

Cutaneous myiasis in a child scalp caused by *Wohlfahrtia Magnifica* (Diptera: sarcophagidae): a case report

Abstract

Background: Myiasis is caused by the invasion of tissues or organs of man or animals by dipterous larvae. A four-year-old girl presented with one month history of scalp ulcer that has initially started as a painful itchy swelling in the occipital region. Physical examination revealed live maggots in the ulcerous wound. The maggots were identified as the third instar larvae of *Wohlfahrtia magnifica*.

Case presentation: The patient presented to the emergency department with larva visualized inside the ulcer by the parents, the clinical examination has revealed a well circumscribed circular lesion in the occipital region of the scalp with a diameter of approximately 4cm, it showed some signs of inflammation with necrotic tissue and many larva's were seen inside the ulcer. The first surgical debridement was done in the second day of admission to the hospital, during this operation a large number of larvae were extracted and larval specimens were identified morphologically as larvae of *Wohlfahrtia magnifica* (Diptera: Sarcophagidae).

Conclusion: To our knowledge, this is the first case of furuncular myiasis caused by *Wohlfahrtia magnifica* in a child in Makkah, Saudi Arabia. Clinicians should be more alert to the possibility of myiasis in patients with furunculoid or boil-like lesions.

Keywords: *Wohlfahrtia magnifica*, cutaneous myiasis, Saudi Arabia

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Introduction

Myiasis occurs as a result of the raid on tissues and organs of man or animals by dipterous larvae. The danger of these larvae in their ability to infect skin, dead tissues and natural cavities of living persons. Myiasis becomes essential if it infects intact skin or secondary if it infects a skin injury. Depending on the degree of parasitism, myiasis may be specific or obligatory (larval stages occur only in the living tissue of human or animal hosts), semi-specific or facultative (larvae of these flies parasitize wounds, living tissues adjacent to the wound and other damaged or decomposed tissues), non-specific or accidental (egg-stage flies are ingested on contaminated food or come in contact with the genitourinary tract).¹ Warm and humid climate areas in various parts of the world considered more prone to the myiasis incidence. Myiasis is the fourth most common travel-associated skin disease and can be divided according to the body's tissues vulnerable. The commonest type as well as the most frequently encountered clinical form is cutaneous myiasis while body cavity myiasis; nasopharyngeal, ocular, aural, gastrointestinal and urogenital are less common.² Referring to cutaneous myiasis, it can be divided into three sections: furuncular, creeping (migratory), and wound (traumatic) myiasis. *Wohlfahrtia magnifica* has been reported as the cause of otomyiasis, orotracheal myiasis and wound myiasis in Turkey.² Many species of flies includes *Dermatobia hominis*, *Cordylobia anthropophaga*, *Wohlfahrtia vigil*, and the *Cuterebra* species can caused a furuncular myiasis while creeping myiasis caused by *Gasterophilus* and *Hypoderma*. In addition, screwworm flies such as *Cochliomyia hominivorax*, *Chrysomya bezziana*, and *Wohlfahrtia magnifica* causing wound myiasis.³

We report the case of cutaneous myiasis in a child scalp caused

by *Wohlfahrtia magnifica* in a four-year-old girl in Saudi Arabia. She is the 11th child for a non-related Mali parents, born at term (home delivery) after an uneventful pregnancy, family history was not significant apart from a very low socioeconomic status.

Case presentation

The patient presented to the emergency department with one month history of scalp ulcer that has initially started as a painful itchy swelling in the occipital region, with larva visualized inside the ulcer by the parents, the clinical examination has revealed a well circumscribed circular lesion in the occipital region of the scalp with a diameter of approximately 4cm, it showed some signs of inflammation with necrotic tissue and many larva's were seen inside the ulcer (Figure 1).



Figure 1 Gross appearance of the bald area on the child scalp with a large ulcer (maggots can be seen within the necrotic tissue).

The first surgical debridement was done in the second day of admission to the hospital, during this operation a large number of larvae were extracted and larval specimens sent for analysis to Parasitology Department, Maternity and Children Hospital, Makkah, Saudi Arabia. Larvae from the wound were identified morphologically as larvae of *Wohlfahrtia magnifica* (Diptera: Sarcophagidae) (Figure 2-6). Dressing with petroleum gel was applied for 24hours. Total of (100) larvae were removed and the wound was dressed locally with povidone-iodine. The cavity was irrigated daily with an antiseptic solution and an analgesic was ordered. Two weeks after the larvae were extracted, the patient was reexamined and healing was their additionally, periodic cleaning of the wound and dressing changes were conducted every other day with gauze wetted with, all her investigations were within normal values, she was discharged home after 14days.

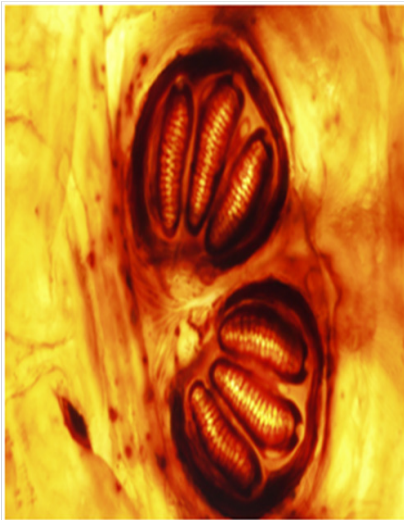


Figure 2 Light microscopic appearance of the posterior spiracular plates diagnostic of *Wohlfahrtia magnifica*. Posterior segment contained the characteristic spiracles, which a chitinous rim. Posterior peritremes are elongated in the dorsal surface of the end somatic segment. The peritremes have three variably shaped peritremal splits, the posterior spiracles were located near each other and each plate was formed of widely opened peritreme.



