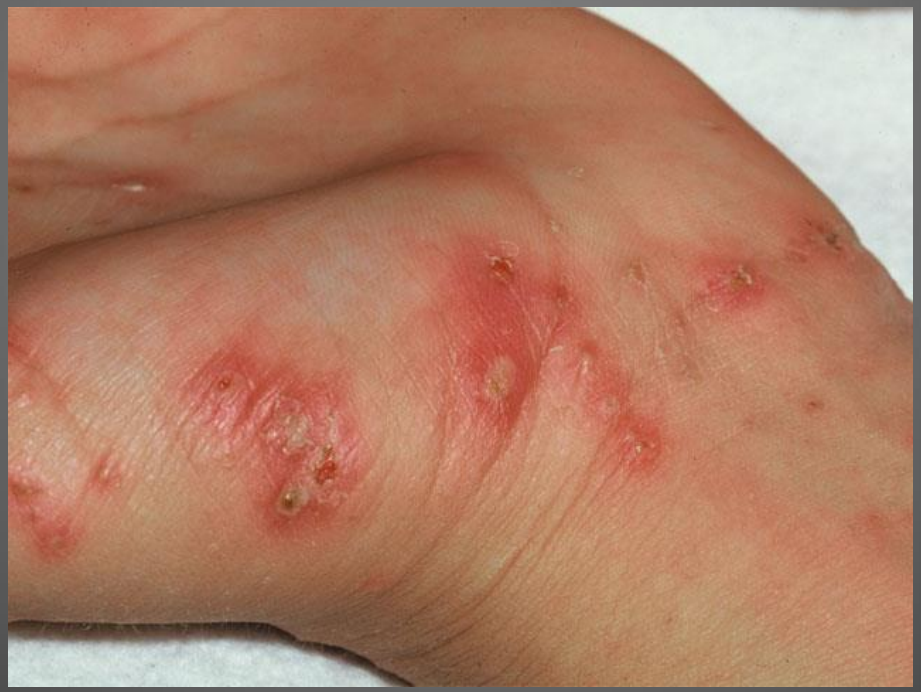
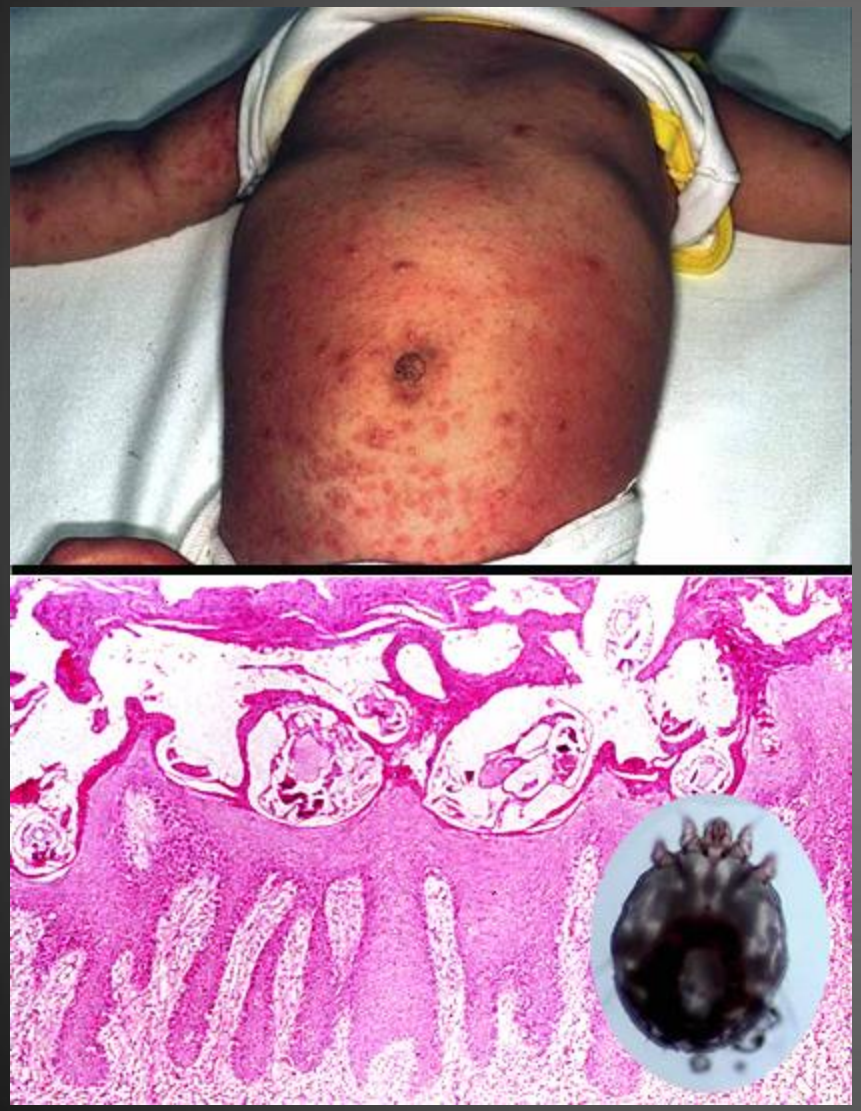
# Scabies



