

POSTER PRESENTATION

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Echinococcus granulosus ('pig strain', G6/7) in Southwestern Lithuania

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From Parasite infections of domestic animals in the Nordic countries – emerging threats and challenges. The 22nd Symposium of the Nordic Committee for Veterinary Scientific Cooperation (NKVet) Helsinki, Finland. 7-9 September 2008

Background

Cystic echinococcosis (CE) of pigs is widespread and known since many years in Lithuania [1]. Recently, the number of diagnosed cases of human CE began to increase [2] but only limited information is available on the main epidemiological aspects of this zoonosis.

Material and methods

During 2005-2006, post slaughter examination and morphological identification of cysts from pigs from small family farms (n=612) and industrial farms (n=73) was performed. Dog fecal samples (n=240) were collected in 12 villages and microscopically examined by egg flotation/sieving (F/Si) [3] and modified McMaster methods [4]). For the genetic identification of *E. granulosus* to species/strain level, PCR was performed with DNA from typical hydatid cysts from pigs (n=2), morphologically unidentifiable lesions from pigs (n=3), nonfertile cysts from cattle (n=3) and taeniid eggs from dog faecal samples (n=34) [5]. Risk factors for cystic echinococcosis were evaluated by a questionnaire.

Results

CE was prevalent in 13.2% (81/612) of the pigs reared in small family farms and 4.1% of those reared in industrial farms. Molecular analysis of isolated taeniid eggs revealed in 10.8% of the dogs investigated *Taenia* spp., in 3.8% *E. granulosus* (G 6/7) and in 0.8% *E. multilocularis*. In addition, three samples from livers of human and from a cow were confirmed as *E. granulosus* larval stage by PCR. Sequence analysis confirmed the 'pig strain' (G 6/7) in all pig, dog, cattle and human isolates

investigated. No significant risk factor for infections with *E. granulosus* or *Taenia* spp. could be identified.

Conclusion

The 'pig strain' of *E. granulosus* is highly prevalent in the southwestern part of Lithuania, and transmission is more likely in small family farms indicating a high exposure to cestode eggs in rural areas. Therefore control programs should be initiated with special reference to small family farms.

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Published: 13 October 2010

References

1. Danilevičius E: Cystic echinococcosis and immunodiagnosis in pigs in Lithuania. *PhD thesis. Kaunas* 1964, (in Lithuanian).
2. Marcinkutė A, Bareišienė MV, Bružinskaitė R, Šarkūnas M, Tamakauskienė R, Vėlyvytė D: Cystic echinococcosis in Lithuania. *Lithuanian General Practitioner* 2006, **10**:8-11.
3. Mathis A, Deplazes P, Eckert J: An improved test system for PCR-based specific detection of *Echinococcus multilocularis* eggs. *J Helminthol* 1996, **70**:219-222.
4. Roepstorff A, Nansen P: The epidemiology, diagnosis and control of helminth parasites of swine. *FAO Animal Health Manual 3, Food and Agriculture Organization of the United Nations* 1998, Rome, Italy.
5. Trachsel D, Deplazes P, Mathis A: Identification of taeniid eggs in the faeces from carnivores based on multiplex PCR using targets in mitochondrial DNA. *Parasitology* 2007, **134**:911-920.

doi:10.1186/1751-0147-52-S1-S14

Cite this article as: Šarkūnas et al.: *Echinococcus granulosus* ('pig strain', G6/7) in Southwestern Lithuania. *Acta Veterinaria Scandinavica* 2010 **52** (Suppl 1):S14.

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