HEALTH STATUS CONTROL OF WILD BOARS IN THE HUNTING AREA OF VOJVODINA REGION

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Original scientific paper

Abstract: In Vojvodina region a certain number of wild boars is controlled and reared in an enclosed hunting ground while the number of free-ranging population is mainly unknown. One of the characteristics of outdoor swine production is raising free-roaming domestic pigs, where they share forest habitat with wild boars. The aim of the research was health status control of wild boars population in the hunting area of Vojvodina region. The applied research methods included: epizootiological analysis, pathomorphological examination of dead wild boars and laboratory testing in order to detect the infection with the classical swine fever virus (CSFV) and infection with Brucella sp. In order to diagnose diseases, the pathomorphological examination of 35 carcasses of shot or diseased animals was performed. Patomorphological examination revealed that health problems in wild boars were mainly associated with parasitic infections and bacterial infections of the lungs. In examined organs and tissue samples deriving from dead and shot wild boars the presence of CSFV was not detected. By serological testing, the antibodies against Brucella sp. in 7 samples were detected. The achieved results suggest that the presented way of control should be intensified in future in order to acquire complete insight in health status of wild boars. Our study underlines the importance of improving surveillance strategies for pathogens shared between wildlife and domestic animals and the need to increase disease awareness of farmers and veterinary practitioners.

Keywords: health status control, wild boars

Introduction

Wild boar (Sus scrofa scrofa) numbers have dramatically increased in European countries over the past 60 years and the species shows a more widespread distribution (Artois et al., 2002). The parallel increase of outdoor piggeries has led to a higher risk of contacts, and thus of disease transmission
between wild boars and domestic pigs (Prodanov et al., 2009; Wu et al., 2011). The overabundance of wildlife, recognized as a relevant risk factor for disease transmission between wildlife and domestic animals, compromises the health surveillance programs carried out both populations (Gregoire et al., 2012). Knowledge of diseases circulating in wildlife populations can be important not only for conservation and livestock production but also for public health (Ruiz-Fons et al., 2008). The aim of the research was health status control of wild boars population in the hunting area of Vojvodina region.

**Material and Methods**

The material for this research included wild boars in hunting areas of Vojvodina region. The applied research methods included: anamnestical and epizootiological data analysis, pathomorphological examination of shot, diseased or dead wild boars (in total 35 carcasses). Laboratory testing of tissue and blood samples in order to detect the infection with the classical swine fever virus (CSFV) (ELISA test and RT-PCR) and infection with Brucella sp. (Rose Bengal Test, Complement Fixation Test and cELISA test) were performed. Standard bacteriological laboratory testing included detection the presence of aerobic and anaerobic bacteria in the tissue samples. Beside this, each animal was throughly analysed for the presence of helminths (parasitological testing). Lung, digestive tract, liver, gall-bladder and renal pelvis were examined with routine techniques for the detection of helminth parasites. A coprological analysis was carried out with faecal material extracted from the rectum of each animal after necropsy by zinc sulfate flotation and sedimentation.

**Results and Discussion**

In cooperation with the hunting societies and local veterinary service gathering of sera samples of hunted wild boars was organised. Serological examination in year 2009 on the presence of specific antibodies against CSFV (ELISA test) comprised only 259 blood samples obtained from wild boars in the hunting area of Vojvodina region and it revealed negative result. In year 2010 the serological control of CSFV antibodies in wild boars population included significantly larger number of animals i.e in total 471 tissue samples and 455 blood samples were examined. From examined blood samples, in 36 positive result i.e the presence of specific antibodies against CSFV was detected. However, applying RT-PCR analysis the presence of viral genome was not established in tissue samples deriving from shot wild boars. Applying epizootiologival evaluation, it
was discovered that only 25 examined sera samples were from wild boars vaccinated against CSF in the past. The epizootiological and serological active control of the CSFV presence in wild boars population in Vojvodina region was even more intensified during years 2011-2012. In total 2038 samples were examined: 996 sera samples and 1042 tissue samples (spleen, lympho node, kidney). Once again, in 33 sera samples the presence of CSFV specific antibodies was detected. By epizootiological evaluation, it was discovered that during 2009-2010 year in some of the hunting grounds vaccination against CSFV was applied, with modified live (China strain) vaccine. This could explain the presence of specific antibodies against CSF virus in examined sera samples. However, the results of the epizootiological questionnaire indicated that CSFV may be present in hunting grounds in the region of Danube river, implying that the wild boars population represents also a source of infection with CSFV (Prodanov et al., 2009; Maljković et al., 2010).