Ehud Hamburger

# Scabies



*A human ectoparasitic infestation by the mite Sarcoptes scabiei, characterized by generalized intractable pruritus and distinctive skin manifestations.*

# Sarcoptes Scabiei Variety Hominis

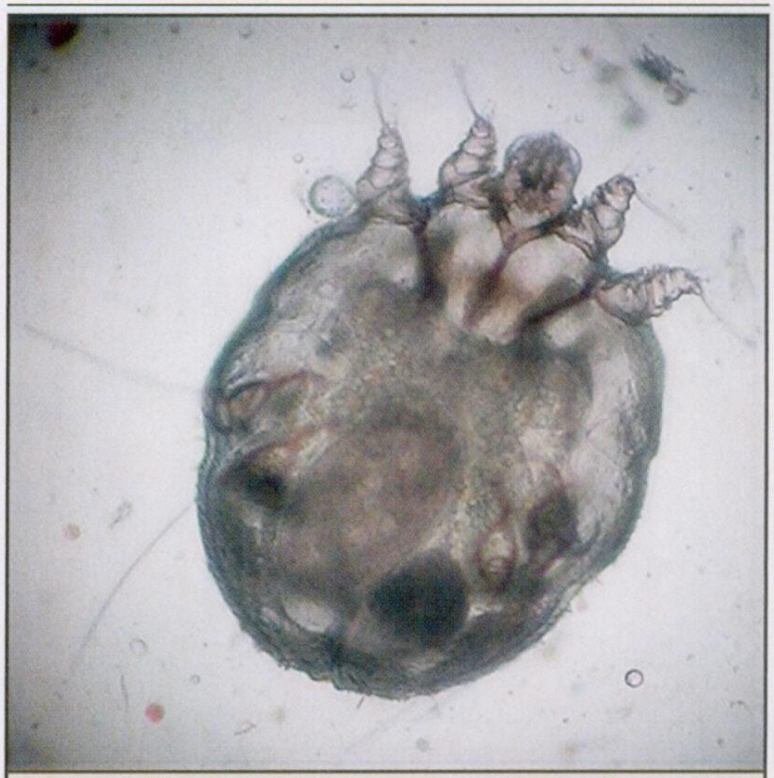
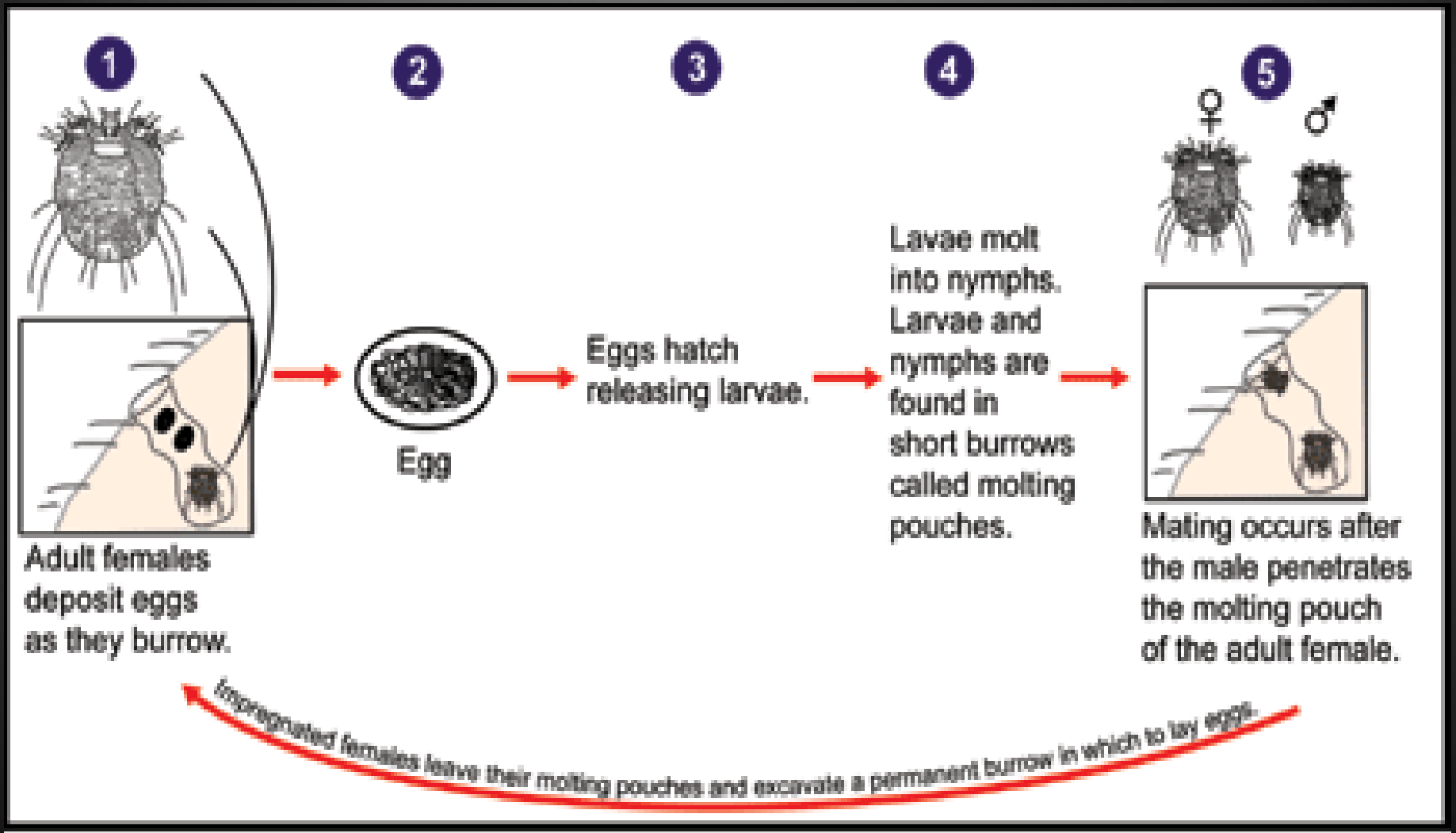


