Orf: Contagious Pustular Dermatitis

M Nadeem, P Curran, R Cooke, CA Ring, R Cooke
Paediatric Department, Portiuncula Hospital, Ballinasloe, Co Galway
Cork University Maternity Hospital, Wilton, Cork

Abstract
Orf is a common viral infection in sheep. It spreads to humans by direct contact. It is self-limiting, treatment having no beneficial effect. Misdiagnosis of those unfamiliar with its characteristic features is common, and may result in unnecessary treatment with antibiotics or surgery. We present a series of five cases of Orf in children of farmers in the west of Ireland, seen over a 10 year period.

Introduction
Orf is caused by a Parapoxvirus and affects sheep and goats worldwide. It is occasionally transmitted from sheep to humans, and is considered by some to be contagious. In humans, Orf is usually transmitted by direct contact with the virus in conjunction with skin trauma, either trivial or substantial (as in cases 3 and 4).

Case 1
A 7-year-old boy was admitted with a 2 weeks history of 25 mm raised black lesion on his cheek (Figure 1). Full blood count (FBC) and blood culture were normal. Contact with sheep on his family farm was documented, although he had no trauma. While he was ill hospital for treatment for suspected cellulitis, a visiting dermatologist ascertained that the child had a pustule, and made a diagnosis of Orf. None of the attending medical staff had previously seen an Orf lesion in a child. After 5 weeks, the lesion had spontaneously healed.

Case 2
A 9-year-old farm boy was admitted with a 2 cm raised blistering lesion on his wrist and lymphangitis extending to the antecubital fossa. No drainage lymph node was palpable and no skin trauma was present. Routine investigations, including FBC, swab culture, and blood culture were normal. Direct questioning regarding sheep contact revealed that the boy used to collect kindling from trees, against which the lambs used to rub their faces. A clinical diagnosis of Orf was made. Antibiotics were discontinued and the lesions healed spontaneously after 2 months.

Case 3
An 11 year old boy was bitten on his thumb by a pet lamb. One week later he was admitted with a diagnosis of infected abscess and lymphangitis of his forearm. Apart from the skin lesion and palpable auxiliary lymph nodes on the affected side, systemic examination was unremarkable. Investigations including FBC, swab culture, and blood culture were normal. Antibiotics were discontinued after 48 hours, when the lesion was recognised as Orf. Shorty afterwards the child's granny confidently made the correct diagnosis.

Case 4
A 5 year-old farm boy was admitted to the hospital with a suspected abscess on his hand and forearm cellulitis. Five days earlier he had sustained a superficial cut on the palm of his hand while playing at a sheep-watching event. Apart from the skin lesion, systemic examination was unremarkable. No sheep contact had been previously reported. The lesion was transmitted by direct contact with the virus in conjunction with skin trauma, either trivial or substantial (as in cases 3 and 4). Antibiotics were discontinued and the lesion healed spontaneously after 2 months.

Case 5
A 11 year-old farm boy was admitted with a 2 cm raised black lesion on his cheek. Full blood count (FBC) and blood culture were normal. Direct questioning regarding sheep contact revealed that the boy used to collect kindling from trees, against which the lambs used to rub their faces. A clinical diagnosis of Orf was made. Antibiotics were discontinued and the lesion healed spontaneously after 2 months.

Discussion
Orf is caused by a Parapoxvirus which persists through the winter months on farm hedges and fence posts. Scabs form on the lips and nostrils of young animals, spread to ewes and others, and can cause failure to suckle. Animals can become reinfected. However subsequent infections are milder. The incidence and prevalence of Orf in humans is unknown. The incubation period generally reported as 3-6 days, but can be longer. The disease is endemic in most countries worldwide. No deaths in humans have been reported. All five cases in our report were male. The reasons for this are unknown, and may be because of playing habits of boys in the area. No sex predilection has previously been reported. Orf is transmitted by direct contact with the virus in conjunction with skin trauma, either trivial or substantial (as in cases 3 and 4) and is associated with the skin trauma. In the current study, skin trauma had been documented in two out of five cases. Therefore wearing gloves and hand washing during the care of sheep and goats is important. No human-to-human transmission had been documented. In humans, recurrent infection has been documented in 25% of cases.

Orf spreads through 6 stages, each lasting up to 1 week. These stages are: maculopapular, target bulla, acce wounding nodules, papillomatous and regressive stage. The typical lesion, which heals spontaneously in 3-6 weeks, is a 2-3 mm, firm, red papule with a surrounding 2-3 mm white halo and often tender and bleeds easily. Low grade fever may occur for few days. Orf can be misdiagnosed as pyogenic granuloma, abscess, cutaneous anthrax, and malignant melanoma. Complications include secondary infection, erythema multiforme, local involvement, growth to a giant size and generalised papuloverrucous eruption. Fungal lesions. Diagnosis may be aided by biopsy or fluid aspiration of a lesion. Electron microscopy will reveal typical virus particles. Real-time PCR, not readily available, is very sensitive.

Although Orf is a self-limiting disease, symptomatic treatment with mild dressings, and local antibiotics may be helpful. Topical or systemic antibiotics are reserved for secondary bacterial infection. Cefotaxin cream and topical imiquimod are helpful in complicated cases. Surgical treatment may be helpful in persistent lesions and cryotherapy (liquid nitrogen) may speed up the recovery process. Immunocompromised children may need prophylactic antibiotics, surgical debridement and antiviral therapy may be required. Control measures include ensuring general cleanliness of animal housing areas, providing vaccine for farm animals such as sheep and lambs, and use of gloves and footwear by farm workers. In the current study, all children initially were hospitalised and treated with antibiotics. This is because of lack of recognition of the Orf lesions. In 2 of the 5 cases the correct diagnosis was made with help from lay persons. Two out of five children had evidence of lymphangitis, a known complication of Orf.

References
8. BMJ 2005;335:11-12
9. Paediatric Department, Portiuncula Hospital, Ballinasloe, Co Galway

Correspondence: K Connolly, E-mail: Kevin.Connolly@hse.ie


