



Parasitic Infestations, Stings, and Bites

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Abstract

This chapter deals with a heterogeneous group of skin disorders caused by parasitic infection, sting, and bites and consists of cutaneous leishmaniasis, cutaneous paragonimiasis, cutaneous larva migrans, cerebral and subcu-

taneous cysticercosis, cutaneous myiasis caused by larvae of *Hypoderma bovis*, phthiriasis palpebrarum, tick bite, Norwegian scabies, infant *Pyemotes dermatitis*, and jellyfish dermatitis.

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6.1 Cutaneous Leishmaniasis [1]

- Cutaneous leishmaniasis (CL) is a tropical disease caused by *Leishmania*, spread by the bite of infected female sandflies, and characterized by an ulcerated lesion.
- Depending on the condition of the host's immunity and the species of parasite, CL presents very different clinical manifestations. The first sign of CL is a small erythema, which then changes into a papule and nodule, subsequently developing an ulceration in 2 weeks to 6 months, after which the lesions heal spontaneously.
- The diagnosis of CL is usually based on specific clinical features and parasitological investigations.
- The standard treatment of cutaneous leishmaniasis is based on pentavalent antimonials, mainly sodium stibogluconate and meglumine antimoniate.

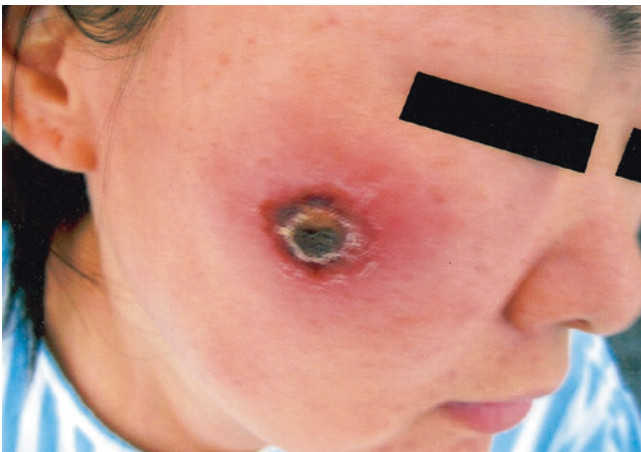


Fig. 6-1-1 A round ulcer with crust around rufous skin on the left cheek

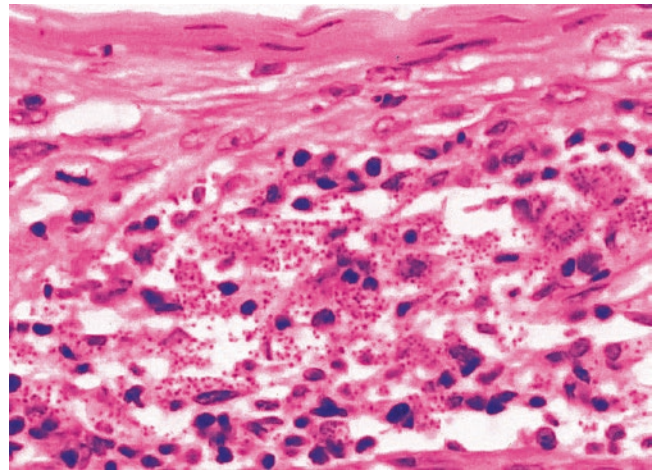


Fig. 6-1-2 Granule-like bodies in the dermis papillaries (HE stain, ×400)