**Figure 1. Adult Gravid Scabies Mite.**
This mite was seen on direct examination of skin scrapings. The female mite dissolves the stratum corneum of the epidermis with proteolytic secretions and burrows downward. It is translucent, with brown legs; is 0.2 to 0.5 mm long; and is usually too small to see with the naked eye.

- Spherical, eyeless mites with four pairs of legs.
- Egg, larva, nymph and adult.
- Females are 0.30 to .45 mm long, males are just over half that size.

# Life Cycle


1
2
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Adult females deposit eggs as they burrow.
Egg
Eggs hatch releasing larvae.
Larvae molt into nymphs. Larvae and nymphs are found in short burrows called molting pouches.
Mating occurs after the male penetrates the molting pouch of the adult female.
Impregnated females leave their molting pouches and excavate a permanent burrow in which to lay eggs.

# Transmission

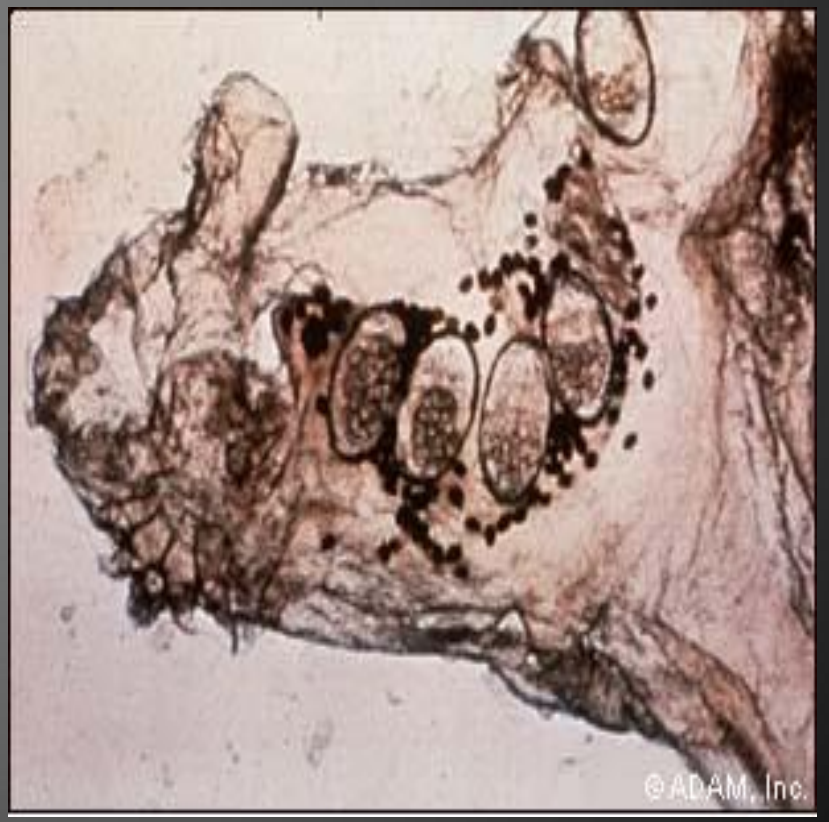
- The predominant route of transmission is direct skin-to-skin contact.
- Transfer of newly fertilized female mites from person to person.

- Facilitated by crowding, poor hygiene, multiple sexual partners.
- Occurs in nursing homes, mental institution and hospitals.

