

Furuncular myiasis in a child caused by *Wohlfahrtia magnifica* (Diptera: Sarcophagidae) associated with eosinophilia

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We report the case of an eight-year-old boy with hypereosinophilia who presented with a swelling under his right armpit that had persisted for more than four weeks. A second-stage larva of *Wohlfahrtia magnifica* was found, leading to the diagnosis of cutaneous myiasis. Following removal of the larva, the clinical and hematological manifestations returned to normal. Diagnosis of myiasis should always be kept in mind in the event of clinical signs of furuncular lesions, which may be accompanied by eosinophilia.

Key words: cutaneous myiasis, *Wohlfahrtia magnifica*, hypereosinophilia.

Myiasis is the infestation of human or animal tissue by the larvae or maggots of dipteran flies. According to the organ that is affected, myiasis is classified as furuncular, wound, gastrointestinal, urogenital, ocular, nasal or auricular^{1,2}. One of the most common forms of human myiasis is furuncular myiasis, which is the result of subcutaneous infestation by fly larvae. *Wohlfahrtia magnifica* is an obligatory myiasis agent, which infests only the living tissue of animals and man. These larvae usually infest the ears, eyes, and nose, as well as healthy or damaged skin. In Turkey, *W. magnifica* has been reported as the cause of otomyiasis, orotracheal myiasis and wound myiasis¹⁻⁴.

In the present study, we report a case of furuncular myiasis caused by *W. magnifica* in a child who presented with significant blood eosinophilia, axilla lymphadenopathy and swelling over the right pectoral muscle.

Case Report

A previously healthy eight-year-old boy living in Tokat (a city in northern Anatolia) presented in February 2006 at our hospital with a history of a swelling under his right armpit that had persisted for more than four weeks. On clinical examination he was found to be alert and hemodynamically stable. He had lymphadenopathies measuring

2 cm in diameter in the axilla region and a swelling extending from the right axilla to the chest. The laboratory examinations showed a white blood cell count of 8,600 cells/mm³ (with an absolute eosinophil count of 5,160 cells/mm³), hemoglobin 12.9 g/dl and platelets 254,000/mm³. The patient had normal serum IgG, IgA, and IgM levels but a high IgE level of 667 IU/ml. Direct parasitological investigations of stool and serological examinations for *Toxocara* sp., *Fasciola hepatica* and *Echinococcus* sp. were all negative. Bone marrow aspirate was normocellular with increased precursor cells of eosinophils. Axilla ultrasonography and computerized tomography of the thorax revealed both multiple lymphadenopathies and subcutaneous edema. On the second day after admission, a solitary furuncle-like lesion nearly 0.5 cm in diameter was seen on the posterior side of his right shoulder. While attempting to extract pus from the lesion a larva was removed from the center of the furuncle and later identified as a second-stage larva of *W. magnifica* (Fig. 1).

Following removal of the larva, the swelling over the right pectoral muscle and the axilla lymphadenopathies regressed rapidly without further treatment. Serum IgE levels gradually decreased to 512 IU/ml, 307 IU/ml, 201 IU/ml



Fig. 1. Second-stage larva of *Wohlfahrtia magnifica* extracted from the skin of the patient.

and 182 IU/ml after 1, 2, and 4 weeks and 2 months, respectively. Absolute eosinophil count decreased to 1,360/mm³ after one week and to 480 cells/mm³ one month later.

Discussion

Myiasis due to *W. magnifica* is very rare in childhood. A few cases of wound⁵, auricular^{4,6-8} and ophthalmomyiasis⁹ have been reported. To our knowledge, this is the first case of furuncular myiasis caused by *W. magnifica* in a child less than 10 years old.

In the Calliphoridae and Sarcophagidae, most species that cause myiasis deposit their eggs or larvae directly onto the host at some predisposing site, such as those caused by wounding, necrosis or bacterial contamination¹⁰. Healthy hosts are much less attractive, even for obligate species such as *W. magnifica*, which can attack healthy tissue. Advanced age, poor social conditions, mental retardation, immobilization, diabetes mellitus, alcoholism, vascular occlusive disease, and infected dermatitis are predisposing factors for cutaneous myiasis^{3,10}. Our patient had no predisposing factor except close contact with dogs in the outdoors. Infestation of mammals such as cows, horses, goats, sheep, pigs and dogs is not uncommon¹¹. It seems probable that the larvae of a fly migrated to our patient while playing with dogs. In furuncular myiasis, a pruritic papule of approximately 2 to 3 mm in diameter develops within 24 hours of initial infestation by the larva. The patient may feel pain caused by the tearing of tissue caused by the feeding and movement of the larva¹².

Only one or a few larvae are usually present in furunculoid whereas many larvae commonly occur in wounds and cavities. Our patient had only one larva and he rapidly healed following its removal. The clinical pattern depends on the species of fly and location of the infestation. Marked inflammatory reactions and secondary bacterial infections, massive destruction and life-threatening outcomes, such as intracranial invasion, can be caused by myiasis. Analysis of tissues exhibiting an inflammatory response to maggot infestation reveals a high concentration of lymphocytes, giant cells, neutrophils, eosinophils and plasma cells¹³.

Helminthic parasites and allergies are the most common cause of eosinophilia, while the association of blood eosinophilia and myiasis is rare. Often, before the parasitic infestation becomes detectable, eosinophils reach a high level and this can result in an incorrect diagnosis¹³. Starr et al.¹⁴ reported the case of an adult patient with cutaneous myiasis suffering from multisystemic discomfort for nine months who was treated for hypereosinophilic syndrome. A case of a 54-year-old man who developed recurrent painful migratory subcutaneous nodules and eosinophilic pleural effusion due to myiasis has also been reported¹⁵. Both cases were due to the larvae of *Hypoderma lineatum*. To our knowledge, there have not been any reported cases of myiasis due to *W. magnifica* accompanied by eosinophilia.

In conclusion, myiasis is diagnosed by finding living fly maggots in various parts of the human body, which could be accompanied by eosinophilia. Clinicians should be more alert to the possibility of myiasis in patients with furuncle-like lesions.

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