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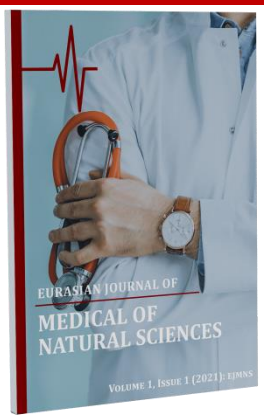

MYIASIS: ETIOLOGY, EPIDEMIOLOGY, CLINIC, TREATMENT, PREVENTION

Saburova Yakutzhan Nurumbetovna
Tashkent, Uzbekistan
Academy of Nursing
The lead teacher of the Department of Therapy
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ABSTRACT

This article presents review data from the literature on various types of myiasis with features of etiology, epidemiology and clinical picture. The main methods of diagnosis, treatment and prevention of myiasis are given. Author gives some examples about results of the myiasis. And also it is informed about types of myiasis.

Myiasis, a noun derived from Greek (mya, or fly), was first proposed by Hope to define diseases of humans caused by dipterous larvae, as opposed to those caused by insect larvae in general. Myiasis has since been defined as the infestation of live vertebrates (humans and/or animals) with dipterous larvae. Recognized in ancient times, flies causing myiasis are still some of the world's most devastating insects, responsible for severe losses in animal husbandry, with significant economic losses, including reduced milk production, weight and fertility issues, and reduced hide quality.

Myiasis are entomotic diseases that are caused by parasitizing fly larvae in the human body. More often than others, the human body is parasitized by the larvae of synanthropic species of flies of the families Muscidae, Calliphoridae, Sarcophagidae (order Diptera, suborder Cyclorrhapha), related in their ecology to humans, and gadflies - grazing species of flies, obligate parasites of warm-blooded animals (families Gasterophilidae, Oestridae, Hypodermatidae). Obligate and facultative myiasis are classified: with obligate myiasis, the larvae develop in the body of warm-blooded animals and humans, with facultative myiasis - on rotting vegetables and meat, in the cavities of the ear and nose (the so-called living foreign bodies) [1; 126–131]. Sometimes accidental myiasis are isolated when the larvae enter the human body with food. Most often, the larvae parasitize under the skin, causing cutaneous myiasis. According to the nature and severity of the course, it is divided into superficial myiasis cutis superficialis and deep myiasis cutis profunda.

The causative agents of superficial myiasis are usually the larvae of flies of the family Calliphoridae and house flies Musca domestica. Flies lay eggs in ulcers, festering wounds and abrasions. The larvae that hatch from the eggs often infest the entire lesion. The process is relatively benign. The larvae of these types of flies cannot digest living tissue and therefore feed only on pus and necrotic tissue, and later completely disappear from the wound and their

further development takes place outside the human body. A more severe course of myiasis is associated with invasion of larvae into the tissue of the conjunctiva, mucous membrane of the nose and ears. Nasal myiasis is usually combined with the presence of atrophic rhinitis, with damage to the nose due to syphilis and leprosy. The smell of pus and decaying tissue attracts flies, and they lay eggs in the rotting wound. With otomiasis, complications such as palatine fistula and meningitis are possible. Cases have been described of Musca domestica larvae crawling from dirty laundry into the urethra, which led to the development of genitourinary myiasis [2; 95–100]. Cases of oral myiasis are quite rare: infection occurs through contaminated hands or when eating food. Symptoms include inflammation and bleeding of the gums, discomfort during chewing, fever, and the development of serious complications if diagnosis is delayed.

