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Evidence of Equine Viral Arteritis (EVA) infection in horses of Serbia

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Equine arteritis virus (EAV) is the causative agent of equine viral arteritis (EVA) and one of the major viral pathogens of horses. EAV is an Arterivirus belonging to the Arteriviridae family in the order Nidovirales. EVA is a respiratory and reproductive disease of horses that occurs worldwide. The vast majority of EAV infections are subclinical, but acutely infected animals may develop a wide range of clinical signs including pyrexia, depression, edema, conjunctivitis and respiratory distress. The direct consequences of EVA outbreaks are financial losses mainly due to abortions of pregnant mares and death of young foals. Following primary EAV infection, up to 70% of the stallions will carry the virus in their reproductive tract sometimes for years and will shed the virus in their semen. Several studies have shown that EAV infection has occurred among horses in North and South America, Europe, Australia, Africa, and Asia. Interestingly, EAV infection prevalence in horses varies between countries and horse breeds. In order to determine equine viral arteritis (EVA) prevalence among the 5000 horses housed in the Vojvodina region of Serbia, 429 sera from non-vaccinated horses have been collected. Serological analysis of equine sera, collected from 2013 and 2014, was performed using virus neutralization test (VNT) as described by the World Organization of Animal Health (OIE). So far sera of 156 horses coming from 10 different stud-farms of the Vojvodina region have been tested. The population tested was composed 86 stallions, aged between 1 and 26 year old, and 70 mares ranged from 1 year old to 23 year old. The mean age of the population tested was 9,9 year old. Our preliminary results indicated that 121 sera were negative (77,60%), thirty three were detected positive (21,15%), two sera were cytotoxic (1,25%). Among the positive sera fifteen (45,45%) exhibit an antibody titer range from 4 to 16, ten (30,30%) sera exhibited a titer ranged from 24 to 96 and eight (24,24%) sera had a titer above 128. Moreover, 9 out of 10 stud farms that have been included in this survey exhibited positive horses for EAV showing that EAV is circulating in the horse population kept in the Vojvodina region. So far, only one seropositive stallion has been found positive for the presence of the virus in his semen. Phylogenetic analysis performed on the 3 kb sequence encoding the structural proteins of the virus shows that this isolate seems different from those described in the literature so far.

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Occurrence of multiple abortions due to *Salmonella enterica* serovar *abortus equi* infection

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Salmonella enterica serovar *abortus equi* (*S. abortus equi*) is a host-adapted organism known to cause abortion in mares and other clinical syndromes in foals. Re-emergence of *S. abortus*

equi was identified in Argentina in 2011. Since then several outbreaks of abortion associated with this bacterium had been detected. This study describes the features of an extensive abortion outbreak caused by *S. abortus equi* infection in a polo pony breeding farm located in Buenos Aires province, Argentina. The population at risk consisted of 120 pregnant mares managed in three groups (40 mare/group). They had unrestricted access to pasture. Even though the vaccination program included vaccines against Equine Herpesvirus 1 (EHV-1) and *Rhodococcus equi*, it did not contemplate *S. abortus equi* bacterin. The outbreak of *S. abortus equi* abortion occurred among recipient mares derived from five different embryo transfer centers, with an index case reported on April 4 and the last registered case so far was on July 27, 2015. Abortions took place with no premonitory clinical signs, and the resulting attack rate was 24.2% (29/120 pregnant mares aborted). Nine aborted fetuses and placentas were submitted for necropsy and laboratory diagnosis. Samples from lung, thymus, spleen, liver and placenta resulted negative for Equine Herpesviruses (EHV-1 and EHV-4) and Equine Arteritis Virus by virus isolation and polymerase chain reaction (PCR) in all cases. However, a gram-negative motile bacterium sensitive to a broad range of antibiotics was isolated in pure culture from several tissues collected from all fetuses, and subsequently identified as *S. abortus equi* (4,12: - : e, n, x). Serological diagnosis of *S. abortus equi* was performed in all in-foal mares, and those that showed high antibody titers were treated with Sulfamethoxazol-Trimethoprim (25mg/kg, q12h for 30 days). In addition, in-foal mares were segregated into smaller groups (≤ 15 mares/group) according to their age of gestation, and were vaccinated with a commercial *S. abortus equi* vaccine (two boosters with a 21-day interval) followed by two additional boosters using an autogenous *S. abortus equi* bacterin. Even though two new cases of abortion occurred right after the treatment was implemented, the outbreak was successfully controlled and no additional cases were reported. The source of the outbreak could not be elucidated due to the diverse origin of the animals and to the absence of reported cases from other farms linked to the affected premise. However, occurrence of *S. abortus equi* associated abortions was reported in other nearby locations. In light of this, a greater awareness of *S. abortus equi* infection as a potential cause of widespread abortions is required among equine practitioners and breeders. Thus, breeding farms need to take into consideration appropriate biosecurity and preventive measures to reduce the risk of abortion outbreaks caused by this agent.

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***Salmonella enterica* serovar *Abortusequi* as an emergent pathogen causing equine abortion in Argentina**

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Salmonellosis is an infectious disease that affects humans, mammals, reptiles and poultry. It is produced by *Salmonella* spp. which is a gramnegative bacillus of 0.7-1.5 x 2-5 μ m, facultative anaerobes and nonsporulating. *Salmonella enterica* serovar *Abortusequi* (*Salmonella* *Abortusequi*) is a serovar adapted to the host producing abortion in mares. If the animals do not abort,