

Aperçu de la séroprévalence à *Salmonella* Abortusovis dans les troupeaux de mouton en Suisse

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Key words

sheep, abortion, *Salmonella* Abortusovis, epidemiology, , ELISA

Aim of the study

Between 1976 and 2003, no infections with *Salmonella* Abortusovis (*S. Abortusovis*) had been officially recorded in Switzerland. Since then, however, several sheep flocks suffered massive fetal losses due to this bacteria suggesting a re-emergence of the disease. Therefore, the aim of this study was to develop an ELISA for assessing the epidemiological situation of *Salmonella* Abortusovis infection in sheep in our country.

Material and methods

An indirect enzyme-linked immunosorbent assay (ELISA) was established using 44 serum samples from sheep which had aborted due to *S. Abortusovis* infections and 45 serum samples from sheep without abortion history for cut-off determination. This assay was used to test a representative serum sample collected in 2007 in the context of certifying *Brucella* freedom including 578 flocks with a total of 8426 animals from all regions in Switzerland and the Principality of Liechtenstein. The cantonal seroprevalence was estimated at the animal as well as the flock level by taking into account a) all flocks with one or more seropositive animals (Flock 1+) and b) only the flocks with two or more seropositive animals (Flock 2+). Significant spatial clusters of cases were identified using the Bernoulli model within SaTScan.

Results and significance

The sensitivity and specificity of the assay were 98% and 100%, respectively, indicating that the ELISA can be used for herd surveillance testing. Flocks with seropositive animals were found throughout the country with an overall animal level prevalence of 1.7%. At flock level, overall prevalence of 16.3% and 5.0% were found for Flock 1+ and Flock 2+ definitions, respectively. Significant animal level clusters were located in the cantons of Bern, the Valais and Graubünden, whilst significant flock level clusters (Flock 1+ and Flock 2+) were located in the canton of Graubünden only. Although in Switzerland *S. Abortusovis* infections had not been reported for more than two decades and recent reports are limited to the western parts of the country, our results indicate that exposure to the infectious agent is widespread. The failure to announce this notifiable disease may be due to an insufficient disease awareness on the part of the sheep owners on one hand and due to inadequate laboratory diagnosis of ovine abortion on the other hand. Without bacterial culture abortions due to *S. Abortusovis* will hardly be diagnosed. Routine diagnostic procedures in Switzerland, however, are often limited to serology and examination of cotyledons.

Publications, posters and presentations

- Dittus, S. at al. (2008) Humoral immune response in sheep after natural infection with *Salmonella* Abortusovis. 67th annual assembly of the Swiss Society for Microbiology, Interlaken.
- Dittus, S.; Waldvogel, A.S.; Hüssy, D.; Belloy, L.; Doherr, M. (2009) Survey of *Salmonella* Abortusovis IgG antibodies in Swiss sheep flocks using a modified ELISA. 12th International Symposium on Veterinary Epidemiology and Economics, Durban, South Africa.
- Dittus, S.; Belloy, L.; Doherr, M.; Hüssy, D.; Sting, R.; Waldvogel, A.S. Humoral immune response in sheep after natural infection with *Salmonella* Abortusovis submitted.
- Dittus, S.; Belloy, L.; Hüssy, D.; Waldvogel, A.S.; Doherr, M.G. Seroprevalence survey for *Salmonella* Abortusovis infection in Swiss sheep flocks in preparation.

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