

Crusted Scabies: A Case Report

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Introduction

- Scabies is a parasitic dermatologic condition caused by the ectoparasite *Sarcoptes scabiei* var *hominis* that commonly presents with intense pruritus.¹⁻⁵
- The mites in conjunction with their ova and stool induce a cutaneous hypersensitivity reaction resulting in pruritus.^{2,4,6}
- Scabies can be difficult to diagnose due to its various clinical presentations.⁵
- Scabies can be categorized based on their presentation into ordinary, bullous, and crusted scabies.^{2,4,5}
- Ordinary scabies presents with erythematous papules, excoriations, and hemorrhagic crust.⁴
- Bullous scabies will present similar to ordinary scabies but with tense or flaccid bullae that can be pruritic.^{2,5}
- Crusted scabies is a rare, highly contagious, variant of scabies that presents with thick, fissured hyperkeratotic plaques that can involve any part of the body but typically involve the palms and soles.^{2,3,5}
- Crusted scabies has a high parasitic load. This results in it being highly contagious.³ Crusted scabies is also more difficult to successfully treat.³

Case 1

- An 89-year-old male presented with a 2-month history of a generalized pruritic rash. His medical history was significant for dementia. He was living in a memory care facility. He also had neutropenia related to monoclonal gammopathy
- The rash began on the back and then spread to involve the whole body including the palms, soles, and genitalia but sparing the face. He was previously treated with oral antibiotics for impetigo of the left arm
- On exam the patient was wearing multiple layers of clothing. His clothing was soiled due to the sweat. Physical exam showed a cachectic erythrodermic male with scattered erythematous papules coalescing into plaques. There were white hyperkeratotic papules and plaques on the trunk and arms. He had fine, coarse scaling of the bilateral palms (Figure 1). Skin scrapings were visualized under mineral oil. Microscopic examination showed a scabies mite with ova and many scybala.
- The patient was treated with a combination of oral ivermectin and topical permethrin. It was recommended that family members be treated prophylactically. The patient's facility was notified of the diagnosis and recommended treatment of memory care facility residents and staff



Figure 1. 89-year-old cachectic, erythrodermic male. There are scattered erythematous papules coalescing into plaques with white hyperkeratotic scale on the trunk, and back. There are coarse white scales on the bilateral palms.

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Case 2

- 22-year-old male presented with a 10-month history of a mildly pruritic, thick, scaly rash on his bilateral hands (Figure 2a). He also had a generalized non-pruritic rash on his trunk, arms, and legs. His medical history was significant for Trisomy 21. He had seen multiple physicians prior who had prescribed him multiple treatments without successful resolution of symptoms.
- Physical exam showed thick, hyperkeratotic, white-yellow scaly plaques on the bilateral hands with onycholysis of the fingernails. The trunk, arms, and legs had pinpoint erythematous papules with overlying hemorrhagic crust. A tender peri-ungual, edematous, fluctuant papule with surrounding erythema was noted on the left toe.
- Skin scrapings were visualized with mineral oil. Microscopic examination showed multiple ova and scybala. Biopsy of the right and left hands was performed which confirmed the diagnosis of scabies (Figure 3).
- Acute paronychia of the left foot was also treated with incision and drainage
- The patient was treated with an extended course of oral ivermectin and topical permethrin. Within 1 week of beginning treatment, the mother noted resolution of pruritus. Within 2 weeks the scaling had resolved (Figure 2b).



Figure 2. Thick, hyperkeratotic, white-yellow scaly plaques on the bilateral hands with onycholysis of the fingernails (a). Complete resolution of the thick scale and erythema of the bilateral hands two weeks following initiation of treatment (b).