# Pathogenesis

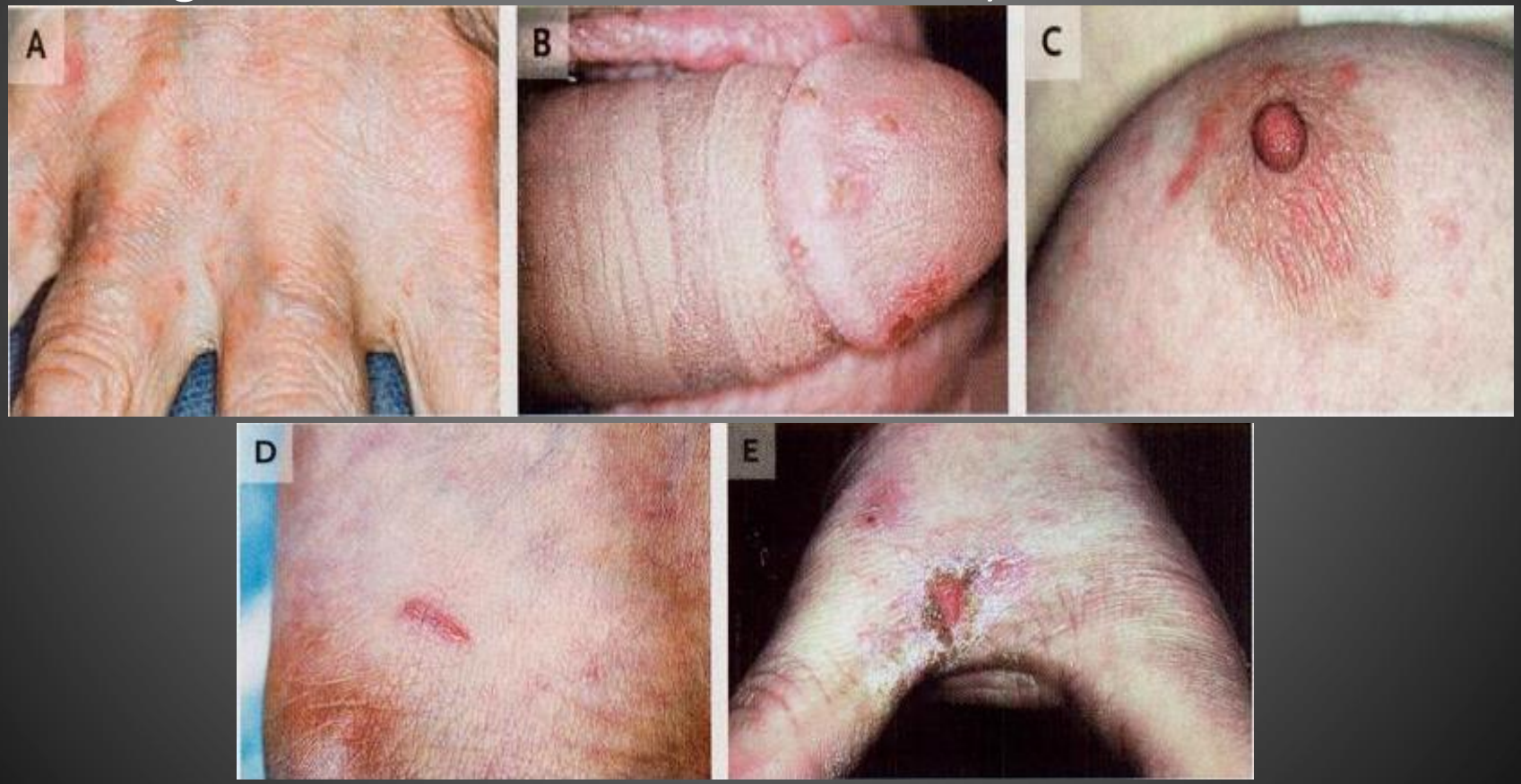
*Mites move through the top layers of skin by secreting proteases that degrade the stratum corneum. They feed on dissolved tissue but do not ingest blood. Scybala (feces) are left behind as they travel through the epidermis, creating linear lesions clinically recognized as burrows.*

- Sensitization reaction directed against the excreta and eggs that the mite deposits in its burrow.
- mites moving within the skin and on the skin itself produces an intense itch which may resemble an allergic reaction.
- Initial infestation is asymptomatic for up to 6 weeks.
- In reinfestation the hypersensitivity reaction is without delay.
- Burrows are surrounded by eosinophils, lymphocytes and histiocytes.
- Immunity and scratching usually limit < 15 mites per person.



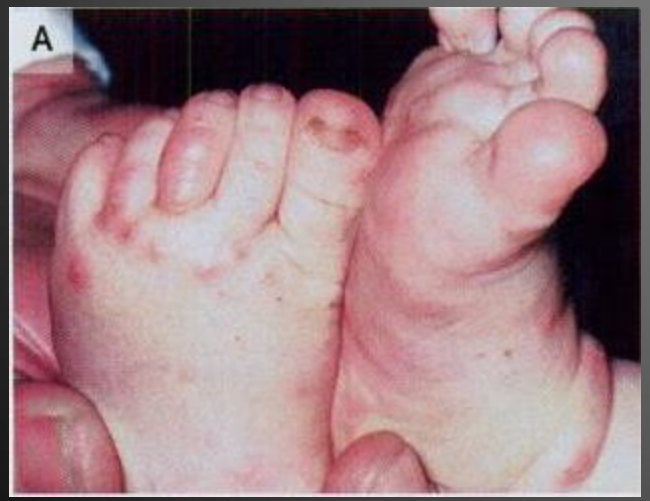
# Signs and Symptoms (1)