Figure 3 Gross appearance of full larva (Third instars larva) of the *Wohlfahrtia magnifica* extracted from the ulcer of the patient.

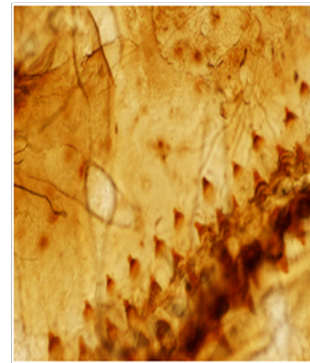


Figure 4A Larva of *Wohlfahrtia magnifica*: abdomen (dorsal aspect) with characteristic spine.

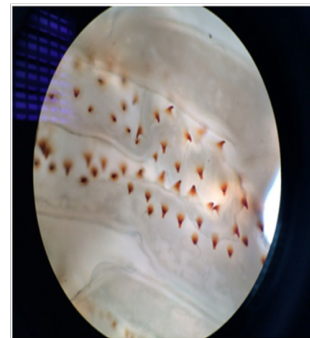


Figure 4B Larva of *Wohlfahrtia magnifica*: abdomen (dorsal aspect) with characteristic spine.

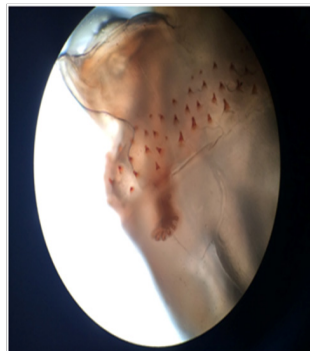


Figure 5 Anterior spiracles of maggots which have five branches.

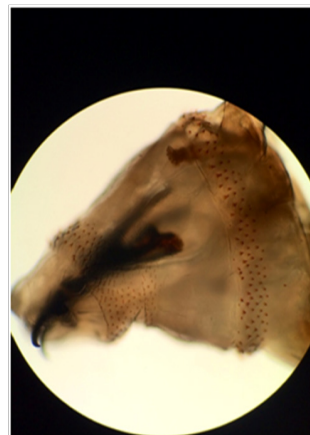


Figure 6 Oral area of *Wohlfahrtia magnifica* larva contained a pair of tooth (Lateral view).

Discussion

Furuncular myiasis is the most common human myiasis forms and occurs as a result of subcutaneous infestation by fly larvae. *Wohlfahrtia magnifica* is an obligatory or specific myiasis whereas larval stages occur only in the living tissue of human or animal hosts. These larvae can raid the ears, eyes, and nose, as well as healthy or damaged skin.⁴ Myiasis due to *Wohlfahrtia magnifica* rarely affects children worldwide. Research shows a few cases of wound^{2,5,6} auricular⁷ and ophthalmomyiasis.⁸ To our knowledge, this is the first case of furuncular myiasis caused by *Wohlfahrtia magnifica* in a child in Makkah, Saudi Arabia.

Most Sarcophagidae species that cause myiasis deposit their eggs or larvae onto the host at some predisposing site, such as wounding, necrosis or bacterial contamination.⁹ Advanced age, poor social conditions, poor personal hygiene, poor general condition, mental retardation, immobilization, diabetes mellitus, alcoholism, vascular occlusive disease, ulcerating lesions, bacterial infection of wounds and infected dermatitis, travel to endemic areas and contact with livestock are predisposing factors for cutaneous myiasis.^{2,10} Inflammation and toxins secreted by the larvae are considered the cause of the harm which prevents healing, progressive and continuous necrosis of skin may occur linked to larval growth and invasion.^{11,12}

Within 24 hours of initial infestation by the larva in furuncular myiasis, a pruritic papule of approximately 2 to 3 mm in diameter develops. The movement and feeding of the larva leading to erosion of tissue consequently the patient may feel pain.⁵ Many of the larvae can be observed in cavities and wounds whereas a few larvae are usually present in furunculoid lesion.⁵ In agreement, our patient had 100 larvae. The clinical pattern depends on the species of fly and location of the infestation. Inflammatory reactions and secondary bacterial infections, extreme tissue damage and life-threatening outcomes, such as intracranial invasion, can be caused by myiasis.⁵

Conclusion

Myiasis is diagnosed by finding living fly maggots in various parts of the human body. Clinicians should be more alert to the possibility of myiasis in patients with furunculoid or boil-like lesions. Prevention and control of myiasis should include strategic planning that recommends basic cleaning and sanitary education programs for the community. Personal initiative terms of reducing predisposing factors are also extremely important in the prevention of this parasite. In addition, prevention of infection may include ironing clothes on

sides, personal cleanliness, avoidance of environmental exposure, and proper treatment of wounds.

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Conflict of interest

The author declares no conflict of interest.

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