

Chapter 10

A VIRAL ZOOONOSIS: ORF

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INTRODUCTION

Orf (ecthyma contagiosum, contagios pustular dermatitis) is a viral disease that was described in humans by Newson and Cross (1). It is endemic in sheep and goat herds. Orf, orf virus belonging to the genus parapoxvirus occurs as a result of infection. Parapoxvirus is a member of the poxvirus family and is the largest of all known animal viruses, the double-stranded DNA virus (2).

EPIDEMIOLOGY

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

No differences were reported in terms of age, gender and race. Farm owners, veterinarians, butchers, slaughterhouse workers and shepherds from occupational groups are in the risk group.

PATHOGENESIS

Orf virus can produce an anti-inflammatory cytokine like interleukin IL-10, which contributes to local suppression of immunity (3, 4). In addition, IL-2 produces a granulocyte macrophage colony stimulating factor inhibitor protein and a vascular endothelial growth factor homologue (5). Orf infections don't produce permanent immunity but subsequent infections tend to be milder and heal quickly.

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TRANSMISSION

It is transmitted to humans through contact with infected animals and their products. Human-to-human transmission is rare and possible cases have been reported in the literature (6,7). It can occur with autoinoculation to the genital area and face. In patients in a burn unit from a hospital-acquired person human transmission has been reported (8).

CLINICAL FINDINGS

The incubation period is 3-7 days, with 95% of cases occurring on the hands (9). The human orf is typically a nodule (solitary) 2-3 cm in diameter. The lesion is commonly localized on the forearm, hand and wrist and rarely on the face. The disease progresses in six clinical stages, each lasting approximately one week. During orf infection, a fever (low grade) may occur within 3-4 days.

Orf has been reported to trigger erythema multiforme in some of cases (10). Systemic symptoms such as lymphadenopathy, erysipelas-like lesions, and erythema occur in one-third of cases (11).

Progressive disease in immunocompromised patients due to HIV, lupus or cancer therapy, symptoms including severe skin and mucosal reactions following infection can be seen (12).

DIAGNOSIS

The nodule is well defined on dermoscopic examination (13). The virus can be definitively detected by polymerase chain reaction (PCR). Detectable antibody response may be present but serological testing is not routinely performed for Orf. Serology, paravaccinia (pseudocowpox) virus cannot distinguish viruses such as parapoxviruses from other parapoxviruses (14).

The histopathology of skin biopsy is of important diagnostic value and tissue culture is an option for sheep cell cultures (15).

DIFFERENTIAL DIAGNOSIS

Froncle, pyoderma, cowpox, pseudocowpox, deep fungal infections, cat-scratch disease, pyogenic granuloma, syphilitic chancre, tularemia, atypical mycobacterial lesions, anthrax, acute febrile neutrophilic dermatosis (sweet syndrome), squamous cell keratoacanthoma, erythema, are included in the differential diagnosis.

COMPLICATIONS

Complications of orf include secondary bacterial infections, regional lymphadenopathy, lymphangitis, erysipelas, erythema multiforme, papulovesicular and bullous pemphigoid-like eruptions. Giant orf, multiple and recurrent lesions may develop in immunocompromised patients. Lesions may not heal or may take longer to heal spontaneously (16). Adverse effects during pregnancy and fetal development have not been reported (17).

TREATMENT

Orf is a self-limiting disease. Finger immobilization, local antiseptics and moist dressings are helpful in symptomatic treatment. Secondary bacterial infections are common. Many studies report successful treatment results with topical imiquimod resulting in rapid regression of lesions (18, 19, 20). Imiquimod is effective in both immunosuppressed and immunocompetent patients. Cidofovir has been found to be effective intravenously and topically (21, 22).

Surgical; may be required for immunosuppressed patients who do not respond to conservative treatments (11). Excision, shaving, dissection, curettage and electrodesiccation, cryotherapy are the methods that can be used.

PREVENTION

An attenuated orf vaccination is recommended for animals every 6-8 months. It is recommended to wear latex gloves or impermeable rubber when handling goats or sheep, especially if a cut or wound is present. Hand wash with warm soapy water for 20 seconds or use an alcohol-free, alcohol-based hand rub when soap is not available (12).

Immunosuppressive or patients with impaired skin integrity such as trauma or skin disease should avoid contact with infected animals as they have an increased susceptibility to infection.

CONCLUSION

Orf is a viral disease that is well known to veterinarians and farmers. Especially, in patients with similar lesions in endemic regions, physicians should consider orf in the differential diagnosis and the details related to the disease should be inquired. Human orf is a benign infection and its diagnosis can be based on clinical findings, easily.

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