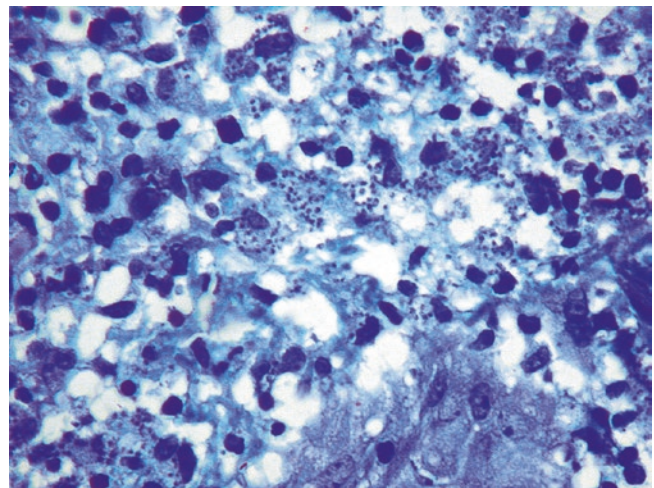


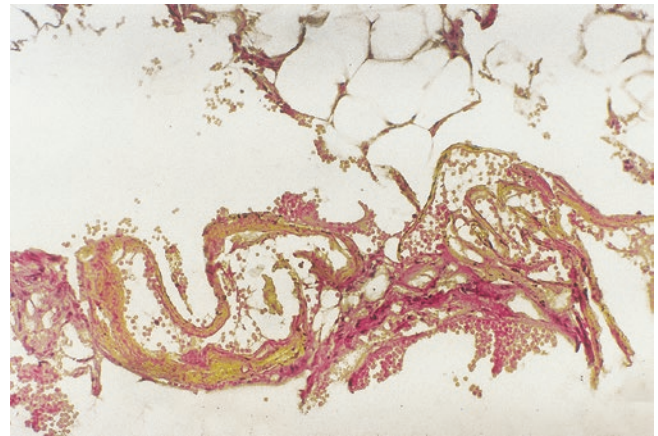
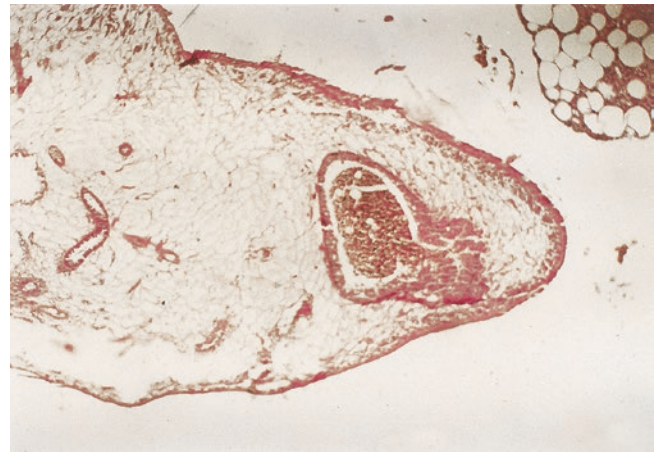
Fig. 6-1-3 A red round nucleus and a smaller rod-like paranucleus in the parasites (Giemsa stain, ×400)

6.2 Cutaneous Paragonimiasis [2]

- Clinically, paragonimiasis caused by *Paragonimus* is broadly classified into pulmonary, pleuropulmonary, and extrapulmonary forms.
- Cutaneous paragonimiasis (CP) is considered one of the representative types of ectopic infection, especially in its earlier stage, and it usually presents as a slowly migrating and painless subcutaneous nodular induration that is often located on the abdominal wall, with deep larva migrans hypodermatitis or subcutaneous swelling.
- The diagnosis is based on a history of consumption of crabs, a positive specific serological test, and blood eosinophilia.
- Cures have been accomplished by the administration of praziquantel. An alternative drug is triclabendazole, which is as effective as praziquantel and better tolerated.



Fig. 6-2-1 A subcutaneous mass in size of 3 cm × 6 cm in diameter on the abdomen



Figs. 6-2-2, 6-2-3 Digestive tuck (2) and tail (3) of distoma in subcutis (HE stain, (2) × 40 (3) × 40)

6.3 Cutaneous Larva Migrans [3]

- Cutaneous larva migrans (CLM) is a serpiginous, erythematous infection that is usually caused by percutaneous penetration of the larvae into the skin and is often seen in the lower extremities, especially in the dorsal and plantar surface of the foot through contact with feces of infected animals.
- The lesion is characterized by a skin-colored tortuous, linear thread-like, papular or vesicular advancing and slightly raised track, which moves at a rate of approximately 2 mm–3 cm/day with variable pruritus intensity and symptom duration.
- The natural history of CLM is spontaneous resolution without treatment within a few weeks. Treatment is often necessary due to potential complications such as a superimposed bacterial infection and intense pruritus. Albendazole 400 mg/day or ivermectin 200 mg/kg single for 3 days is recommended.