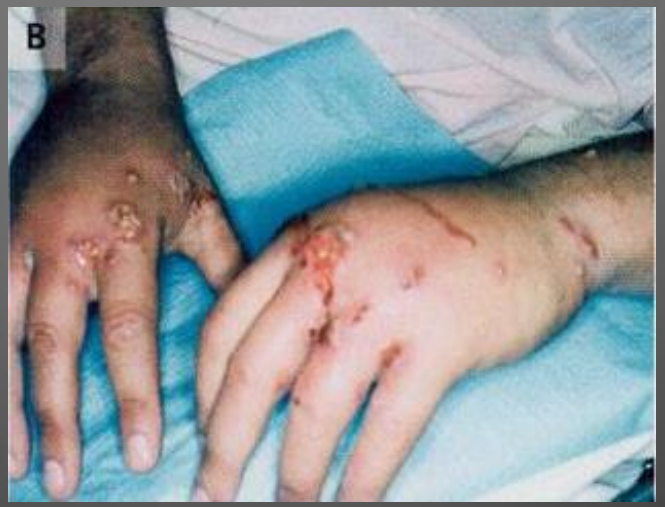
- Superficial burrows and nodules - in the crevasses of the body (between fingers, toes, buttocks, elbows, waist area, genital area, and under the breasts).

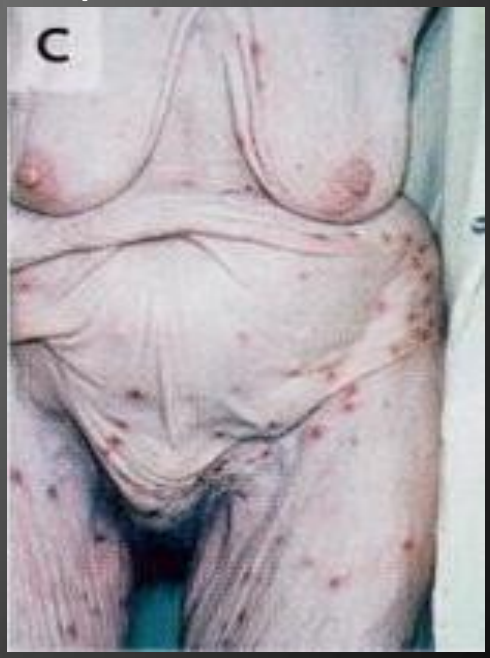


# Signs and Symptoms (2)

- Intense pruritus - usually sparing the face and head, worsens at night.
- Generalized rash.
- Secondary infection – cellulitis and impetigo .
- Atypical presentations - Acropustulosis - in infants; papular scabies occurs in the elderly; impetigo in patients whose scabies is superinfected.



