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Orf followed by erythema multiforme

A 44-year-old part-time farmer presented with a 2-week history of an indolent nodule on the dorsum of his left index finger (fig. 1) and a linear erythema at the medial side of his left upper arm that had developed 2 days before. There was no fever or other general complaints. The lesion first appeared as a small white pustule 7 days after he helped out bottle-feeding lambs on his parents' farm. Some of the lambs showed typical orf lesions.

Upon examination, a tender lymphadenopathy of the left axilla was detected. Culture of needle aspirates and swabs identified no fungi or pathogenic bacteria. Electron microscopy of nodule fluid failed to show parapoxvirus particles. The patient did not agree to a lesional biopsy. Lesional swabs of both patient and lamb subjected to PCR with orf virus-specific primers followed by partial DNA sequencing revealed orf parapoxvirus DNA. With respect to the lymphangitis, which was most likely due to bacterial superinfection, intravenous ceftriaxone, 2 g/day, was started accompanied by local antiseptic dressings.

Seven days later (i.e. on day 17 after the primary orf lesion had occurred) the patient developed disseminated erythema multiforme on the hands, lower arms and legs accompanied by a bilateral conjunctival injection (fig. 2). Histopathology showed vacuolar degeneration of the basal layer and perivascular lymphocytic infiltrates in the upper dermis as typically seen in erythema multiforme. After treatment with class III topical glucocorticosteroids, erythema multiforme lesions started to dissolve within 7 days.

Orf, also known as ecthyma contagiosum or contagious pustular dermatitis, is caused by a double-stranded DNA parapoxvirus that is widespread in sheep and goat populations.¹

In cattle, two genetically distinct parapoxviruses can infect teats (referred to as pseudocowpox, paravaccinia



fig. 1 A central ulceration covered with a yellow crust and surrounded by a white inner ring measuring 1.0 cm in diameter and a 3.0 × 2.0-cm large elevated red halo on the left index finger. The lesion appeared 12 days before as small pustule 5–8 days after bottle-feeding an infected lamb.

virus, or milker's nodule virus) and mouth (referred to as bovine papular stomatitis). When transmitted to humans, these two viruses cause clinical diseases similar to orf virus infections.² Transmission, like in our patient, usually occurs in spring and early summer when lambs are born and humans come in contact with the sore mouth of infected orphaned lambs while bottle-feeding.^{1,3} The virus may also be acquired from contaminated objects such as barbed wires, barn doors, feeding troughs, and shears. In contrast, person-to-person transmission has been described only once.¹ Among shepherds, farm workers, and veterinarians, orf is not unusual. About one-third of those who work with sheep and goats are estimated to become infected at least once.³

Pyoderma, herpetic whitlow, cow pox, pseudocowpox (milker's nodule), cat-scratch disease, anthrax, tularaemia, primary inoculation tuberculosis, atypical mycobacteriosis, syphilitic chancre, sporotrichosis, keratoacanthoma, and



fig. 2 Disseminated and partially confluent erythematous papules and plaques with target formation on the right palm.

pyogenic granuloma must be considered as differential diagnoses.^{1,2} A definite diagnosis is established by electron microscopy or virus isolation.¹ In older lesions such as in our patients, PCR with orf virus- or parapoxvirus-specific primers and DNA sequencing may still allow identification of viral material. In contrast, pseudocowpox (milker's nodule) cannot be differentiated from orf by its clinical appearance or by electron microscopy; it is only the primary source of infection – sheep/goats vs. cows – that distinguishes the two.² PCR assays that differentiate the two viruses are not routinely available yet.

The course of orf can be complicated by secondary bacterial infection, lymphadenopathy, lymphangitis, widespread papulovesicular eruptions of the skin, and erythema multiforme.^{1,2} Our patient suffered from both lymphangitis and, later, erythema multiforme. Orf has been reported to trigger erythema multiforme in 4–13% of cases;^{2,4} however, orf-induced erythema multiforme is not widely known.^{5,6}

Treatment of uncomplicated orf is aimed at preventing secondary bacterial infection; local antiseptic dressings may suffice. Recently, both cidofovir cream and cryotherapy have been successfully used for the treatment of giant orf nodes.^{7,8} In contrast, surgery or treatment with glucocorticosteroids should be avoided.^{1,8,9}

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