Fig. 6-3-1 Curve lesions on the occiput, neck, and back

6.4 Cerebral and Subcutaneous Cysticercosis [4]

- Cysticercosis is an infection caused by the larvae of *Taenia solium*, which infect humans via accidental ingestion of the parasite's eggs.
- Cysticercosis is one of the most usual parasitosis in the central nervous system, subcutaneous, and muscle tissue. Subcutaneous nodules are usually seen in approximately 54% of patients.
- Histopathology reveals a thick, fibrous capsule covered by some layers of epithelioid cells mixed with several Langhans giant cells but without caseous necrosis and encircling a cystic cavity containing clear fluid and a patchy, white membranous structure shaped like a cysticercus larva.
- Albendazole and praziquantel are both effective. Albendazole is more effective and less expensive than other drugs for the treatment of neurocysticercosis.



Fig. 6-4-1 Numerous subcutaneous nodules on the back

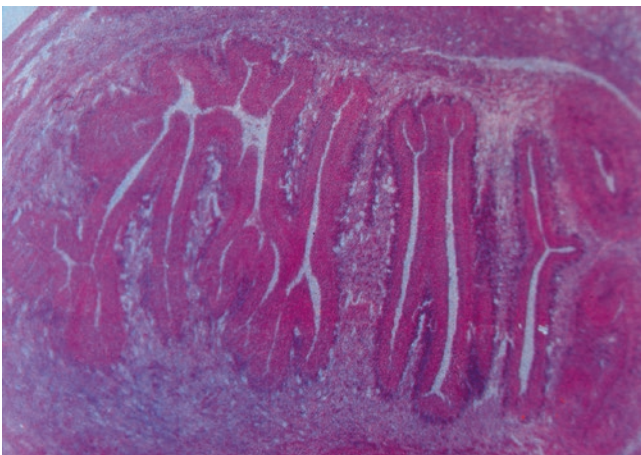


Fig. 6-4-2 A parasite in the cystic wall under the subcutaneous (HE stain, $\times 40$)

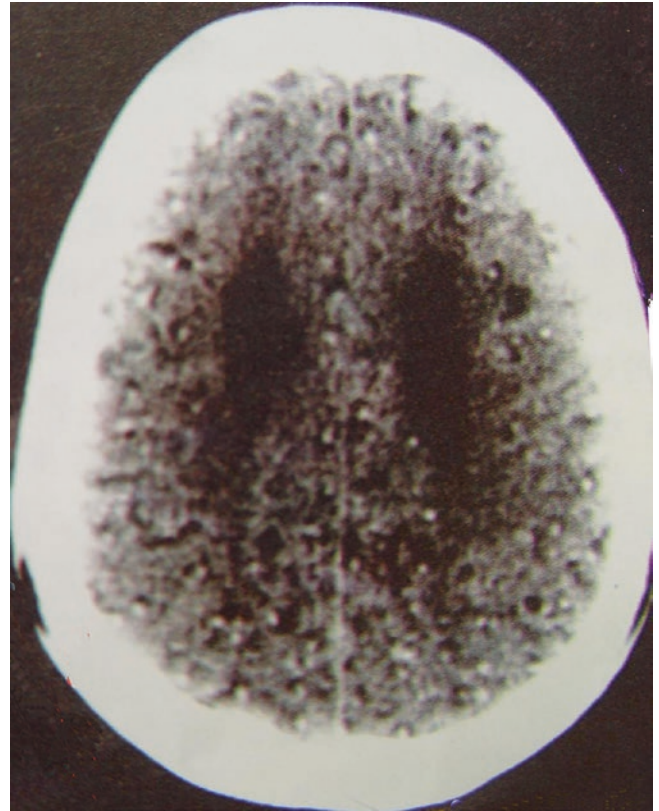


Fig. 6-4-3 Computed tomography of the brain showed an enhancing lesion in the cerebral, dilated lateral ventricle of cerebrum

