

Myiasis

Myiasis is an infection caused by the larvae of certain types of flies, usually affecting the skin but sometimes involving other parts of the body like the eyes, ears, digestive system, or urinary system. The most common form of skin myiasis is called furuncular myiasis, which is mostly caused by the human botfly. This condition is found in tropical and subtropical areas of the Americas. It causes a painful, boil-like bump on the skin, which contains the larvae.

Life Cycle of the Human Botfly

The human botfly (*Dermatobia hominis*) has an interesting life cycle. Instead of laying eggs directly on a host, the female botfly attaches her eggs to a biting insect, like a mosquito. Over about 8 to 9 days, she can lay 100-400 eggs on different mosquitoes. If no insects are available, she might lay eggs on plant leaves, which could then come into contact with a host's skin.

When the mosquito bites a warm-blooded animal, the heat from the skin causes the eggs to hatch. The larvae then enter the skin through the bite or through small openings like hair follicles. Once inside, they form a cyst under the skin, where they stay for 5 to 12 weeks, growing and changing through several stages. This causes a bump on the skin, often resembling a boil, with a small hole at the surface where the larvae breathe. Once fully grown, the larvae leave the host, fall to the ground, and pupate in the soil. The adult botfly then emerges to start the cycle again.

In Africa, a similar condition to human botfly myiasis is caused by tumbu flies (*Cordylobia anthropophaga*). The tumbu fly typically lays its eggs on damp soil or clothing, and when a person comes into contact with these eggs, the larvae can burrow into the skin, causing painful, boil-like lesions (furuncular cutaneous myiasis).

Clinical Presentation

Furuncular cutaneous myiasis causes distinct skin lesions, usually found on exposed areas like the arms, legs, back, or scalp. Within 24 hours of the larvae entering the skin, a small red bump (papule) appears. Over time, the bump grows into a boil-like mass with a small hole in the center (punctum), about 2-3 mm wide, through which the larvae breathe. As the lesion enlarges, it becomes harder (indurated) and may show signs of surrounding inflammation.

The lesion may ooze a watery or pus-like fluid, and you may even see the larvae moving or creating small bubbles through the punctum as they breathe. Symptoms can range from mild itching to sharp, occasional pain, depending on how far along the infestation is and the size of the larvae. The

lesion may stay for weeks, causing slight discomfort until treated, and it will remain until the larvae are removed.

Diagnosis

The diagnosis of furuncular myiasis is mainly based on the appearance of the lesion and its typical features, such as the central punctum and, in some cases, the visible movement of the larvae within the lesion. The lesion often looks like a boil and may release a watery or bloody discharge, which suggests the larvae are active. Usually, a biopsy or direct examination of the larvae is not needed if the clinical signs are clear. However, in more unusual cases, a biopsy or molecular tests can be used to confirm the species of the fly and verify the presence of the larvae.

Treatment Options

Treatment for furuncular cutaneous myiasis focuses on removing the larvae and ensuring the skin heals without complications. Several methods are used, depending on the size and severity of the lesion:

➤ Conservative Methods for Larval Extraction:

- In some areas, traditional methods are used to help the larvae come out of the skin. These methods involve blocking the breathing hole (punctum), which causes the larvae to suffocate and try to escape:
- Substances like petroleum jelly, pork fat, nail polish, chewing gum, or mineral oil are applied to the punctum to encourage the larva to exit.
- Tobacco juice is another traditional remedy thought to help the larvae move out.

➤ Incision and Expressing the Larva:

- A more common and effective method in medical settings is to make a small incision over the punctum. Once the breathing hole is opened, gentle pressure is applied to push the larva out. This method is similar to how cysts are drained and is usually successful, allowing the lesion to heal quickly.

➤ Surgical Excision:

- In cases where the larva cannot be removed using simpler methods, or if there is significant tissue damage or infection, surgery may be needed to remove the lesion. This is usually for more serious cases or when non-invasive treatments do not work.

➤ Post-Treatment Care:

- After the larva is removed, the site typically heals well, leaving a small, dark scar that fades over time. Antibiotic ointments or oral antibiotics may be prescribed if a secondary bacterial infection occurs, but this is rare when the lesion is treated promptly.

Prevention and Public Health Considerations

Preventing furuncular cutaneous myiasis involves avoiding exposure to areas where botflies are common, such as tropical and subtropical regions of Central and South America. Travelers to these areas should take steps to protect themselves from mosquito bites, as mosquitoes are the main way the fly's eggs are spread. To reduce the risk of myiasis, it's important to wear protective clothing and use insect repellents containing DEET or permethrin. These precautions can help prevent the larvae from entering the skin and causing infection.

Conclusion

Furuncular cutaneous myiasis, caused by the larvae of the human botfly (*Dermatobia hominis*), is a parasitic infection that leads to furuncle-like lesions on the skin. This condition is most commonly found in tropical and subtropical regions. While it can be distressing, it is usually treatable with simple methods like making an incision and manually removing the larvae. Early diagnosis and proper treatment are important to avoid complications. Additionally, preventing insect bites in endemic areas by using protective measures is key to reducing the risk of infestation.

References

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