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BRIEF COMMUNICATION

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Seroprevalence of *Brucella suis* in eastern Latvian wild boars (*Sus scrofa*)

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Abstract

Brucellosis due to *Brucella suis* biovar 2 is one of the most important endemic diseases in wild boar (*Sus scrofa*) populations in Europe. The aim of the present study was to determine the seroprevalence of brucellosis in wild boars in the eastern part of Latvia. Wild boars killed by hunters in the period from January to April 2015 (n = 877) and from March to April in 2016 (n = 167) were examined for antibodies against *B. suis* by the Rose Bengal test (RBT), a complement fixation test (CFT), and by enzyme-linked immunosorbent assays. In 2015, 199 samples (22.7%) were positive by RBT and/or CFT while 36 samples (21.6%) were seropositive in 2016. Of the *Brucella* seropositive samples from 2015 and 2016 (n = 235), 162 (68.9%) were also seropositive to *Yersinia enterocolitica*. Considering cross-reactivity of serological tests, the seroprevalence of *B. suis* biovar 2 exposure in wild boars in the eastern part of Latvia was calculated to 14.0% in 2015 and 9.6% in 2016. From selected seropositive samples (42 in 2015 and 36 in 2016) total DNA was extracted and analyzed with an IS*711*-based nested polymerase chain reaction (PCR) assay. Species and biovar identification was conducted for bacteria isolated in monoculture from PCR positive samples by species specific primers and Bruce-ladder multiplex PCR. *Brucella suis* biovar 2 was isolated from 12/20 samples in 2015 and 9/9 samples in 2016. The average seroprevalence was relatively low compared to that found in certain other European countries. Males and females had an equal level of seropositivity, but a positive age-trend was observed for both males and females.

Keywords: *Brucella suis*, Brucellosis, Latvia, *Sus scrofa*, Wild boar

Findings

Porcine brucellosis can be caused by three biovars (1–3) of *Brucella suis*. Biovar 2 is an important pathogen in wild boars (*Sus scrofa*) with a broad geographical distribution ranging from Scandinavia to the Balkan region [1]. Systematic brucellosis monitoring in wildlife is not demanded by regulatory acts but several studies have reported the presence of this infection in European countries [2–9]. Scientific data on the prevalence of *B. suis* biovar 2 in the Baltic countries, Russia and Belorussia have not been published. A few cases of domestic pig brucellosis have been recorded in Estonia (2006) and Latvia (2007 and 2008) [10]. The latest outbreak in Latvia was in 2010 in the western part of the country (unpublished observations).

Transmission of *Brucella* bacteria occurs during copulation and by consumption of infected birth and abortion products and uterine discharges. Infection is not necessarily associated with the presence of gross lesions [11]. Wild boars as well as the European hare (*Lepus capensis*) are considered as reservoirs for transmissions of *B. suis* biovar 2 to domestic livestock [1], mainly due to consumption of offal from hunted or dead infected hares by wild boars [10].

According to estimates made by the Latvian State Forest Service, the population of wild boars in Latvia increased during the last decades from around 15,000 in 1997 to 74,000 in 2013, but decreased to 49,000 in 2015 due to promoted hunting. The estimated population of European hares in Latvia is 34,700, indicating the potential for transmission of the infection from this host [12].

The aim of the present study was to determine the seroprevalence of brucellosis in wild boars in the eastern part of Latvia and its correlation to gender and age.

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