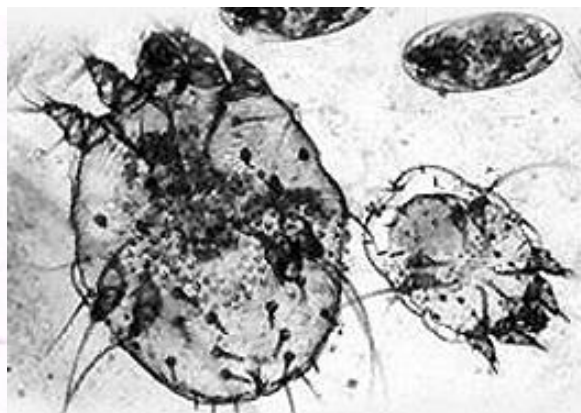
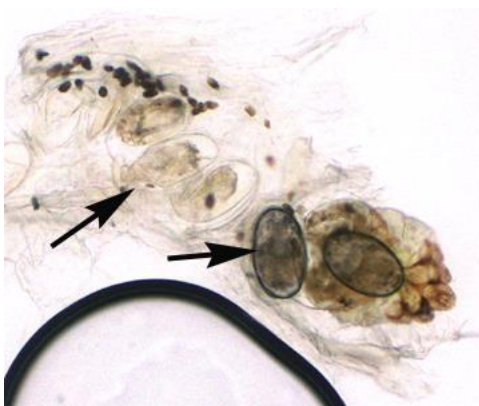
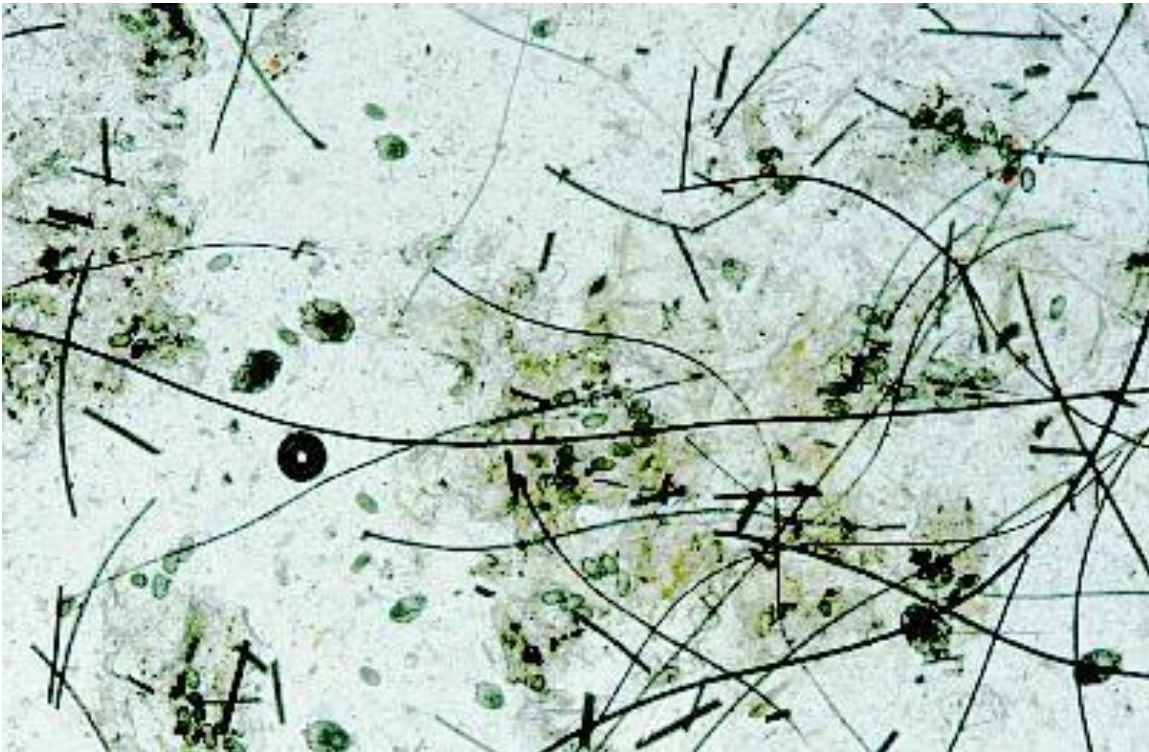