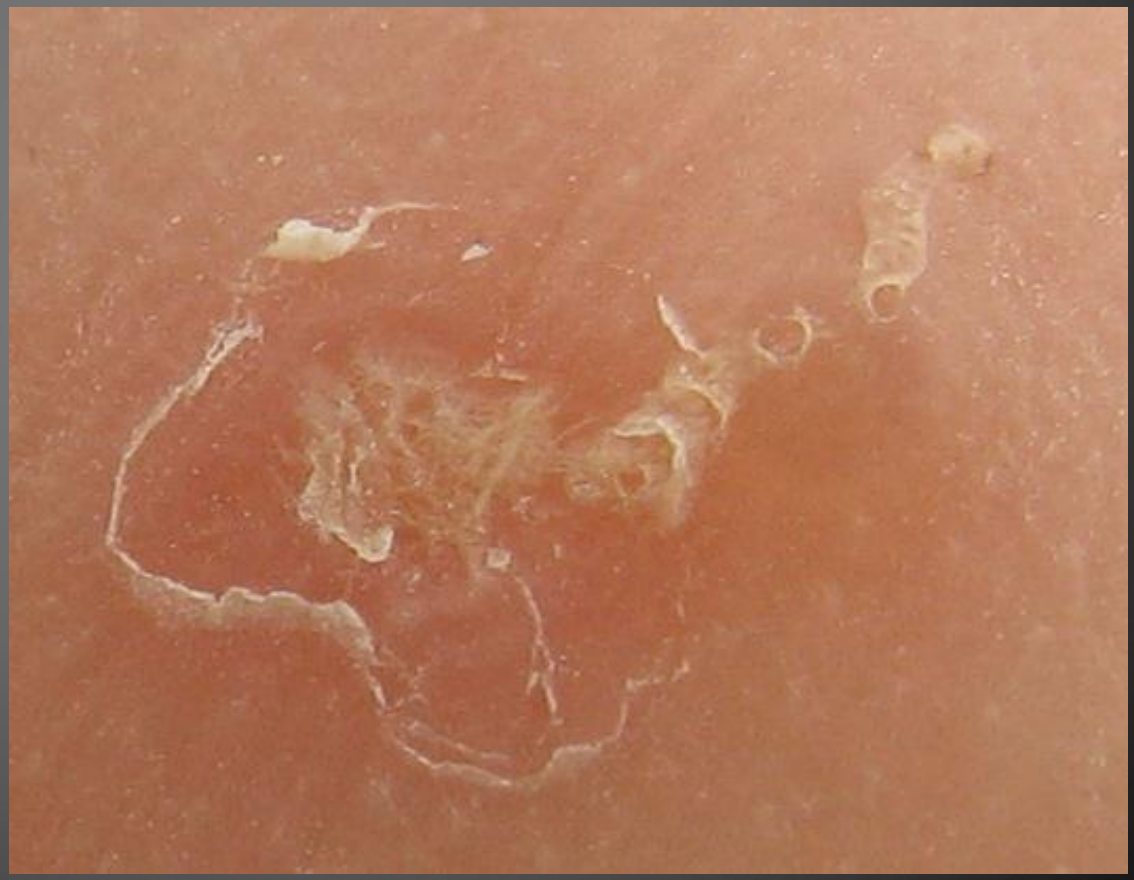



# Diagnosis

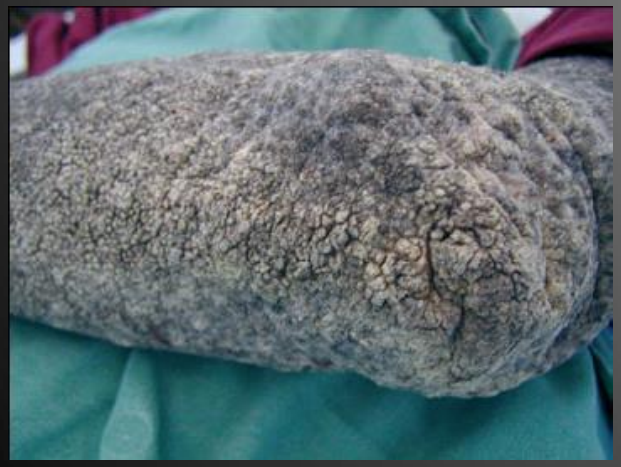
- The diagnosis of scabies rests largely on the history and examination of the patient, as well as on the history of the family and close contacts.
- Signs and symptoms of early scabies infestation mirror other skin diseases.

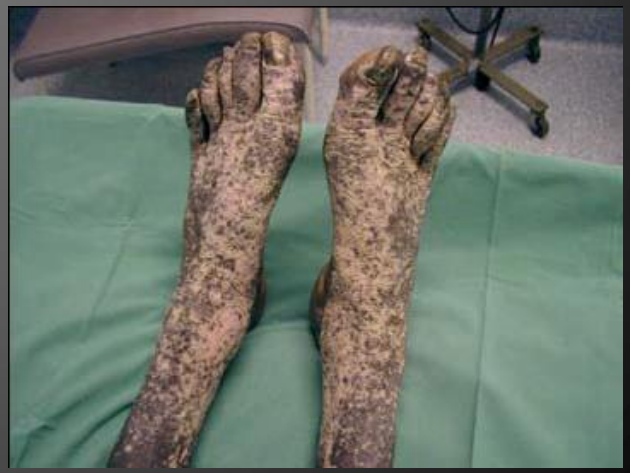
- Finding burrows - Definitive diagnosis relies on the identification of mites, eggs, eggshell fragments, or mite pellets - skin samples should be obtained from characteristic lesions - burrows or papules and vesicles.



# Norwegian Scabies (1) (crusted scabies)

*"Hyperinfestation with thousands of mites, may result from glucocorticoid use, immunodeficiency (HIV), and neurologic and psychiatric illnesses that limit itching and scratching."*



