

CASO CLÍNICO

Cutaneous myiasis of wounds. Report of three cases associated with ulcers secondary to herpes zoster and skin carcinomas. A brief review of the subject.

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RESUMEN

Cutaneous myiasis is a condition that, depending on the geographical location where it is reported, will be more or less observed. There are anatomical and environmental, medical, clinical and epidemiological classifications.

We present three cases of this process of a relatively unusual observation, which is given by the fact of the three associated pictures, different in each case.

INTRODUCTION

The term myiasis comes from the Greek word Myia, fly, and from Sis meaning to fly or to generate, a term first used by the English entomologist Frederick William Hope in 1840.¹ Myiasis is known as "the infestation of living man with dipteran larvae that, at least for a certain period of time, feed on the tissues (dead or alive) of the host, its liquids or ingested food."² Some of the families of flies belonging to the Diptera are important in medicine and vary according to geographical location: *Cordilobya*, *Chrysomya*, *Muscidae*, *Sarcophagidae*, *Calliphoridae*, *Dermatobia*, *Oestridae*, *Lucilia*, *Cuterebridae* but in the Americas *Dermatobia hominis* and *Cochliomyia hominivorax* are the main etiological agents.

Flies are winged insects belonging to the order Diptera and characterized by a great adaptation to parasitism of higher vertebrate organisms.³ The myiasis-producing forms are characterized by passing through 4 stages in their biological cycle: winged adult, egg, larva, which in

turn has three vermiform stages and the fourth stage as pupa. The stage that concerns our problem is that of larvae, which are the only ones that parasitize.⁴

ETIOPATHOGENESIS

Any wound or ulcer, regardless of its size, becomes a suitable site for the deposition of fly eggs capable of causing myiasis. These flies are attracted by blood and its odor and this susceptible medium is found in chronic infections such as leg ulcers, or in general purulent and decomposing smelling wounds and ulcers and it is then, when the flies deposit their eggs on the edges of these lesions.⁵

CLASSIFICATION OF MYIASIS

We have found the clinical and anatomical classification of myiasis from the article by Salluca et al.⁵ to be of greater interest.⁵

Clinical and anatomical classification of the

Cutaneous myiasis	Furunculoid
	Migratory (serpiginous, with ambulatory tumors)
	Traumatic
Myiasis of natural or cavitory orifices	Auricular
	Anal
	Genital
	Ocular
	Oral
	Nasal
Myiasis of internal organs	Intestinal
	Urinary
	Uterine

CLINICAL MANIFESTATIONS

According to the classification cited by Salluca,⁵ we focus on the cutaneous forms and within them specifically on the traumatic or wound-related form, however we review very slightly the other two forms.

These clinical forms may be primary or secondary. They are said to be primary when the larvae affect living tissue and are called secondary if the larvae are necrobiontophagous and feed on dead tissue.⁶

It is important to understand that the clinical manifestations in humans will depend largely on the causal agent and the anatomical area affected, the most important risk factors being: poor hygiene, low socioeconomic level, alcoholism, previously existing suppurative lesions, environmental situation and, above all, immunosuppression.

The furunculoid form begins with the infestation of the larva in healthy skin, appearing first an erythematopurulent papule that later transforms into a nodule resembling a furuncle, hence its name, this lesion exudes pus and a serosanguinous material, predominantly in the most exposed areas of the skin. A small hole is then noted in the affected skin, in which the posterior portion of the larva corresponding to the respiratory spiracle of the parasite can be observed, as well as a

bubbling that expresses the breathing of the parasite, patients also report a sensation of pain and that something is moving inside the skin. Symptomatology expressing bacterial superinfection by staphylococci and streptococci may also appear.⁷

Migratory myiasis occurs when the larvae move slowly through the skin, under the epidermis of the host and through the internal organs until they reach their final location. The formation of these subepidermal tunnels leads to a migratory cutaneous inflammation with a serpiginous, erythematous and raised linear arrangement, the picture is sometimes maintained for a long time causing pruritus and pain in the host, being important to note that humans are accidental hosts and that larvae cannot complete their biological cycle in them.³

As for traumatic and wound myiasis, this is produced by the infestation of open wounds, being varied the parasites, either obligate or facultative, that cause this clinical form and it is logical to deduce the fact that many of the species of flies that usually develop in decomposed meats can be involved in traumatic cutaneous myiasis.⁵ This type of myiasis is considered as secondary, caused by necrobiontophagous larvae that feed on necrotic tissue. These larvae invade previously affected tissues with necrotic cutaneous or mucosal ulcerations and are generally caused by flies *Cochliomyia macellaria* of the genus *Lucilia* and of the *Sarcophagidae* family such as *Sarcophaga haemorrhoidalis*.⁸

