A Case Report of Orf Disease in a Greek Island: Diagnostic Tests or Interventions Are Not Necessary

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Abstract

The Orf disease, also known as contagious ecthyma, is a zoonotic infection caused by a dermatotropic parapoxvirus that commonly infects small ruminants such as sheep and goats. It is transmitted to humans through contact with an infected animal or fomites. Human infection typically is associated with occupational animal contact. We recently treated a healthy 41-year-old woman who presented a hangnail lesion on the middle finger of her right hand. The lesion was hard cauliflower-like mass, granulomatous and painful. Surgical debridement and biopsy were performed for further investigation. The Orf disease is usually self-limiting and resolves in 6 - 10 weeks, but complications may occur. The diagnosis may be confirmed by electron microscopy, conventional histopathology or by isolation of the virus by PCR. Early clinical recognition and knowledge of this benign viral condition are vital to avoid unnecessary surgical intervention.

Keywords

Orf Disease, Parapoxvirus, Contagious Ecthyma, Hand, Treatment

1. Introduction

The Orf disease, also known as contagious ecthyma, is a zoonotic infection caused by a dermatotropic DNA virus that belongs to the Parapoxvirus genus of the family Poxviridae that commonly infects small ruminants such as sheep and goats [1]. Orf presents in animals as a pustular dermatitis or a vesicular oral mucosal lesion, and in humans as a single lesion on the site of infection [2]. Orf is transmitted by direct contact inoculation [3]. Hu-
Mans acquire the infection from contact with infected or recently vaccinated animals and/or fomites in conjunc-
tion with skin trauma [4]. Human infection typically is associated with occupational animal contact. At risk are
children after visiting petting zoos and livestock fairs. It also may be observed after the feast of sacrifice in Muslim
countries. However, human-to-human transmission has not been reported [1].

2. Case Report

In September 2012, a 41-year-old Caucasian woman in Lemnos—Greece presented with a rapidly growing
hangnail lesion on the middle finger of her right hand. The lesion was developed during three days, examined
and noted to be 3 × 2 × 1 cm, hard cauliflower-like mass, granulomatous and painful. The lesion was drained,
releasing a small amount of serosanguinous fluid, but no pus (Figure 1). Routine bacterial cultures were nega-
tive. Surgical debridement and biopsy were performed for further investigation. Histopathology indicated in-
flammation of granulation tissue and dermal infiltrate of mixed inflammatory cells. Both pathological study and
patient’s personal medical history, who had contact with ruminants, confirmed the diagnosis of Orf virus infec-
tion.

3. Discussion

Orf is an infection often unknown to practitians throughout the world [5]. The first definition of orf disease and
a published case report was by Newson & Cross in 1934 [6]. In ruminants, the disease is known as “scabby
mouth”, “sore mouth”, or “contagious pustular dermatitis” [7]. Lesions are localized to the buccal mucosa, the
nares, the skin of the muzzle, the teats and udders. In humans [8] orf usually manifests on the hands, but unusual
locations have been described including the nose, scalp, axilla, buttocks, and genitals [3] after a 3 - 7 day incu-
bation period [1]. Lesion development follows a predictable pattern in the course of 6 - 10 weeks [7], with slow
progression through the following stages: 1) papule, 2) vesicle, 3) shallow annular ulcer, 4) scab, and finally 5)
healed skin, with little or no scarring. Most parapoxvirus infections in humans, including orf, are self-limited,
except in immunocompromised hosts [9]. Symptoms include vesicular or necrotic skin lesions, pain, pruritis,
lymphangitis, axillary lymphadenitis, and rarely fever or malaise [10]. Potential complications include erythema
multiform, deforming scars, and secondary bacterial infections [1].

Although the transmission characteristics of orf virus from ruminant to human have not been fully delineated,
inflections tend to occur in the spring and summer months; this is coincident with the principal lambing season.
Young animals are more susceptible to orf virus infection and when ill with orf often require assistance with
feeding (by bottle or tube), which leads to more frequent close contact with their infected oral cavity and muzzle.
In addition, some cases are coincident with vaccination of the herd. Orf virus vaccine is a live, unattenuated
vaccine that is administered to lambs postweaning in approximately 5% of US sheep operations [9]. Therefore, barrier protection (e.g. nonporous gloves) and hand washing during the care of sheep and goats is recommended whenever feasible. These measures are especially important for any person with a compromised immune system or a chronic skin disorder (e.g. eczema) who has contact with overtly infected animals [4].

4. Conclusion

Although orf virus infection is self-limiting in hosts with normal immune systems, it can resemble skin lesions associated with potentially life-threatening zoonotic infections such as herpetic paronychial abscess, milker’s nodules, cowpox, cutaneous anthrax, infection of Mycobacterium marinum, deep fungal infections, pyogenic granulomas, keratoacanthoma and malignant tumours [6]. A confirmatory parapoxvirus diagnosis can prevent unnecessary surgeries and inappropriate antibiotic administration, and evidence suggests that topical imiquimod treatment may hasten the resolution of parapoxvirus infections [7]. The diagnosis may be confirmed by electron microscopy, but is difficult in later stages of the disease, conventional histopathology or by isolation of the virus by PCR [11] [12]. Due to the typical clinical presentation and the self-limited natural course of the Orf disease, all of the above tests and interventions are often unnecessary and should be avoided if possible.

References