## PARASITOLOGY CASE HISTORY 13 (HISTOLOGY)

(Lynne S. Garcia)

A 63-year-old woman presented to the Dermatology Clinic with some encrusted lesions on her extremities. She had complained of itching and scratching in prior visits to the clinic, but this was not currently a problem. Skin scrapings were taken and examined unstained on high dry (40x objective) and plated on Sabouraud's dextrose agar used for fungal culture. The following images were seen.



- Based on these images, what is your diagnosis?

### ***Scroll Down for Answer and Discussion***

### **Answer and Discussion of Histology Quiz #13**

This was a case of scabies caused by the human itch mite, *Sarcoptes scabiei*. Diagnosis was based on finding the characteristic eggs (arrows) and adults (bottom row, right). Scabies is also known as seven-year itch, camp itch, sarcoptic mange, and acariasis; the term Norwegian scabies has been replaced with crusted scabies.

#### **Comments on the Patient:**

The patient has presented with scabies in the past with typical itching and scratching. However, at this point, these symptoms were not reported. The usual skin sites that are susceptible to infection are the interdigital spaces, backs of the hands, elbows, axillae, groin, breasts, umbilicus, penis, shoulder blades, small of the back, and buttocks. The outstanding clinical symptom is intense itching. Scratching commonly causes weeping, bleeding, and sometimes leads to secondary infection. A form of the infestation, called crusted scabies, can occur in immunosuppressed or anergic individuals; many mites are present in keratotic excrescences on the body and extremities, but pruritus is usually absent. The patient has crusted scabies.

#### **Comments on Diagnosis:**

The diagnosis of crusted scabies can easily be missed. Serpiginous tracks were noted on the surface of Sabouraud's dextrose agar used for fungal culture of the skin scrapings. This unusual laboratory manifestation alerted clinical microbiologists to the possible diagnosis of scabies. Although many microbiology laboratories are aware of these unusual findings, personnel can forget to consider scabies in such situations.

**Skin-scraping technique.** The diagnosis can be confirmed by demonstration of the mites, eggs, or scybala (fecal pellets). Because the mites are located under the surface of the skin, scrapings must be made from the infected area.

1. Place a drop of mineral oil on a sterile scalpel blade. (Mineral oil is preferred to potassium hydroxide solution or water. Mites adhere to the oil, skin scales mix with the oil, the refractivity differences are greater between the mite and the oil, and the oil does not dissolve fecal pellets.)
2. Allow some of the oil to flow onto the papule.
3. Scrape vigorously six or seven times to remove the top of the papule. (There should be tiny flecks of blood in the oil.)
4. Transfer the oil and scraped material to a glass slide (an applicator stick can be used).
5. Add 1 or 2 extra drops of mineral oil to the slide and stir the mixture. Any large clumps can be crushed to expose hidden mites.
6. Place a coverslip on the slide, and examine (first on low power). The adult mites range from approximately 215 to 390  $\mu\text{m}$  in length, depending on sex. The eggs are 170  $\mu\text{m}$  long by 92  $\mu\text{m}$  wide, and the fecal pellets are about 30 by 15  $\mu\text{m}$ . The fecal pellets are yellow-brown.

*Plastic box or petri dish method.* If mineral oil preparations of skin scrapings fail to demonstrate the mites, the encrusted skin scrapings, etc., can be placed in a small plastic box or small petri dish. The container should be left undisturbed at room temperature for 12 to 24 h. Away from the living host, the mites drop to the bottom of the box or dish and can be seen with a magnifying glass or dissecting microscope.

## **References:**

1. Garcia, L.S. 2016. *Diagnostic Medical Parasitology*, 6th Ed., ASM Press, Washington, D.C.
2. Garcia, L.S. 2009. *Practical Guide to Diagnostic Parasitology*, 2nd Ed., ASM Press, Washington, D.C.