Other authors such as Osorio and collaborators attribute the infestation of open wounds to *C. hominivorax* and *C. bezziana* which produce obligatory infestation of wounds in humans as well as in domestic and wild animals. These flies, which are both obligate and facultative parasites, take advantage of the existence of traumatic, erosive and ulcerative lesions.⁷ This type of wound myiasis is a rare but serious complication of wounds and ulcerative lesions and is often associated with comorbidities such as advanced age, peripheral vascular disease or psychiatric disease and, usually the patient's health condition, hygiene conditions and economic situation are deplorable. On physical examination, closer observation of these chronic ulcers of

various etiology, or wounds that do not heal and show ulceration, reveals the presence of maggots that sometimes swarm in large numbers under the surface of a fibrinous exudate within the wound bed.⁹

CLINICAL CASES

Case No. 1: Myiasis associated with herpes zoster ophthalmicus.

68-year-old patient who consulted for presenting manifestations of herpes zoster in the left hemifacemimica and ophthalmic location, the process was in the resolution phase and already with absence of vesicles, but with unusual characteristics, although the neuritic pain typical of the process persisted, ulcerations with necrosis were observed in the areas of primary location of the viral process, these ulcers did not show a tendency to heal and the presence of a sanious background was observed and a secretion of fibrinous and purulent material accompanied by necrosis in some of the lesions, the patient reported burning pain and itching in the affected areas. (Photo 1)

A closer look reveals the presence of inflamed subcutaneous nodules in the affected eyelid area and, on the lower edge of the eyelid, a deep, fistulized ulcer, where the presence of a foreign body can be seen (Photo 2).

With a closer look we can observe with certainty the presence of the parasite that appears in the ulcer on the lower edge of the eyelid (Photo 3).

The patient was referred to the ophthalmology department for appropriate treatment.

Case No. 2: Myiasis associated with ulcerated basal cell carcinoma.

Female patient, 72 years old, with no previous history of importance, who presents with years of evolution lesion that begins as a papule that progresses to a nodule and then ulcerates and spreads, taking the nose bilaterally and extending to the right cheek and supralabial area on the same side. On examination there is an ulcerated lesion, with rolled edges and granulomatous background, nodular lesions in the nose, and presence of



Photo 1. Erythematous, inflamed, ulcerated, suppurative and necrotic lesions on the right hemiface.



Photo 2. Presence of nodules (white oval) and possible parasites (light blue ovals)



Photo 3. The presence of the worm inside the ulceration can be clearly visualized (blue oval).

ulcer with hemorrhagic crusts and foci of necrosis, especially on the left side of the nasal appendage. (Photos 4 and 5). The presence of whitish elements with discrete movement draws the attention.

We performed a study with a magnifying globe adapted to the camera, which at that time was being discussed whether it had diagnostic similarity with dermatoscopy¹⁰ and we obtained images that confirmed the diagnosis (Photos 6–8). Antiparasitic treatment was performed and the worms were extracted (Photos 9 and 10), giving way to the histopathological study that confirmed the diagnosis of basal cell carcinoma and the treatment of the neoplasm itself.



Photos 4 and 5. Ulcerated, granulomatous, hemorrhagic lesion with necrosis

Case No.3: Myiasis associated with ulcerated squamous cell carcinoma.

Female patient, 62 years old, who consulted for presenting ulcerated lesion with years of evolution, which takes dorsum of the root of the nose and extends to the left palpebral angle and to a lesser extent to the right.

The lesion is very inflamed, suppurative, with protruding edges and granulomatous background. There is marked bipalpebral edema (Photo 11). Topical and systemic antibiotic therapy and cleaning of the lesion area is performed and when the picture clears the presence of multiple possible parasites within the ulcerated lesion can be individualized (Photo 12).



Photos 6 and 7. Examination with a magnifying globe (lower photo) that allows visualizing and verifying the presence of maggots inside the ulcer.



Photo 8. Closer up, the presence of multiple parasites can be observed with a superior and lateral view of the parasites



Photos 9 and 10. Parasites extracted and examined with magnifying glass.

We performed a dermatoscopic examination of the lesions and we can identify the posterior portion of the larvae of a creamy white color and in the center some structures in the form of bird's feet that correspond to the respiratory spiracles of the larva, while in the periphery we can note the presence of black dots that resemble a crown of thorns (Photos 13 and 14). Photo 15 allows a view of the upper and lateral portion of the larva.