6.5 Cutaneous Myiasis Caused by the Larvae of *Hypoderma bovis* [5]

- Cutaneous involvement is the most usual type of myiasis caused by dipterous fly larvae. Depending on the type of infesting larvae, cutaneous presentations involve furuncular, wound myiasis, and migratory forms.
- The larva of *Hypoderma bovis* forms a less distinct, erythematous, linear lesion when it burrows subcutaneously, but it pierces a hole through the skin surface when terminating its migration for pupation in the soil. Therefore, myiasis caused by *Hypoderma* is also considered a furuncular myiasis.
- Treatment is based on full extraction of the larva by covering the opening of the lesion with an oily ointment and suffocating it, facilitating extraction.

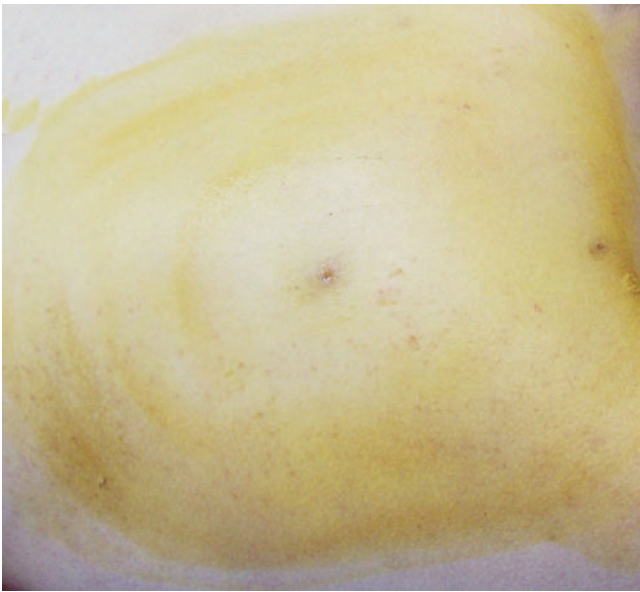


Fig. 6-5-1 Three furuncle-like lesions and pigmentation on the shoulder and back (site C is the most recent lesion with no larva)

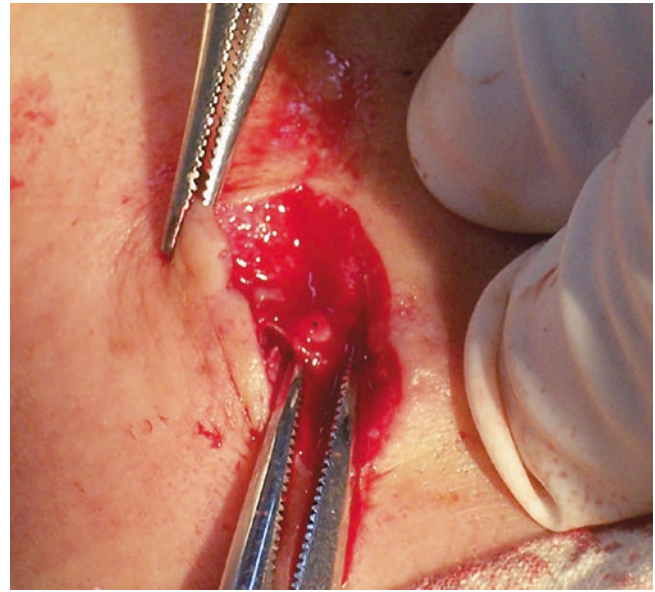


Fig. 6-5-2 A larva surrounded by tissue (held by vessel forceps with black spot on the top could be seen)



Fig. 6-5-3 A cylindrical and milky body with pointed front-end and blunt back end. The size of larvae ranges from 12 mm × 5 mm to 7 mm × 2 mm



