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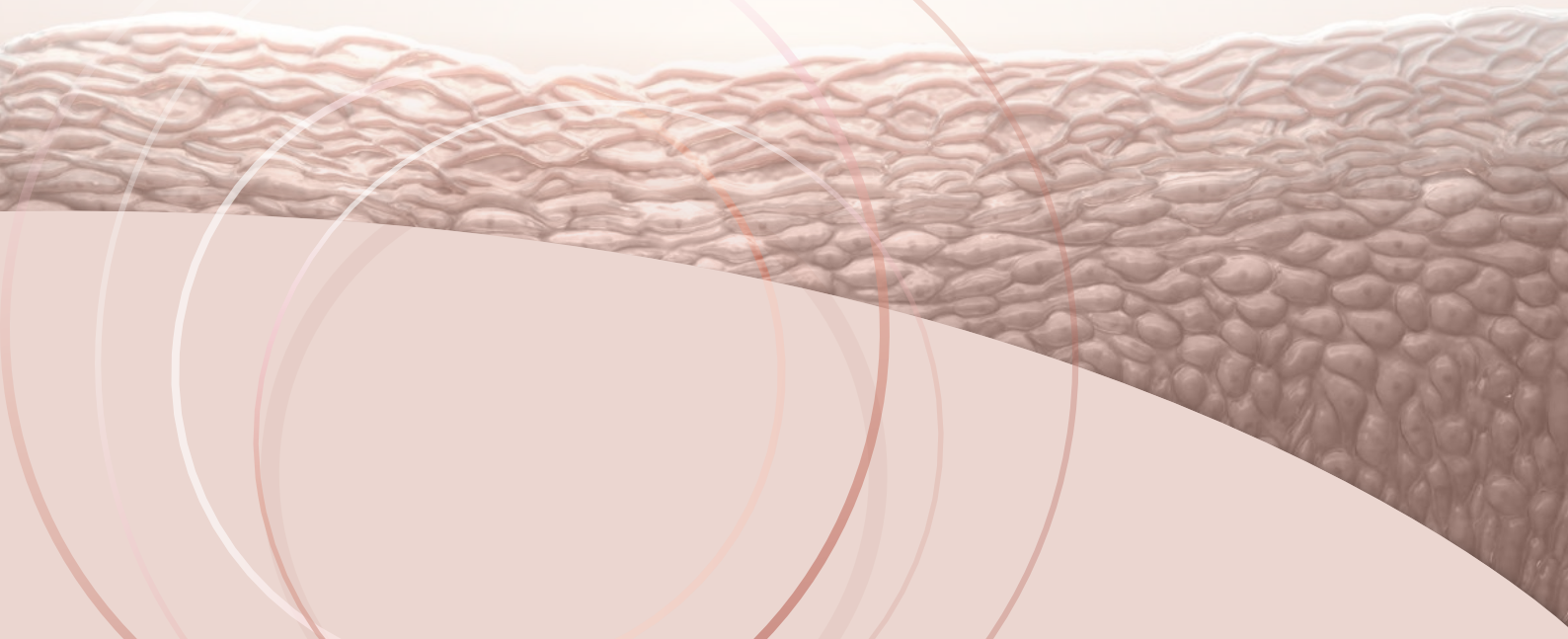
EUROPEAN ACADEMY OF
DERMATOLOGY AND VENEREOLOGY

Information Leaflet
for Patients



TUNGIASIS (JIGGERS)

The aim of this leaflet

This leaflet is designed to help you understand more about tungiasis (jiggers), an annoying and sometimes painful problem affecting travellers returning from subtropical or tropical countries. It tells you what this condition is, what causes it, what can be done for treatment, and practical advice for avoiding this condition.

TUNGIASIS (JIGGERS)

What causes *tungiasis*?

This parasitic infection is caused by the female sand flea called *tunga penetrans*, which usually lives in different sandy areas. The sand flea likes high soil temperatures, like beaches, rain forests, and plantations in subtropical and tropical countries. Many animals are infested and therefore provide a large reservoir. The flea penetrates the outer layer of the skin, mostly on the feet (skin around the toenails) and sometimes on the fingers, but all areas of the body may be affected. Infestation of humans occurs by accidentally walking or getting in close contact with infected soil. The penetration normally occurs unnoticed. The pregnant flea enlarges in the skin from 1.2 mm to pea size and produces hundreds of eggs, which are released over a period of 3 weeks. The flea dies after a total period of about 3-4 weeks in the skin.

Where did I get it from?

If you have this infection, you most likely acquired it on a subtropical or tropical beach, during a rainforest hike, visiting plantations, or in backyards of private houses. The risk is higher in the rainy than in the dry season, when humidity and temperature of the soil are high.

What are typical signs and symptoms of *tungiasis*?