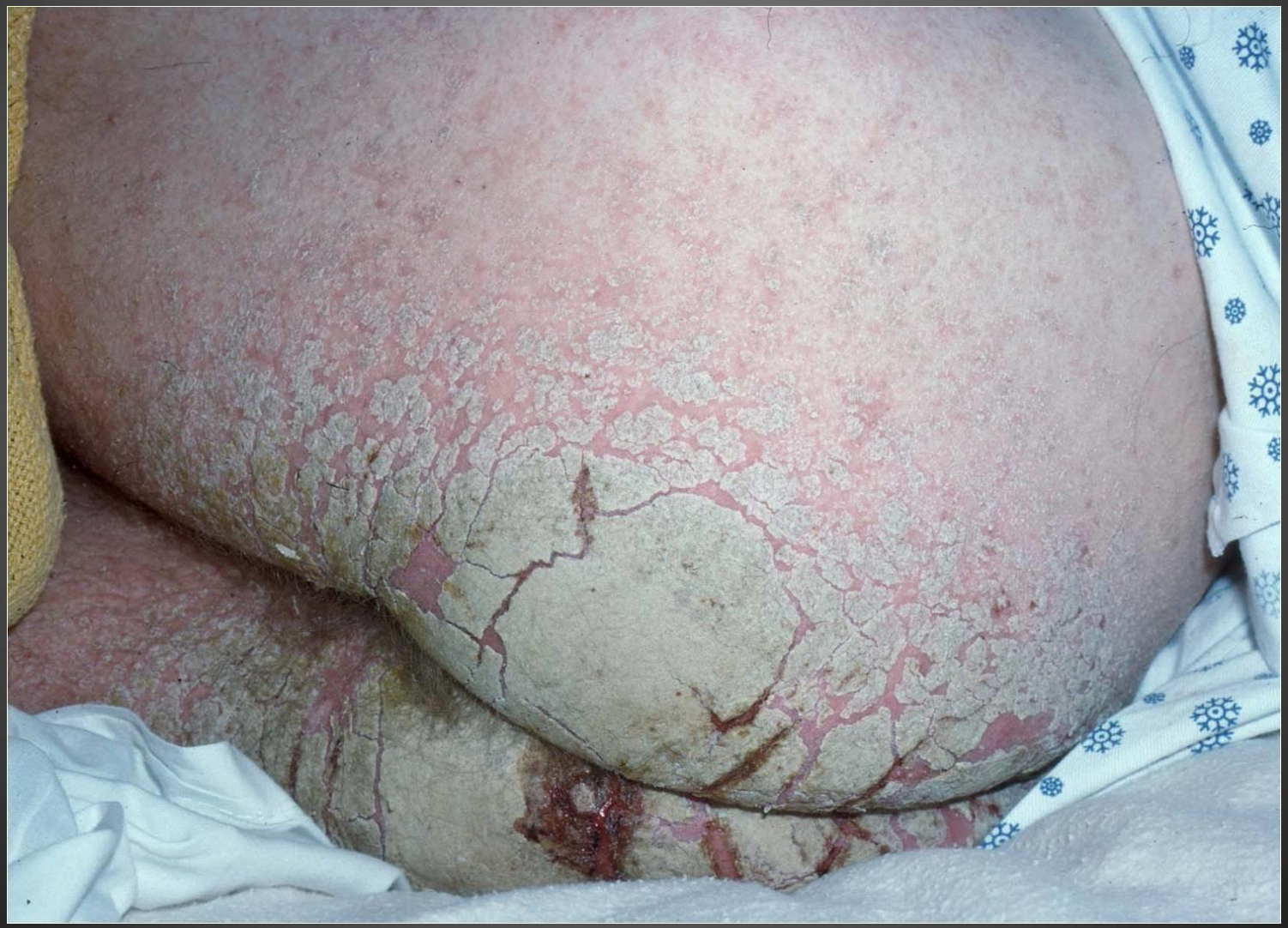


# Norwegian Scabies (2) (crusted scabies)

•Clinical presentation with multiple widespread, thick, gray, hyperkeratotic crusted plaques.

• live mites from crusted scabies can live up to 1 week in the environment, living off the crusted stratum corneum.

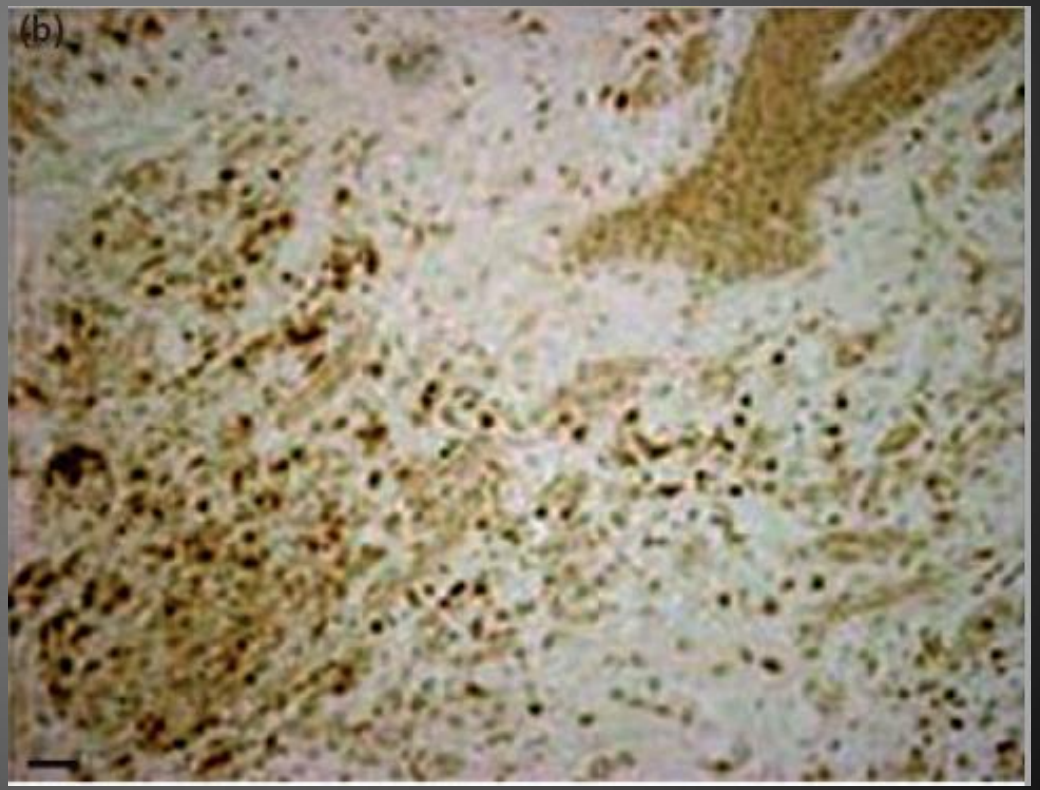
# Norwegian Scabies (3) (crusted scabies)