CSFV circulates among the wild boar populations of Central and Eastern Europe but most of Western Europe is considered to be CSF-free (Artois et al., 2002). Epidemiological links between CSFV infections in wild boars and domestic pigs have been repeatedly reported, mainly in Germany. In countries members of the European Union, vaccination against CSF is not permitted and the stamping out policy is conducted in case of an outbreak (Ruiz-Fons et al., 2008). Our country is among small number of countries that still perform vaccination in pigs with conventional (China strain) vaccines.

In 7 samples deriving from shot wild boars from one hunting area the presence of antibodies against Brucella sp. was detected, demonstrating the circulation of this bacteria amongst wild boar population. Seropositive wild boars in enclosed hunting ground represent a significant health problem both for hunters and for consumers of meat and for the population of domestic pigs.

Swine brucellosis (Brucella suis biovar 2), is one of the most important endemic diseases in the wild boar populations in Central Europe (Bergagna et al., 2009). In wild boar, B. suis is transmitted mainly by the veneral route (mating) and may be inapparent among living animals. Furthermore, metritis can easily be overlooked at slaughter, and infections are not always associated to pathological changes. Intrusions of wild boar and mating with domestic sows have been documented in France, Germany, Sardinia and Switzerland and numerous populations of hybrids are established (Wu et al., 2012). Avoiding close contact between wild boars and domestic animals is therefore of logical importance in disease control and eradication programmes (Ruiz-Fons et al., 2008; Wu et al., 2011).

In Vojvodina region a certain number of wild boars is controlled and reared in an enclosed hunting ground while the number of free-ranging population is mainly
unknown. One of the characteristics of outdoor swine production is raising free-roaming domestic pigs, what enables their interaction with wild boar population because they share forest habitat with wild boars (Prodanov et al., 2009; Prodanov-Radulović et al., 2010). Having in mind this fact, the special attention should be given to active surveillance of wild boars population in the areas where close contact with domestic swine is possible. The recent isolation of B. suis biovar 3 from pigs, wild boar and horses in Croatia shows the emergence of zoonotic biovars in Europe. Translocation of wild boar for breeding or hunting purposes increases the risk of spreading of zoonotic brucellosis throughout Europe. It remains important to biotype Brucella strains isolated from wildlife in surveillance programs throughout Europe (Gregoire et al., 2012).

As part of health control program of clinically diseased wild boars shot by hunters, pathoanatomical examination of trunci and internal organs deriving from 35 wild boars was performed. The pathomorphological examination of clinically suspected i.e. diseased animals (emaciated wild boars, slow gait, lagging behind the pack, dispnoea, nasal discharge, shrunken eyes and tough dry hair), shot by hunters revealed changes dominantly in the respiratory tract: purulent nasal discharge, effervescent content in bronchi and bronchioles, mixed with a large number of lung worms, which were like mucoid plugs filling the respiratory pathways. All lobes of the lungs were diffusely swollen, edematous and reddened with marginal emphysema and consolidation. A large amount of clear, foamy fluid and numerous slender, white nematodes 4-7 cm long were visible in the trachea and bronchial trees. The presence of lung worms (Metastrongylus spp.) in the trachea, bronchi and in posteroventral parts of the diaphragmatic lobes were detected. Applying parasitological control of the faecal material extracted from the rectum the presence of the several parasites was discovered: Trichuris suis, Oesophagostomum sp. i Hyostrongylus sp. By standard bacteriological testing on tissue samples (lungs, lympho nodes, liver, spleen, kyndes) the following bacteria was detected: Actinobacillus pleuropneumoniae, Streptococcus alfa haemolyticus, Streptococcus beta haemolyticus, Pasteurella multocida.

