MONITORING OF PSEUDOTUBERCULOSIS IN AN ITALIAN POPULATION OF ALPINE CHAMOIS (*Rupicapra r. rupicapra*): PRELIMINARY RESULTS

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Caseous lymphadenitis (CLA) of sheep and goats is a chronic and often sub-clinical disease, with high prevalence in different parts of the world, which can caused significant economic losses for farmers. The causative agent is *Corynebacterium pseudotuberculosis*, a gram-positive facultatively anaerobic rod resembling a coccus; primarily infects domestic small ruminants, but it has been isolated also in wildlife such as pronghorns (*Antilocapra americana*) and elk (*Cervus elaphus canadensis*). Furthermore, a recent research has demonstrated a maintenance of the infection on an endemic level in a Spanish ibex (*Capra pyrenaica hispanica*) population after an outbreak with high morbility and mortality. The typical clinical manifestation is lymph node abscess that may fistulise and discharge pus contaminating the environment where can survive for months in faeces, fomites, and the soil; then the infection occurs through oral, nasal and ocular mucosa or skin wounds. Infected subjects with the sub-clinical form can also shed bacteria through respiratory tract and mechanical vectors such as flies. Human infection is a rare event and most of the reported cases have been related to occupational exposure and ingestion of raw meat and milk. Wildlife-livestock interfaces are dynamic and bidirectional and pathogens could be transmitted freely within and between the two species. Focusing attention on the Alps, the environment is probably one of the most valuable ecosystem, with a tricky balance.

The study area is the Alpine hunting district located in Vercelli province (formerly named C.A. VC1), with an extent of 77.668 ha, of which 51.182 ha are used for hunting. There are stable populations of chamois, roe deer (*Capreolus capreolus*), red deer (*Cervus elaphus*), mouflon (*Ovis musimon*) and ibex (*Capra i. ibex*). Wild boar (*Sus scrofa*) is widespread, in particular in pre-alpine territories, and several flocks are present, in fact the province is famous for wool production. Bovids and cervids hunting is based on the selective cull method which provides the assignment of determined species, age class and sex to each hunter based on previous census, hunters can shot their heads in about two and half months. The study was carried out during 2016 hunting season, between September and December and performed on hunted chamois. A macroscopic examination of each carcass has been conducted at the Control Centre, where each hunter had to bring the chamois after culling for the control by a veterinarian. Hunters collected post-mortem-blood samples via jugular or heart clot from their own bag and leaded up to the Control Centre where serum is obtained by centrifugation and stored at -20°C until further processing. A commercial enzyme-linked immunosorbent assay (ELISA) kit (ELITEST CLA, HYPHEN BioMed, France) has been used to detect antibodies (IgG) anti-PLD (Corynebacterium pseudotuberculosis phospholipase D). Results have been expressed as OD after reading the plates at 450 nm in an ELISA plate reader. The aim of this monitoring is to confirm the circulation of *C. pseudotuberculosis* in the chamois population as suspected on the basis of the finding of several chamois with characteristic lesions during previous hunting seasons and to identify risk factors for the infection and the development of clinical signs of disease.

196 chamois have been hunted in 2016 hunting season, a total of 34 sera have been processed (1 kid, 7 yearlings, 17 adult males, 9 adult females) showing a seroprevalence of 8.82% (c.i. 95% 0.0-18.26). One yearling female and two adult females resulted seropositive; at the macroscopic examination the two adults had showed typical lymph node abscesses in abdominal region and the oldest was underweight and presented typical dermatophylosis lesions. Furthermore, a 4-year-old male showed a grey zone OD. The four chamois have been hunted in different area of the C.A.

The results of this first year survey on the territory are to be considered as preliminary, the starting point for a data collection that can become a historical series that could give useful management guidance in the near future. Sampling, in fact, is not sufficient to draw conclusions of any kind, either as sampling volumes or from the point of view of time. In spite of this, it can be safely stated that the first results obtained confirm the circulation of *C. pseudotuberculosis*, together with the pathological and bacteriological diagnoses of previous years. The fact that a yearling seropositive has been found without any lesions found is evidence of the current circulation of the pathogen as this subject has come into contact with the infection during the previous year.

We have to consider these preliminary results as the first step in the creation of a serological database of this population, for this reason the importance of continuing monitoring is evident in order to determine the actual impact on the population, the possible risk factors involved in the onset of clinical symptomatology and the level of endemic disease. Considering the role of goats and sheep in the transmission of the disease, the next step would be the planning of monitoring also in flocks sharing pastures with wildlife to verify whether or not there is a continuous spill-over of new strains from domestics and to understand the possible impact of the wildlife-livestock interface.