

Orf

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Background

Orf (ecthyma contagiosum, contagious pustular dermatitis) is a viral disease first described in humans in 1934 by Newson and Cross.^[1] It is endemic in sheep and goat herds worldwide but can be found in other ruminants. Orf can be transmitted to humans by contact with an infected animal or contaminated fomites and most commonly occurs on the hands. Orf is frequently seen in ranching communities^[2, 3] and in those who process the animals for consumption. It typically has a self-limited course with spontaneous resolution in 4-8 weeks after progressing through distinct stages. A typical clinical presentation of a reddish weeping nodule of orf located on the thumb is shown in the image below.



An early lesion of orf (papular stage).

Pathophysiology

Orf is caused by infection with the orf virus that belongs to the *Parapoxvirus* genus, which also includes the milker's nodule virus.^[4] *Parapoxvirus* is a member of the family Poxviridae, which are double-stranded DNA viruses known to be the largest of all animal viruses.^[5]

The orf virus is a cylindrical virus measuring 260 X 160 nm. Its surface tubules form a long crisscross design that is seen on negatively stained preparations by electron microscopy. This virus resists physical damage and persists through the winter months on hedges, feeding troughs, fences, harnesses, and barns.^[6] It can remain viable on the wool of animals and on items that remain at room temperature for years.^[7, 8]

The orf virus is able to produce a homolog of anti-inflammatory cytokine, interleukin (IL)-10, which contributes to localized suppression of immunity.^[9, 10] Orf also produces protein that inhibits IL-2 and granulocyte macrophage-colony stimulating factor and a vascular endothelial growth factor homolog.^[11]

Orf is transmitted by direct contact inoculation usually via a wound in the skin. Humans acquire the infection from contact with infected animals, carcasses, or contaminated, nonliving material. Orf is very common among shepherds, veterinary surgeons, and farmers' wives who bottle-feed young lambs, as well as in butchers, cooks, and meat porters from handling infected carcasses. It has been also linked to exposures at petting zoos and livestock shows.^[12]

Autoinoculation to the genital area and face can occur, but human-to-human transmission is rare and there are reports in the literature of five possible cases.^[6, 13] Nosocomial human-to-human was reported in patients on a burn unit.^[14]

Epidemiology

Frequency

The majority of orf infections go unreported because the disease is self-limited and those infected are able to recognize orf and do not seek medical attention.

Race

No racial predilection exists for orf.

Sex

No sexual predilection is reported for orf.

Age

No age predilection is described for orf.

Occupation

Orf is an occupational hazard of ranchers, veterinarians, butchers, shearers, and shepherds.

Religion

Orf has been reported in people who prepare sheep or goats for religious feasts. The most common is the Muslim practice of *Eid ul-Adha*, but also has been reported in Jewish Passover and Christian Easter celebrations.^[15, 16, 17, 18]

Prognosis

The prognosis of orf is excellent. The orf lesions usually heal completely with no scarring in about 35 days (4-8 wk).

Immunocompromised patients with orf can have progressive, destructive lesions requiring medical interventions such as antiviral therapy, reduction of immunosuppression, and surgical debridement. However, reports exist of immunosuppressed individuals with large, fungating lesions that have been refractory to treatment and required amputation.

Mortality from orf has not been reported.

Patient Education

Most patients infected with orf are farmers or people who handle animals; therefore, they are usually familiar with the disease. Those who are unacquainted with this condition must be reassured. They must also be informed that recurrences may occur but generally result in lesions that are less pronounced than the primary infection.

Further information is available for on orf infections in both humans and animals at the CDC Web site.^[19] See Orf Virus (Sore Mouth Infection).

Clinical Presentation

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