Lungworms are often encountered as highly prevalent helminthes in wild boars (Prodanov-Radulović et al., 2011; Senlik et al., 2011). In Europe, these parasites have a high prevalence, affecting more than 80% of pigs created in extensive system and considered one of the main causes of respiratory changes of these animals (da Silva et al., 2013). Similarly, a high prevalence rate of metastrongylids was also recorded in the present study. This result might be explained by the wide geographical distribution of different earthworm species, which form part of the diet of wild boars and act as intermediate hosts for these parasites (Senlik et al., 2011). Lung parasites of the genus Metastrongylus are considered one of the most important selective factors acting on wild boar
population, increasing the mortality of weaker young and adult animals because they may cause dyspnea, bronchopneumonia, and permanent weight loss in addition to inflicting tissue damages which allow opportunistic infections of viruses and bacteria (da Silva et al., 2013). Despite the limited number of wild boars examined, our study suggests these species are common and enzootic in wild boars in Vojvodina region.

**Conclusion**

Patomorphological examination carcasses of shot, found dead or diseased animals shoth by hunters originating from different hunting areas of Vojvodina revealed that health problems in wild boars were mainly associated with parasitic infections and bacterial infections of the lungs. In conclusion, the achieved results suggest that the presented way of control should be intensified in future in order to acquire complete insight in health status of wild boars. Our study underlines the importance of improving surveillance strategies for pathogens shared between wildlife and domestic animals and the need to increase disease awareness of hunters, farmers and veterinary practitioners.

**Acknowledgment**

This paper is a result of the research within the project TR 31084 “Wild animal health monitoring and introduction of new biotechnology procedures in detection of infectious and zoonotic agents – risk analysis for human health, domestic and wild animal health and for environmental contamination”, financed by the Ministry of Education, Science and Technological Development, Republic of Serbia.

**Kontrola zdravstvenog statusa divljih svinja u lovištima regiona Vojvodine**

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**Rezime**

U regionu Vojvodine određeni broj divljih svinja se kontrolisano odgaja u ograđenim lovištima dok je tačan broj jedinki u slobodnim staništima uglavnom nepoznat. Sa druge strane, jedna od karakteristika ekstenzivnog uzgoja domaćih svinja u pojedinim regijama jeste pašnjački način gajenja, gde one dele stanište i
dolaze u neposredan kontakt sa divljim svinjama. Cilj rada je bio ispitivanje zdravstvenog statusa populacije divljih svinja u lovištima na području Vojvodine. Primenjene metode ispitivanja su obuhvatali: epizootiološka analiza i patomorfološki pregled odstreljenih i uginulih divljih svinja kao i laboratorijska ispitivanja u cilju utvrđivanja infekcije sa virusom klasične kuge svinja i *Brucella sp.* U cilju zdravstvene kontrole i dijagnostike oboljenja, izvršen je patomorfološki pregled 35 trupova uginulih i na oboljenje sumnjivih odstreljenih divljih svinja. Patomorfološkim pregledom ustanovljeno je da su zdravstveni problemi kod divljih svinja vezani uglavnom za parazitske infestacije i pneumonije bakterijske etiologije. U ispitanim uzorcima organa i tkiva poreklom od uginulih i odstreljenih divljih svinja nije utvrđeno prisustvo virusa KKS. Sroškom ispitivanjem, u 7 uzoraka krvenih seruma utvrđeno je prisustvo antitela protiv *Brucella sp.* Postignuti rezultati ispitivanja ukazuju da predstavljena problem treba u budućnosti nastaviti da bi se postigao što kompletniji uvid u zdravstveno stanje divljih svinja. Rezultati ukazuju na značaj zdravstvenog nadzora divljih i domaćih životinja i potrebu za strateškom saradnjom lovaca, farmera i veterinarske zdravstvene službe.

**References**


