Case Report

Orf Mimicking a Venous Ulcer in the Foot

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Abstract

Orf virus is a DNA virus belonging to the parapoxvirus family which is transmitted to humans by zoonotic routes through contact with infected animals. It is a worldwide spreading pathogen that can cause significant financial losses in animal production. Here, we present the case of a 42-year-old man diagnosed with orf but presenting as a venous ulcer in his on the inside of the left foot. He had been caring for his neighbor's sheeps which had been recently ill with "sore mouth." This case draws attention to the fact that orf should be included in the differential diagnosis of patients presenting with foot ulcers.

Keywords: Foot ulcers, orf, parapoxvirus

Introduction

Orf is a viral disease first described in humans by Newson and Cross in 1934. It is also known as ecthyma contagiosum, infectious pustular dermatitis, infectious labial dermatitis, scabby mouth, or mouth sore. It is usually endemic to herds of sheep and goats but can also be found in other ruminant animals. It causes skin lesions on the lips, mouth, ears, eyelids, nostrils and less commonly on the genitals, udders, and feet of infected animals.[1]

Orf is transmitted to humans through direct contact with an infected animal, or less likely, contaminated fomites. Although extremely rare, human-to-human transmission has been reported.[2] Leg ulcers are a result of disruption of microvascular circulation caused by vascular insufficiency, anemia, metabolic disorders, neuropathy, autoimmunities, thrombotic and occlusive disease such as antiphospholipid antibody syndrome, protein C and protein S deficiency.[3] There is no reported study that mimics leg ulcer so far. It is important to be aware of orf in the broad differential diagnosis of leg ulceration.

In this case report, we present a 42-year-old man with an unremarkable medical history who came into contact with an infected lamb and developed a typical ulcerative orf lesion mimicking a venous ulcer in the left pretibial area.

Case Report

A 42-year-old man presented to the dermatology clinic with 3-week history of progressive left lower extremity ulcer. The patient reported the lesion to be asymptomatic and denied fever or chills. No lesions were present elsewhere, and he was otherwise healthy. On verification of his medical history, it was revealed that he used to care for neighbor sheeps and goats occasionally.

Dermatological examination showed an indurated purplish plaque with an overlying 1.5 cm × 1.5 cm partial-thickness ulcer in the left medial leg [Figure 1a]. On the leg, he had minimal lower extremity edema and normal distal pulses. The diagnosis of orf was entertained and a partial shave excision was performed for biopsy. Skin biopsy revealed focal areas of full-thickness epidermal necrosis with ulceration and multilocular subcorneal vesicles [Figure 2a and b].

Antiphospholipid antibodies, antineutrophil cytoplasmic antibodies, and anticyclic citrullinated peptide antibodies were negative. Viral infections such as hepatitis C virus, hepatitis B virus, HIV, cytomegalovirus, and Epstein–Barr virus were also ruled out.

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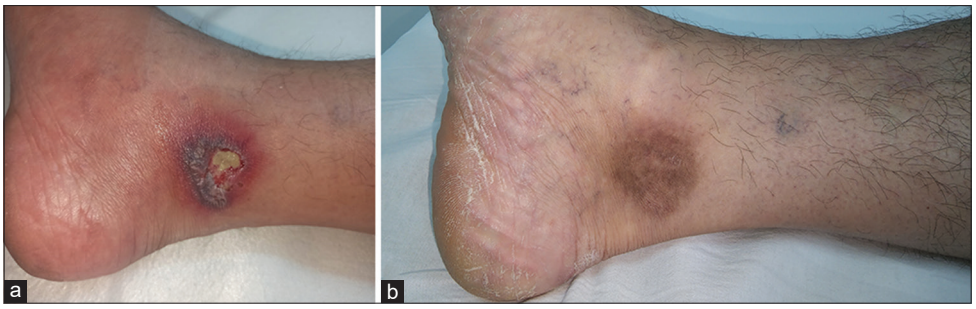

Figure 1: (a) An indurated purplish plaque with an overlying 1.5 cm × 1.5 cm partial-thickness ulcer in the left medial leg, (b) lesion after 6-month followed up, regressed spontaneously, leaving some brown pigmentation