Fig. 6-5-4 Third instar larvae under microscope: the segmented cylindrical body (the left side is scolex and the right side is abdomen) (×10)

6.6 Phthiriasis Palpebrarum [6]

- Phthiriasis palpebrarum is an infection of the eyelashes by the crab (pubic) louse, *Phthirus pubis*, and its ova. Direct contact is required for transmission.
- The eyelashes are the usual site of crab louse infestation in children because of specific temperature and moisture requirements, as well as the lack of terminal hairs on most body regions before puberty.
- This infestation can lead to pruritic lid margins or itchy eye, gritty sensation, blepharitis, follicular conjunctivitis, and marginal keratitis.
- The most effective physical method is the manual removal of adults and nits with forceps.



Fig. 6-6-1 Alive public lice and gray white scabs at the roots of the eyelash on the left upper eyelid, mimicking the appearance of the scales in blepharitis



Fig. 6-6-2 The egg is attached to the side of the hair (× 50)

6.7 Tick Bite [7]

- Ticks are small, bloodsucking arachnids. After biting, the tick can remain attached to the skin for up to 10 days.
- Tick bites are usually harmless but occasionally can cause allergic reactions. Ticks may transmit disease to humans and lead to a variety of symptoms, which generally develop within several days to a few weeks after a tick bite.
- It is most important to remove the tick with a tick removal device or with a set of tweezers and not leave any of the tick's head or mouth parts in the bite.
- The best way to avoid a tick-borne disorder is to prevent tick bites.

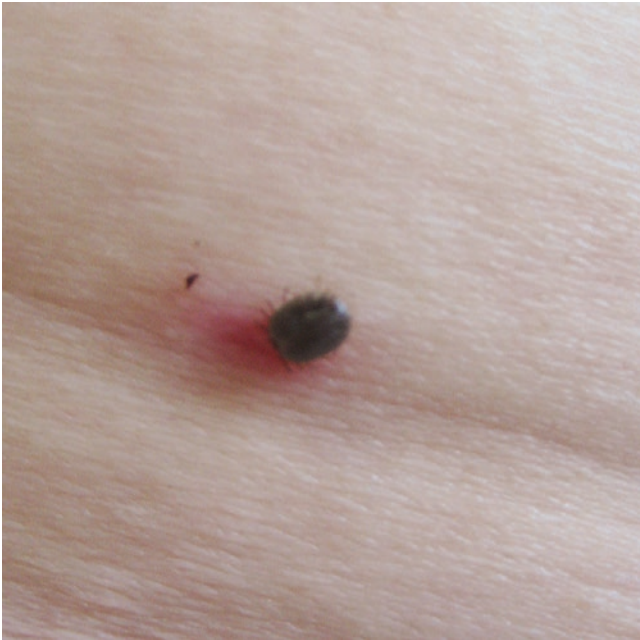


Fig. 6-7-1 An attached tick occurred on the abdomen

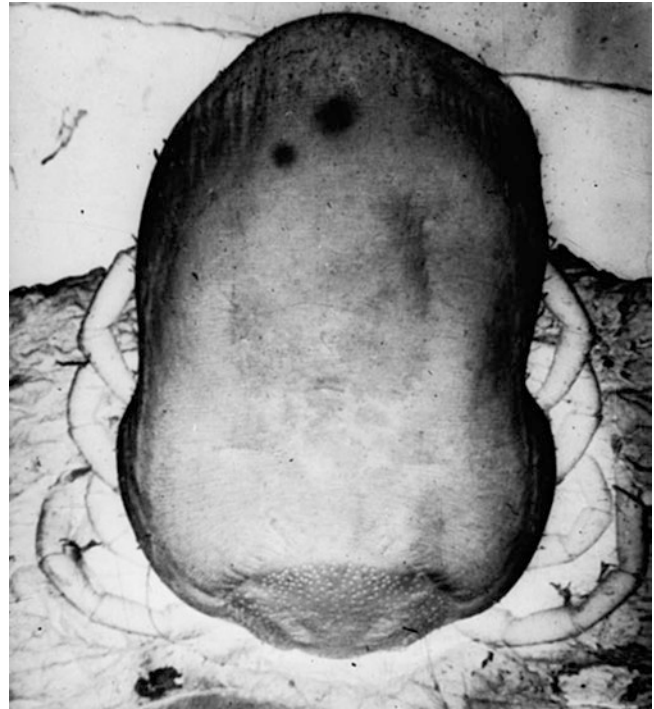


Fig. 6-7-2 The attached ticks had four pairs of segmented legs and a scutum with many punctations that were observed by SME