# Norwegian Scabies (4) (crusted scabies)

S.F. Walton, D. Beroukas, P. Roberts-Thomson and B.J. Currie, New insights into disease pathogenesis in crusted (Norwegian) scabies: the skin immune response in crusted scabies, British Journal of Dermatology, 2008, 158, pp. 1247-1255

*"Skin-homing cytotoxic T cells contribute to an imbalanced inflammatory response in the dermis of crusted scabies lesional skin. This, in combination with the lack of B cells, is contributing to the failure of the skin immune system to mount an effective response resulting in uncontrolled growth of the parasite."*




* Immunoperoxidase staining of T-cell subsets in scabies mite infested skin.

# Treatment

- Topical
  1. Permethrin – 5% cream, first-line topical therapy in the US.
  2. Lindane – 1% lotion or cream, side effects: seizures muscles spasms, aplastic anemia, not for use in infants, pregnant or breast-feeding women.
  3. Crotamiton
  4. Allethrin
  5. Pricipitated sulfur
- Oral
  1. Ivermectin – single dose of 200µg/kg, 2nd dose after 2 weeks. For the elderly, patients with generalized eczema, and other patients who may be unable to tolerate or comply with topical therapy.

# References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# תודה רבה!!!

**Table 1. Special Forms of Scabies.**

| Variable | Major Clinical Features |
|---|---|
| **Involved subpopulation** | |
| Infants and young children | Lesions are vesicles, pustules, and nodules, but their distribution may be atypical. Eczematization and impetigo are common; scabies may be confused with atopic dermatitis or acropustulosis. Pruritus may be so severe that infants can be irritable and eat poorly. |
| Homeless people | Eczematization and impetigo are common. Extensive excoriated lesions are not necessarily indicative of scabies in homeless people but pruritus in a homeless shelter should suggest a diagnosis of scabies. |
| The elderly | Atypical presentation is common. Scabies epidemics are reported frequently in nursing homes, where a single patient with crusted scabies may be the index patient leading to infection of other residents, as well as health care workers and their families. |
| Immunocompromised patients | Severe scabies (i.e., atypical papular scabies or crusted scabies) develops predominantly in patients receiving topical or systemic corticosteroids, those with human immunodeficiency virus infection, organ-transplant recipients, and patients of advanced age. Pruritus may be mild or absent (i.e., scabies incognito). |
| Indigenous communities | Scabies, whether crusted or not, may be endemic (e.g., risk factors include poor nutritional status, inadequate medical facilities, and overcrowding). The burden of the disease may be very high among Aboriginal people in northern Australia, children in Africa or the Solomon Islands, and resettlement colonies in New Delhi, India, for example. Because of the high rate of scabies superinfection, Australian Aboriginal communities have the highest rate of post-streptococcal glomerulonephritis in the world. |
| **Atypical presentation** | |
| Scabies of the scalp | Scabies may accompany or simulate seborrheic dermatitis or dermatomyositis on the scalp; infants, children, the elderly, patients with the acquired immunodeficiency syndrome, and patients with crusted scabies may be affected. |
| Nodular scabies | A few violaceous, pruritic nodules are often localized on the groin, axillae, and male genitalia; they represent a hypersensitivity reaction to mite antigens and persist weeks or months after treatment. |
| Crusted scabies | Generalized crusted scabies is a psoriasiform hyperkeratotic dermatosis of the hands and feet with involvement of the nails and an erythematous scaly eruption on the face, neck, scalp, and trunk. Crusted scabies may be localized, affecting only the scalp, face, fingers, toenails, or soles. Crusted scabies occurs in immunocompromised patients and persons with such developmental disabilities as Down's syndrome. Because of the very large number of mites, crusted scabies is highly contagious, including through indirect transmission; it causes outbreaks among family members and among patients in hospital wards when no preventive measures are instituted. It may go undiagnosed. The plaques of crusted scabies can be misdiagnosed as psoriasis, eczema, Darier's disease, contact dermatitis, ichthyosis, or an adverse drug reaction. |
| Scabies mimicking immunologically mediated diseases | Bullous pemphigoid, urticaria, chronic lymphocytic leukemia, B-cell lymphoma with monoclonal infiltrate, CD30+ lymphoid proliferations, necrotizing vasculitis, and lupus erythematosus can all mimic scabies. |