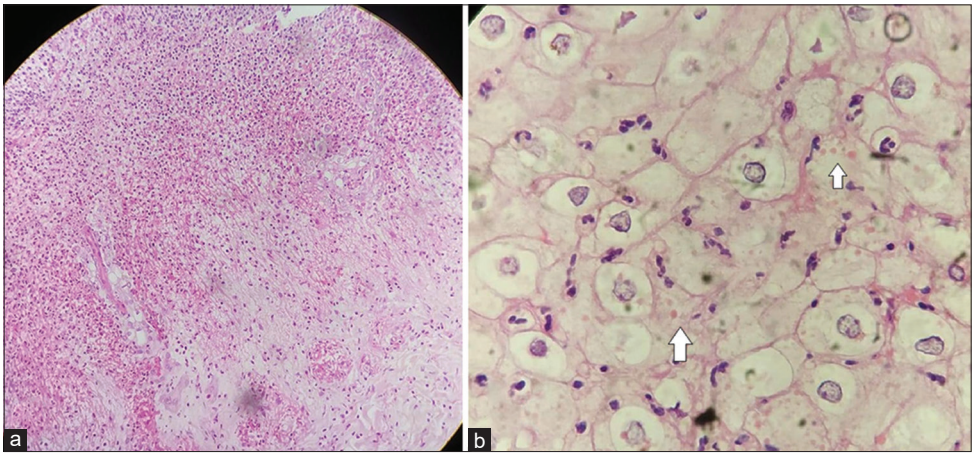

Figure 2: (a) Focal areas of full-thickness epidermal necrosis with ulceration (b) Eosinophilic, intracytoplasmic viral inclusions characteristic of parapoxvirus infection (arrows). Observed in the stratum spinosum layer

Doppler ultrasound of the arteries of the lower extremities revealed normal high-resistance flows and ultrasound of the veins ruled out venous insufficiency.

Therefore, the diagnosis of orf was made based on clinical suspicion. The clinical manifestation of the orf and a personal history of contact with an infected sheep were sufficient to diagnose orf virus infection. The patient was given 2% fusidic acid cream to prevent bacterial superinfection and was followed for several weeks until all the lesion regressed spontaneously, leaving some brown pigmentation [Figure 1b].

Discussion

Orf virus is a member of the poxvirus group and is highly resilient, surviving on barn doors, managers, fences, and cutting equipment during the winter.[2]

The clinical manifestations of orf typically consist of six stages, with each stage lasting about 6 days. The popular stage is characterized by red, raised lesions. A nodule with a red center, a pale central ring, and a red outer ring are characteristic of the active phase. Eventually, the development of a thick crust over the last lesion indicates a regressive stage.[3]

Systemic symptoms of orf are rare; however, cases of erythema multiforme-like rash, bullous lesions, and papulovesicular rash have been reported.[4] Ulceration as a clinical presentation of Orf itself is an atypical phenomenon, but the diagnosis becomes more difficult when it masquerades as a venous leg ulcer.

Leg ulceration is a common condition for which epidemiological data are limited. Some studies show that it is common in 0.18%–2% of the European population, 2% and in 5% of the population over 65 years of age. The majority of leg ulcers are of venous origin and account for 45%–90% of all leg ulcers in the literature.[5] Ulcers are defined as "full-thickness depth" and "slow healing" lesions. In general, it is necessary to remove the underlying pathogenetic factors to achieve healing.[6] The fact that our case was young, the lesion occurred in a short time, and the history of contact with the animal would have excluded the diagnosis of venous ulcer.

In addition, Orf lesion may be similar to keratoacanthoma, granuloma pyogenicum, and giant molluscum contagiosum, which may lead to misdiagnosis. In a literature, a case of amputation was reported as a result of a lesion being confused with malignancy due to its rapid growth.[7] The diagnosis of Orf can make by the clinical history and the appearance of the lesions. Our patient presented in the acute stage, which reveals focal epidermal necrosis, multilocular epidermal vesicle formation, dermal inflammation, and pyknotic keratinocytes. In the final three stages, there were epidermal regeneration and the development of epidermal papillomatous projections into the dermis.

If the diagnosis is in doubt, for the confirmation, it can be made by skin biopsy, virus cell culture, fluorescent antibody, or direct electron microscopy.[2] Polymerase chain reaction (PCR) appears suitable as a diagnostic test for orf in humans, it is an easy and reliable method for genotyping orf virus infections but asymptomatic virus transmission in sheep or goats may complicate veterinary applications of the test.[8]

In our case, PCR study could not be performed to pinpoint the exact nature of the defect because there was no facility.

Due to the benign, self-limiting nature of the disease, it does not need any treatment. Antibiotics and, if desired, warm compresses can be used to prevent superinfection. However, the use of idoxuridine, which causes more rapid and successful regression of lesions, has been reported.[9]

Surgical excision is another alternative with advantages such as prevention of spread and contamination of the lesion and acceleration of healing.[10]

In conclusion, based on the clinical findings, ulcerative orf masqueraded as a venous ulcer in this patient. Given the propensity to form on the lower extremities and its ulcerative appearance, ulcerative orf should be considered in the differential diagnosis of a venous ulcer recalcitrant to standard therapy, an early biopsy sooner would result in appropriate treatment, and perhaps a better outcome.

Research quality and ethics statement

The authors followed applicable EQUATOR Network (https://www.equator-network.org/) guidelines, notably the CARE guideline, during the conduct of this report.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given his consent for his images and other clinical information to be reported in the journal. The patient understands that name and initials will not be published and due efforts will be made to conceal identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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