The typical symptoms of *tungiasis* are local itching, pain, and the sensation of a foreign body. During the growth of the pregnant flea, the clinical appearance changes over weeks. It is a continuous process. It starts with a reddish spot, and then becomes more evident, growing to a red *papule* (bump) with a central black dot, surrounded by redness. When the eggs are released from the flea, you can see a depressed centre surrounded by an elevated rim and *desquamation* (scaling). Even eggs can be seen. Sometimes two or more identical lesions occur simultaneously.

Secondary infection with swelling, redness, and pain is also common in the last stage. **Figures 1-4** show pictures of toes/toenails affected by *tungiasis*.

Are there tests to make the diagnosis?

The diagnosis is made from the very typical clinical picture and history of possible contact with contaminated soil. A *dermatoscope* (a non-invasive device used to assess the skin at 10 times magnification) can be very helpful. Tests are neither necessary nor helpful. Being rather rare in travellers, the disease is frequently misdiagnosed and patients are sometimes given inappropriate diagnostic and therapeutic procedures.

Figure 1. *Tungiasis:* earlier stage on the plantar side of a toe, still closed with the central black dot and hole for breathing.

Figure 2. *Tungiasis* lesions, late stage, before and after eruption: whitish *papule* with surrounding redness and swelling due to superinfection; sand fly is releasing a mass of eggs on a typical infestation site around the toe nails.

How can *tungiasis* be treated?

Surgical extraction of the flea under sterile conditions is the treatment of choice. After widening the opening with a blade, the whole flea along with the eggs has to be carefully extracted with tweezers. Topical wound care is usually sufficient, and in severe superinfected cases, oral antibiotics are recommended. Tetanus immunization status should be checked.

What is practical advice for avoiding this condition?

Avoid direct contact of your skin with wet sand, especially in areas where dogs and cats are strolling around. Wear closed shoes and socks, and be careful with your hands. Don't dig in wet and warm soil without gloves. Daily inspection of your feet and early removal when infection is present is helpful in the prevention of complications. ■

Dermatoscopic 10-times enlarged Tungiasis lesions

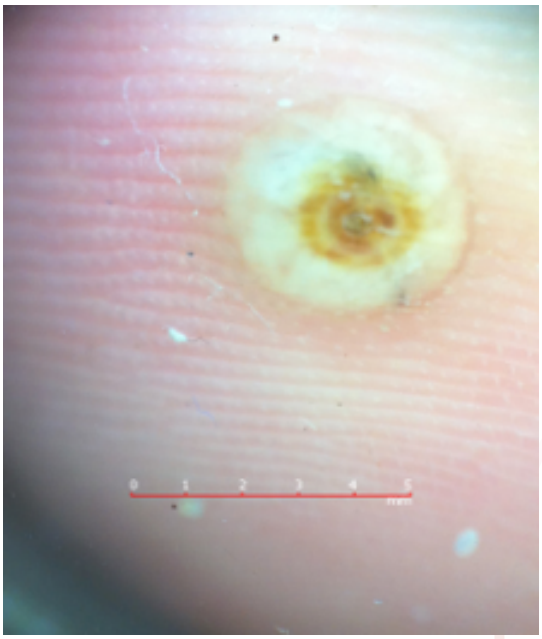


Figure 3. Earlier stage on the plantar side of a toe, still closed with the central black dot and hole for breathing.

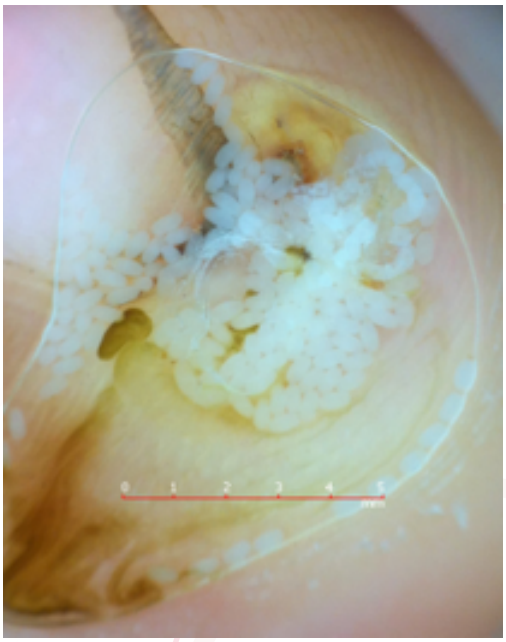


Figure 4. Late stage: a flea releasing many eggs in the nail fold of the big toe.

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While every effort has been made to ensure that the information given in this leaflet is accurate, not every treatment will be suitable or effective for every person. Your own clinician will be able to advise in greater detail.

PRODUCED BY THE EADV TROPICAL DERMATOLOGY TASK FORCE

Publication date: 2019