

# Orf

Orf, also known as sheep pox, is a viral zoonotic infection primarily affecting sheep and goats, though it can also be transmitted to humans through direct contact with infected animals or contaminated surfaces. The disease is common in areas where sheep farming is prevalent, and individuals who work closely with livestock, such as farmers, veterinarians, and animal handlers, are at higher risk. Orf is caused by the orf virus, which belongs to the Parapoxvirus genus, along with other viruses like the milker's nodule virus. Although it affects humans, orf is typically a self-limiting condition, meaning it usually resolves on its own without causing long-term complications.

## **Etiology and Pathogenesis**

Orf is caused by a virus that belongs to the Poxviridae family, which includes viruses like smallpox and cowpox. The orf virus is part of a group called Parapoxviruses, which cause infections in both animals and humans. It is resistant to environmental conditions like heat and dryness, so it can survive on surfaces or objects, making it possible for people to get infected through contact with contaminated items.

Humans typically get infected with the orf virus by coming into direct contact with open sores on infected sheep or goats. Although it's less common, the virus can also spread if contaminated objects or surfaces touch broken skin or mucous membranes. When the virus enters through small cuts or abrasions in the skin, it causes a characteristic nodular lesion, usually on the hands, forearms, or face.

As the body reacts to the virus, the lesion develops into a raised area with a red center surrounded by a white ring, which may become painful and ooze. Over time, the lesion dries up, sometimes forming black spots, and eventually forms a crust as it heals. This process usually takes around six weeks, with minimal scarring once it resolves. In some cases, mild symptoms like fever, swollen lymph nodes, pain, and swelling in the affected area may also occur.

## **Clinical Presentation**

Orf typically starts as a single bump or lesion at the site where the virus entered the skin. The lesion goes through several stages of development:

- **Initial Stage:** It begins as a small, raised, red spot (papule).

- **Progressive Stage:** The lesion grows larger, developing a red appearance with a central area that may become necrotic (dead tissue), surrounded by a white ring.
- **Ulcerative Stage:** The lesion becomes weepy, producing fluid. This stage is often painful and may cause local swelling.
- **Resolution Stage:** The lesion starts to dry out, forming a crust with black spots. As it heals, it typically leaves little to no scarring.

If the lesion occurs in areas with hair, like the scalp or beard, temporary hair loss (alopecia) may happen because of the involvement of hair follicles during the healing process.

In most cases, only one lesion develops, but individuals with weakened immune systems may experience larger or multiple lesions. In these cases, medical intervention may be needed to help manage the condition and prevent complications.

## Diagnosis

Orf is typically diagnosed based on the appearance of the lesion and the patient's history of contact with infected livestock. In most cases, the characteristic lesion is enough for a diagnosis, but additional tests can be done if the clinical presentation is unclear or unusual. These tests include:

- **Histopathology:** A biopsy of the lesion can show typical changes caused by the orf virus, such as damage to the skin cells and the presence of large, multinucleated cells.
- **Electron Microscopy:** This method can confirm the presence of the orf virus by examining tissue or fluid samples under a microscope, where the virus appears as large, brick-shaped particles.
- **Polymerase Chain Reaction (PCR):** PCR is a sensitive test that detects viral DNA, helping to confirm the diagnosis when other methods are inconclusive.

## Treatment and Management

Orf usually resolves on its own without the need for specific medical treatment. However, supportive care can help manage symptoms and promote healing. Here are some treatment options that may be recommended:

- **Local Care:** Keep the affected area clean and dry. You can apply moist dressings to soothe the lesion and help it heal. Topical antiseptics like iodine or silver sulfadiazine may be used to prevent secondary bacterial infections.
- **Excisions for Larger Lesions:** In cases where the lesion is large or if the patient is immunocompromised, shave excision may help improve healing and reduce the risk of infection.
- **Antibiotics:** If a secondary bacterial infection, such as cellulitis or paronychia, occurs, antibiotics may be prescribed, such as cephalexin (oral) or mupirocin (topical).

- **Pain Management:** Nonsteroidal anti-inflammatory drugs (NSAIDs) like ibuprofen can help manage pain and reduce inflammation.
- **Immunocompromised Patients:** In more severe cases, especially in immunocompromised individuals, antiviral medications such as cidofovir may be considered, but this requires further research and is not yet standard practice.

The main focus of treatment is to alleviate symptoms and prevent secondary infections, as orf lesions typically heal on their own without the need for specific antiviral medications.

## Prevention

Preventing orf mainly involves minimizing exposure to infected animals, especially for individuals in high-risk occupations like livestock handlers, veterinarians, and farm workers. To reduce the risk of infection, it is important to wear protective gloves and personal protective equipment (PPE) when handling sheep, goats, or any animals showing visible lesions. Good hand hygiene is crucial, as well as avoiding contact with potentially contaminated surfaces or equipment. Taking these precautions can help lower the chances of acquiring the virus and spreading it to others.

## Conclusion

Orf is a viral infection caused by the parapoxvirus, primarily contracted through direct contact with infected sheep or goats. While the disease is generally self-limiting and resolves without long-term complications, managing symptoms is crucial to alleviate pain, prevent secondary infections, and support healing. Advances in diagnostic techniques, such as PCR, have enhanced our ability to accurately identify orf, particularly in unusual cases. The most effective way to prevent orf remains taking occupational precautions, practicing proper hygiene, and minimizing exposure to potentially infected animals.

## References

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