6.8 Norwegian Scabies [8]

- Crusted (Norwegian) scabies is an uncommon and extremely debilitating type of *Sarcoptes scabiei* var. *hominis* infestation that generally occurs in patients with sensory anesthesia, mental impairment, physical incapacity, and immunosuppression.
- The patients present with scaly, hyperkeratotic, gray to erythematous plaques in and on which are observed a large number of mites. Therefore, it is highly infectious.
- The importance of lesion scraping is highlighted to obtain a correct and early diagnosis.
- The therapy for mild cases is the same as for simplex scabies infections. However, oral or intravenous ivermectin should be given for some cases.

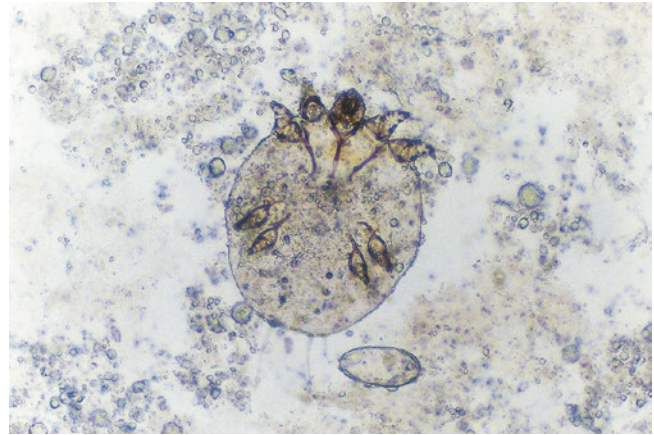


Fig. 6-8-3 Large numbers of *Sarcoptes scabiei* mites in skin scrapings examined by microscope



Figs. 6-8-1, 6-8-2 Numerous wine papules, papulovesicles, and pustules on the trunk and four limbs, diffuse generalized hyperkeratotic and scale lesions of both palms

6.9 Infant Pyemotes Dermatitis [9]

- *Pyemotes* mites have been responsible for attacks of dermatitis in those shoveling grain or coming into contact with infested straw and husk rice.
- The dermatitis has been referred to by a number of terms, including “grain itch,” “straw itch,” “barley itch,” “prairie itch,” and “hay itch,” among others.
- The lesions are urticated papules encircled by vesicles and occasionally can be bullous. There are usually many lesions, with a distribution based on the mode of exposure.
- In grain handlers, the lesions are usually on the forearms and neck, but they may be profuse around the waist and in the groin.



Fig. 6-9-2 Spindly worm with 8 ft and two-scoop receptivity organ on the front of the back (×100)



Fig. 6-9-1 Dense, pinpoint to millet-sized papules or papulovesicles on the head, neck, and chest

6.10 Jellyfish Dermatitis [10]

- Jellyfish have a bell-shaped body with tentacles covered with numerous cnidocytes containing a complex toxic mixture of heat-labile proteins.
- Jellyfish stings induce bitter, papular-urticarial eruptions with an itchy or burning sensation within a few minutes because of the immediate allergic, acute toxic, and continuous inflammatory responses.
- It is valuable to rinse the affected area carefully with seawater or vinegar to inactivate the toxins. Less commonly, jellyfish stings can cause delayed or recurrent cutaneous lesions, displaying groups of painless and itchy erythematous monomorphic papular rashes.
- This recurrent dermatitis can be decreased by applying pimecrolimus, tacrolimus, and corticosteroids.



Fig. 6-10-1 Erythema and vesicles could be seen on the dorsa of the hand and upper limb

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