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Severe cutaneous neoforations in animals caused by co-infection of orf virus and orthopoxvirus: A possible zoonosis?

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Background: Parapoxvirus - ORF virus (ORFV) is the etiological agent of contagious ecthyma, a zoonotic disease of small ruminants. Lesions are characterized by pustules and neoforations on the skin of the lips, tongue and mouth. Man can become infected by contact with animals. Lesions are observed in the skin of the hands. *Orthopoxvirus* has been associated with disease in domestic and wild animals. Little is reported on co-infection with other viruses. The authors describe a case of skin proliferative lesions in goats caused by ORFV and *Orthopoxvirus*. The presence of similar lesions in farmer's hands was also observed.

Methods & Materials: The authors observed lesions in ears, face and perineum in 4 month old kids. The farmer showed similar proliferative lesions in the dorsal part of the hands. Biopsies were collected by goats for histopathological and virological investigations (virus isolation, PCR, electron microscopy). Biomolecular methods were used for diagnosis of *Parapoxvirus*, *Orthopoxvirus* and *Papillomavirus*. Positive products of *Orthopoxvirus* PCR were used as templates in automated sequencing reaction. Obtained sequences were compared with sequences available on GenBank. Cell culture assays on Fetal Ovine Testis and inoculation of specific pathogen free (SPF) embryonated chicken eggs were carried out to test the infectivity both *Parapoxvirus* and *Orthopoxvirus*.

Results: Anatomic-pathological examination showed the involvement of skin and subcutaneous tissue. Ulcero-vesiculo-pustulo-proliferative lesions were observed. Hyperkeratosis, hyperplasia, acanthosis and ballooning degeneration were the main lesions observed in the epidermis. Diffuse non suppurative chronic infiltrate was detected in the dermis. Blood vessels were seen in the superficial dermis. Cell culture and SPF egg were negative. PCR for *Papillomavirus* was negative. Electron microscopy showed the presence of ORFV. PCR revealed the presence of *Parapoxvirus* and *Orthopoxvirus*. Phylogenetic analysis of *Orthopoxvirus* assigned the samples to *vaccinia virus* species.

Conclusion: Results show that the so-called "skin papillomatosis lesions" can be the results of virus co-infections. We demonstrated in our samples both *Parapoxvirus* and *Orthopoxvirus*. Further investigations should be lead to understand the mechanism of the presence of both Poxvirus. These results suggest to study

the skin lesions in humans in order to clarify the role of different epitheliotropic viruses.

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Integrated management of a human campylobacteriosis outbreak in South Tyrol, Italy

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Background: Campylobacteriosis is a prevalent foodborne disease in industrialized nations and is considered a major public health concern. In South-Tyrol (Italy), according to EFSA data, human campylobacteriosis increased from 2011 to 2012 of 13%, although data remain underestimated.

Although there are more than 20 different *Campylobacter* strains, *C.jejuni* and *C.coli* are the most important species associated with infections in humans.

Campylobacter spp. are capable of zoonotic transfer through the faecal-oral route. The main environmental niche is considered to be intestinal tract of fowl; thus consumption of undercooked poultry meat is considered a major risk factor for sporadic infections. Contrarily consumption of raw milk has been the most important source of campylobacteriosis outbreaks in the last 15 years. *Campylobacter* spp. may be present in raw milk contaminated with feces during the milking process or due to udder infection by *Campylobacter*.

Methods & Materials: During August 2013 symptoms referable to campylobacteriosis were described in 4 people in South-Tyrol. Laboratory diagnosis confirmed *Campylobacter* spp. in feces of 1 of those affected. As the consumption of raw milk has been supposed to be a common risk factor, the case has been reported to the Local Veterinary Service, which together with laboratory IZSVE-BZ, investigated outbreak's source.

Bulk tank milk samples, individual milk samples and feces from the 33 lactating cows, and environmental swabs of the milking parlour were collected.

Microbiology: Milk according to ISO10272-1:2006, feces to an in-house method, swabs to ISO18593:2004.

Molecular-biology: *Campylobacter* spp. was typed by PCR in-house method.