpet or furniture, dispose of vacuum bag afterwards.
- Fumigation or pesticide sprays are not recommended and can be harmful to people and animals.
- Avoid sexual contact until treatment is successful.
- Infested individuals should be excluded from normal activities (day care, school, work) until 24 hours after completed treatment.



**Any
Questions?**