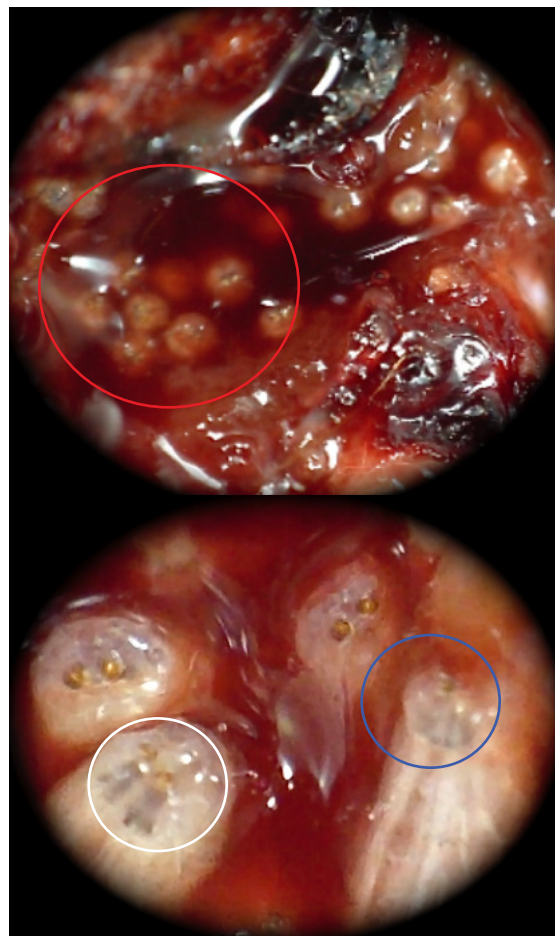
The histopathological study confirmed the diagnosis of squamous cell carcinoma.

DISCUSSION

Myiasis has been reported to be associated with different ages and conditions in multiple reports worldwide. From neonatal life at the level of the umbilicus¹¹ to those associated with quite rare conditions such as malignant syphilis,¹² as well as a subungual location reported in patients with predisposing factors.¹³ We have not been able to find reports of association with herpes zoster in the literature to our reach but, with regard to the association with skin cancer, there are reports, although not very



Photos 11 and 12. Before and after treatment and cleaning of the lesion, the circle shows the presence of larvae.



Photos 13 and 14. Dermoscopy visualizing multiple larvae with their posterior part exposed (red circle), as well as the bird's feet sign (white circle) and crown of thorns (blue circle).



Photo 15. Dermoscopy allowing visualization of the body of the larvae and the posterior portion of the larvae

numerous. The reports of traumatic myiasis are more frequent, let us not forget that they are usually the result of parasitic infestation by these diptera of open wounds neglected, for example, and, it is important to know, in scalp myiasis is usually not dangerous but it can be fatal if it involves the brain,¹⁴ or the case of myiasis of the lip in a homeless man who after having had a trauma with a stone 7 days before developed a very sensitive and twisted lesion in the lower lip, from which multiple parasites were extracted.¹⁵ In the case of association with skin tumors, basal cell carcinoma and epidermoid carcinoma are the most frequent although they can settle in any ulcerated tumor lesion as in the three cases reported by Rubio et al, one with laryngeal carcinoma that took an anterior neck, another in an epidermoid carcinoma and the last one in a basal cell carcinoma.⁶ Luengo et al. also report a case of this association with *Cochliomyia hominivorax* as the agent.¹⁶

DIAGNOSIS AND TREATMENT

An early diagnosis will determine the course and therapeutic conduct to be taken in each case. The clinical features are very decisive and the diagnosis is confirmed with the extraction of the larvae and their identification when possible.

Dermoscopy is an important technique that allows a clearer visualization of the parasite and its respiratory orifice of central location, observing the sign of the bird's feet that correspond to the respiratory spiracle, air bubbles that denote the breathing of the larva, the black spots or spicules, arranged in circles in the posterior and peripheral part that simulate a crown of spines together with serosanguinous secretion.^{17,18}

Ultrasonography and especially color Doppler ultrasonography has been reported in some cases as a useful complementary test.¹⁹

Treatment is based firstly on the removal of the larvae and secondly on the application of topical ivermectin 1%, which paralyzes and kills the larvae. Ivermectin is the most commonly used drug for human infestation. Much of the experience with ivermectin comes from

veterinary experience. It is thought that its use can lead to a migration of the larvae out of the skin, being this drug also used orally with different schemes, one of them being the administration of a single dose of 150 to 200 µg/kg body weight.⁵⁻²⁰

We must not forget the therapy used for a long time, which consists of the application of topical substances that stimulate the larvae to leave the tissues and cavities, such as turpentine oil, chloroform, ether, ethanol and dextrose.²¹

CONCLUSION

Myiasis is a condition that is not so frequently observed in our center and is not usually a reason for daily consultation in urban dermatology. The association of myiasis with herpes zoster and malignant tumors of the skin is a rare occurrence, which is why we thought it would be interesting to publish it.

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