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Penile myiasis: a case report

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We report a case of penile myiasis in a Brazilian man caused by the larva of *Dermatobia hominis*. Myiasis is a parasitic disease of humans and other vertebrates caused by larvae of several fly species. Although urinary myiasis is well recognised, infestation of the genital tissue is a rare occurrence. Once the diagnosis has been made, the treatment is usually straightforward and uncomplicated.

A 21 year old heterosexual man, living in the urban area of São Gonçalo, presented to the sexually transmitted diseases (STD) clinic at the Universidade Federal Fluminense in Niterói, Brazil, complaining of a painful penile lesion. The lesion had started 1 month previously as an itchy and painful small nodule on the glans penis. After a few days, the patient reported that a blood stained serous exudate began to discharge from an opening that had appeared within the lesion. He sought medical assistance at the local health centre as soon as the lesion appeared and was initially treated for presumptive primary syphilis. The patient recalled that, shortly before the appearance of his penile lesion, he had noticed more flies at home than usual. It was his practice to sleep occasionally in the nude and take only quick showers before going to work. He did not have a regular sexual partner and used condoms irregularly with casual female partners.

Examination of his genitalia demonstrated a clearly demarcated hyperaemic area of 1×2 cm adjacent to the urethra (fig 1). The lesion contained a 3 mm diameter orifice from which serohaemorrhagic material could be expressed with compression of the glans penis. Through the orifice, it was possible to observe a larva moving around inside the lesional cavity. It was not possible to determine whether there was one larva or more as manipulation of the glans

penis was very painful for the patient. There was no associated lymphadenopathy.

An attempt was made to prevent the larva from breathing by obstructing the orifice with 10% xylocaine gel which also provided local anaesthesia. Despite waiting for 1 hour, the larva failed to migrate out of the lesion and so an attempt to encourage it to leave the lesion was made by compression of the glans penis. This procedure was very painful for the patient and so he was given a local 0.5 ml subcutaneous injection of 1% lidocaine. To make the procedure easier sterile surgical scissors were used to carefully open the orifice by a further 2 mm. Thereafter, a continuous manual pressure on the gland penis resulted in the expulsion of one larva from the lesional cavity (fig 2). No other larvae were found in the cavity following an examination using sterile surgical tweezers. The cavity was thoroughly cleansed with sterile 0.9% sodium chloride solution and then rifamycin 150 mg/ml was instilled into it. A single oral dose of azithromycin 1 g was administered to prevent secondary infection and the patient received an anti-tetanus immunisation. After 2 weeks, the lesion had almost completely healed. Serological testing for both syphilis (VDRL) and HIV (ELISA) was negative.

Colleagues from the Institute of Biology of the Universidade Federal Fluminense subsequently classified the larva as *Dermatobia hominis*. This species is also known as ver macaque, Berne, el tórsalo, beefworm, and human botfly. The larva measures about 2 cm in length and 0.5 cm in diameter at the most voluminous part of its body. The characteristic spiracles in its tapered posterior are respiratory holes and the mouth is in the larger front part.

DISCUSSION

Myiasis is defined as a disease caused by the infestation of body tissues by larvae of several fly species of veterinary and medical interest. The disease occurs predominantly in rural areas and is associated with poor hygienic practices. Myiasis producers can be divided into three classes; obligate parasites requiring living tissue for larval development, facultative parasites whose larvae usually develop on carrion but may invade wounds, and accidental myiasis producers whose eggs



Figure 1 Glans penis showing the posterior aspect of the larva within the lesional orifice.



Figure 2 Larva of *Dermatobia hominis* following surgical removal from the penile lesion shown in figure 1.

or larvae are accidentally ingested and not killed in the intestine. The fly species that infest healthy tissues are called *biontophage* and are responsible for furunculoid myiasis, the cutaneous form of this condition. Among these species are *Dermatobia hominis* (the most frequent), *Cochliomyia hominivorax*, and *Oestrus ovis*. The larvae that infest necrotic tissues (cavitary myiasis) include those species of the genera *Sarcophaga*, *Lucilia*, *Calliphora*, and *Musca*.

Dermatobia hominis is widely distributed in both South and Central America. The adult fly usually lays its eggs, enclosed in a form of cement, on the surface of foliage or thorax of certain insects, such as day flying mosquitoes and flies. These insects may transfer the eggs of *Dermatobia hominis* to the skin of humans or other new animal hosts via phoresis ("hitchhiking"). The larva hatches from the egg when it senses warmth and is capable of penetrating the human skin within a further 5–10 minutes. There have been several approaches to control of myiasis—for example, *Dermatobia hominis* has been controlled with insecticides including DDT and Toxaphene in Brazil.¹ Based on the knowledge that female flies mate only once, a control programme using male flies, sterilised by radiation, has successfully eradicated *Dermatobia hominis* in Curaçao.¹

In the furunculoid form of the disease, the larvae penetrate the skin leading to the formation of painful, inflammatory nodules that can form fistulae to internal organs or to the surface of the skin. The lesions are usually single and are most common on the head. Ophthalmomyiasis may ensue when eggs are deposited in moist eyelid margins and larvae migrate beneath the conjunctiva from where removal is difficult; in severe cases, loss of the eye can occur. Furunculoid myiasis usually has a good prognosis, although tetanus and secondary infection may occur as complications. Frank suppuration is less commonly seen as a possible result of the bacteriostatic activity of the larval gut.

Examination of the central pore for a typical serous exudate and the characteristic spiracles of the larva provides the diagnosis. The treatment consists of the removal, often surgical, of the whole parasitic larvae and thorough cleansing of the affected area. Furunculoid myiasis is usually treated by the occlusion of the fistula opening with vaseline ointment, nail polish or, as a traditional remedy, pig fat,² making larval respiration impossible. Following the administration of local anaesthesia, gentle compression of the sides of the nodule and the use of surgical tweezers usually results in successful removal of the larvae. It is important to remove the entire larva otherwise the cavity will not heal and can become chronically infected. Afterwards, the cavity should be cleaned and topical/oral antibiotics administered to prevent secondary infection.

Although myiasis is infrequent, many reports can be found in the medical literature.

Often it affects children and occurs in regions other than the genitalia.^{3–7} The published cases of genital myiasis are very few in number and these reports refer to patients of various ages, the youngest being 7 months old.^{8–16}

We found only two case reports of scrotal myiasis following a literature search. The first case occurred in a 48 year old man attending a medical facility in the United States after spending a week in Costa Rica.¹⁷ This patient's scrotum contained two orifices with one larva in each. The second case was a 21 year old man who attended a urology clinic in Turkey with a mass in his scrotal tissue of 3 weeks' duration.¹⁸ Neither the clinical examination nor the ultrasonography elucidated the cause of the problem which was only determined after the surgical removal of the peripheral testicular mass. When the nodular lesion was opened, it was

possible to observe the motile larva inside. In both cases, the larvae were those of the fly *Dermatobia hominis*. We also found a citation from Norway where the authors mention, in a letter, acute balanoposthitis caused by infestation with *Cordylobia anthropophaga*.¹⁹

Genital myiasis should be considered as a differential diagnosis for nodular inflammatory lesions on the genitalia, particularly when patients have returned from tropical countries where myiasis occurs more frequently. Careful history taking and examination of the genitalia may allow correct diagnosis and successful treatment without the need for a tissue biopsy and/or excision of the lesion.

CONTRIBUTORS

The paper was written by MP and DL; MP, RV, GR were involved in the treatment and follow up of the case; NB provided the laboratory expertise; DL took the photograph in figure 1.

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