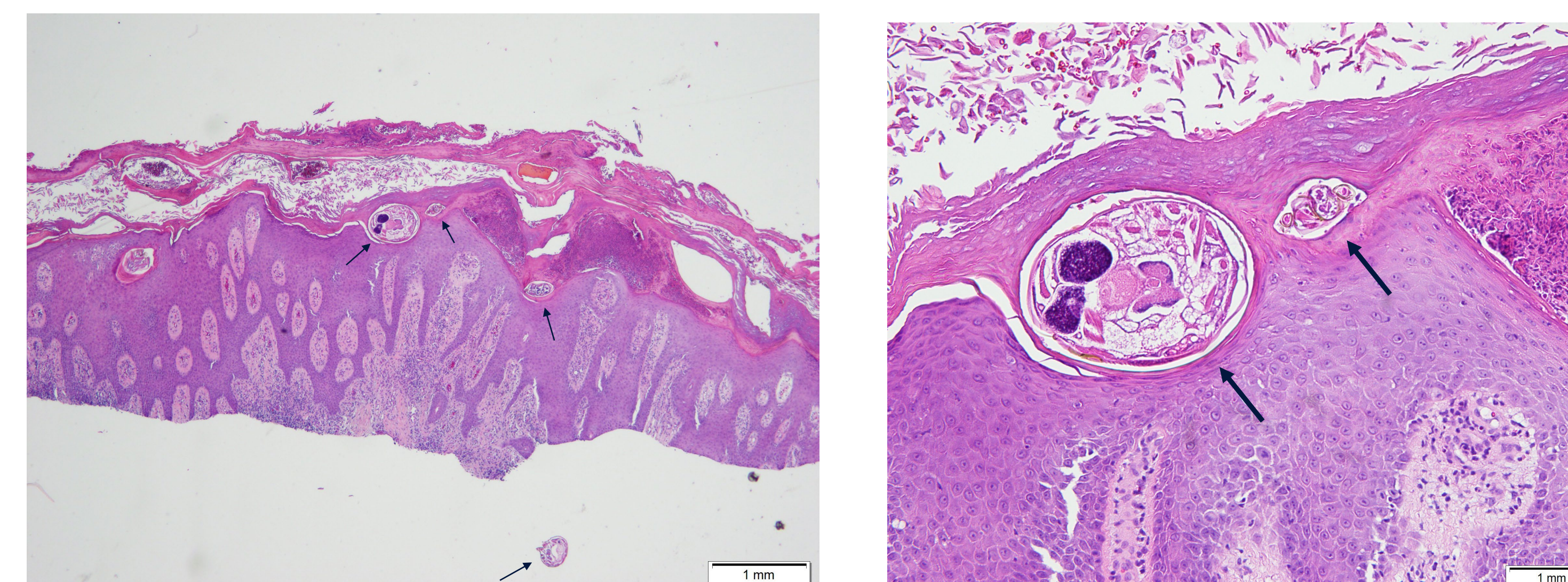


Figure 3. Marked epidermal hyperplasia with a mixed inflammatory infiltrate in the dermis. There is also very thick stratum corneum containing multiple scabies mites (black arrows). There are holes in the stratum corneum scabies mite have fallen out during processing. One of the mites that had fallen out visible below the tissue sample.

Conclusion

- In first-world countries, scabies outbreaks are often seen in institutional, homeless, or group-living settings.^{2,4,5}
- Crusted scabies is a highly contagious form of scabies that is often seen in those who are immunocompromised, have underlying neurological conditions that reduce sensation, have reduced mobility, and those with underlying genetic susceptibility.^{1,5}
- Persons with crusted scabies usually present to clinicians working in primary care, urgent care or emergency departments.
- Due to its hyperkeratotic appearance, it may be mistaken for psoriasis, hyperkeratotic eczema, palmoplantar keratoderma, mycosis fungoides, or Sezary syndrome.^{1,2}
- Crusted scabies is noted to have a mortality rate up to 50% due to sepsis and secondary infections which require treatment.⁶ Cellulitis, streptococcal scalded skin syndrome, rheumatic fever, rheumatic heart disease, post-streptococcal glomerulonephritis, sepsis, necrotizing soft tissue infections, and bacteremia are reported complications of scabies related secondary soft tissue infections.^{2,5,6} Erythroderma can lead to an inability to regulate temperature, electrolyte abnormalities, high output heart failure, and death.^{1,8}
- Treatment of crusted scabies requires a prolonged course of treatment. Treatment options include ivermectin, permethrin, benzyl benzoate, precipitated sulfur, salicylic acid, and malathion.^{1,2}
- Crusted scabies is highly contagious and can be spread through close contacts and fomites.^{1,2,3,5}
- Many persons with crusted scabies live in congregate living facilities. Public health treatment of contacts including patients, health care workers may be necessary. Transmission can occur through fomites such as clothing and bed linens. Public health treatment of health care workers not normally considered close contacts e.g. laundry workers should be considered. This is especially important a there are asymptomatic carriers that may cause reinfection.⁹
- Due to its highly contagious nature, hospital admission with isolation may be necessary achieve appropriate treatment and protect the public health.^{2,4,6}

Learning Points

- Crusted scabies is a highly infectious dermatologic condition that presents with erythematous scaly papules and plaques
- Due to its various clinical presentations, it may be difficult to diagnose
- Patients may not complain of pruritus due to underlying comorbid conditions (e.g. dementia) and a different immune response
- Treatment involves treating the patient and close contacts at the same time to prevent reinfection
- Crusted scabies is associated with a high mortality rate, most commonly related to secondary soft tissue infections.
- A high index of suspicion by primary care physicians is necessary for prompt diagnosis and treatment decrease comorbid conditions such as soft tissue infections, and erythroderma and decrease patient mortality

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