Myiasis of the external genitalia deserve special attention: myiasis of the vulva and myiasis of the penis. Due to the short urethra in women, vulvar myiasis is often combined with genitourinary myiasis. Various sexually transmitted infections contribute to the development of this disease: syphilis, trichomoniasis, AIDS. In the absence of timely treatment, the larvae can crawl into the uterus and parasitize it, which subsequently leads to severe endometriosis. Myiasis of the penis also often occurs in tropical countries, especially against the background of sexually transmitted infections and cancer of the penis. Walking without underwear predisposes you to the disease. Differential diagnosis of penile myiasis must be carried out with primary syphilis. If left untreated, complete amputation of the genital organ may be required. With deep myiasis, the larvae penetrate the dermis, subcutaneous fat and even deep tissues. Deep myiasis are much more severe, with symptoms of general intoxication, headaches, and increased body temperature. Among them, a distinction is made between cordylobiasis, endemic to African countries, and dermatobiasis in South American countries. The causative agents of deep miasmas are the larvae of the flies Wohlfortia magnifica, Cordylobia anthropophaga and Dermatobia hominis. The peculiarity of these larvae is that they are able to feed on healthy tissues, which causes their penetration into deeper tissues up to the fascia and periosteum. Cases of ophthalmomyiasis with total destruction of the eyeball by larvae with the development of encephalitis and death have been described. Dermatobia hominis flies usually live in mountain humid tropical rainforests, so they are often found on coffee plantations and cause damage to agriculture. In addition to the development of encephalitis as a complication of myiasis, the independent development of intracerebral myiasis is possible, which can be caused by the larvae of Hypoderma bovis and Dermatobia hominis. As a result of a head injury, traumatic cerebral myiasis can occur, which can also lead to death. The female Dermatobia hominis glues eggs to the body of blood-sucking insects: mosquitoes and horseflies. When these insects attack a person while sucking blood, the larvae are quickly released from the eggs and actively penetrate the skin. In the initial period, their development occurs painlessly. The patient does not even realize that fly larvae are developing under his skin. However, there is such a type of myiasis as linear migratory myiasis: the larvae in this case move under the skin, which is manifested by the presence of migrating subcutaneous tumor-like formations, painful for the patient, often combined with asthenovegetative and toxic-allergic syndromes.

The further course of the disease is characterized by the formation, after a few days, of an inflammatory infiltrate at the site of larval infestation, followed by the formation of an abscess. The abscess is subsequently opened with the release of serous-purulent fluid and the formation of a fistula, which the larva needs for air access. In the abscess cavity, the larva continues to develop and after 1–2 months leaves the human body. Subjective sensations are usually insignificant and are reduced primarily to a moderate feeling of pain at the site of invasion, especially in the adult larval stage.

D. hominis larvae do not have specific localization sites, and they can parasitize on any part of the human body, but most often the larvae are localized on the lower extremities and back, where mosquito and horsefly bites are common.

Treatment of cutaneous myiasis is surgical - removal of the larva. Before the larva matures, no mechanical impact on the lesion is carried out, as this can lead to secondary infection. Treatment begins when the larva is already mature: the holes in the ventilation duct are widened and the larva is carefully removed, gently stretching the skin.

To speed up the process, you can drip sterile oil into the hole. The larva is deprived of access to air and protrudes the end of its body with a breathing apparatus.

After removing the larva, the vacated cavity is washed with any disinfectant solution and an antiseptic bandage is applied. In the presence of secondary infection, antibiotics are indicated, external or systemic, depending on the severity. In recent years, it has been recommended to carry out preventive therapy with ivermectin before surgical treatment, especially with concomitant HIV infection.

In addition, fly larvae can also parasitize the intestines, causing intestinal myiasis, but this occurs only in tropical countries. Cases of infection among residents of temperate countries are rare [5; 323–327].

The larvae enter the body with contaminated food and water. Most often these are fly species Eristalix tenax (Syrphidae), less often other species: Musca domestica (muscidae), Lucilia sp. (Calliphoridae), Piophilia casei (Piophilidae) and others. Ingested fly larvae and eggs travel through the gastrointestinal tract and reach the large intestine. Sometimes a type of intestinal myiasis is identified as rectal myiasis: the larvae can crawl into the distal parts of the intestine through the anus, especially with a low level of hygiene.

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