

Tungiasis: an epidermal parasitic disease of the skin. brief relate

Editorial

It is important to note that the parasites most frequently found on the skin are arthropods, among which *Sarcoptes scabiei*, *Demodex* spp., *Tunga penetrans* and fly larvae that cause myiasis stand out, following in order of frequency, protozoa mainly *Leishmania* spp., and the third and last place corresponds to helminths, specifically nematodes (*Dirofilaria* spp.), tapeworms (*Taenia solium* and *Spirometra* spp.) and trematodes (*Schistosoma* spp.). Among epidermal parasitic diseases, tungiasis (ectoparasitic disease caused by penetration into the skin [mainly soles and heels of the feet] of the mature female of *Tunga penetrans* and extraordinarily by the female of *Tunga trimamillata*) is considered the most neglected of the tropical diseases that affect the skin, far below scabies, pediculosis, cutaneous larva migrans and myiasis.^{1,2}

Regarding the epidemiological behavior of tungiasis (known as sand flea disease), it has been described in populations of South America (it is firmly believed that it originated in this area), the Caribbean and sub-Saharan Africa (and in travelers from these areas), especially in marginal communities where people live in extreme poverty; and where this parasitic skin disease is endemic, it can reach a prevalence of up to 30% in the total population and up to 80% in children. In America it has been described in most of the countries that make it up, and is so common that it is considered part of folklore.³

Despite the few scientific reports in the world literature, there is information on the presence of tungiasis in Argentina, Brazil (it is reported from the state of Amazonia in the north to the state of Rio Grande Do Sul in the south of the country), Barbados, Colombia, Ecuador, Haiti, Honduras, Mexico, Paraguay, Peru, Trinidad and Venezuela, of course, and as previously noted, high prevalence is reported in rural and urban communities with limited economic resources. It is key to indicate that it is a common pathology in Amerindian populations (the parasite cycle is intra-domiciliary) located in the lowlands of the Amazon and Orinoco of Colombia and Venezuela, with serious morbidity that can lead to death; and with a prevalence of 2% in children aged 1 year or younger.^{3,4}

Transmission is fundamentally per-domiciliary and household transmission is only possible in houses that do not have solid floors and domestic animals enter and exit freely. The pathophysiological mechanism involved in the genesis of the disease focuses on the intense inflammatory response that the host develops against the sand flea embedded in the skin, accompanied by intense pain, itching and bacterial superinfection of the lesion (due to skin abrasions) which facilitated the entry of *Streptococcus* sp. and *Staphylococcus* spp.).^{3,5}

This disease is characterized by presenting as a severe complication, the deterioration of mobility (partial or total), since it is a chronic pathology characterized by hyperkeratosis, edema around the nail, fissures, ulcers with extended tissue necrosis, deformation of the feet, loss of the nail, lymphedema and autoamputation of the fingers. Likewise, secondary bacterial infection can cause abscesses,

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suppuration, cellulitis, lymphangitis, sepsis, tetanus, and post-streptococcal glomerulonephritis.^{2,3}

The diagnosis of tungiasis is easy for health personnel in endemic regions, they are used to seeing it, therefore, the pathology can be identified with simple visual observation, however, in non-endemic areas, doctors have difficulty making the diagnosis. Since the condition is not common, in this case the use of a dermatoscope is recommended. The differential diagnosis should be made with fungal lesions, warts, ingrown toenails, and foreign body granulomas.^{3,6}

The treatment of this pathology focuses on the use of dimethicones (polymer silicone oils) with different viscosities, as they are effective, due to their physical mechanism of action on ectoparasites, even in very intense infections (with more than 500 parasites), since which is capable of achieving the disappearance of signs of viability, that is, the expulsion of eggs, excretion of fecal thread, excretion of fecal fluid or pulsations/contractions of the parasite, and in addition, the development of resistance of the ectoparasite to the polymer is extremely unlikely.^{3,4}

Finally, and from the social point of view, tungiasis substantially affects education, quality of life, household economy, well-being of infected people and is a guarantee of social stigmatization, with serious effects on self-esteem and participation in social activities. Therefore, as prevention and control measures in endemic areas, the use of repellents and the immediate treatment of cases is recommended, in an approach aimed at controlling human morbidity rather than at a

comprehensive approach in public health (animal-entomological-human-environment) due to the economic limitations that endemic areas generally have, which would hinder the sustainability and success of comprehensive measures.⁶⁻⁸

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Conflicts of interest

The authors declare there is no conflict of interest.

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