The first bluetongue virus isolation in Yugoslavia

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Summary

Catarrhal fever in sheep or bluetongue (BT) has not been recorded in Yugoslavia until recently. During the first incidence of BT disease in Serbia and Montenegro in 2001, the authors conducted field studies on suspected cases of the disease and collected samples for laboratory diagnosis. BT virus (BTV) was isolated and identified as serotype 9 by the Institute for Animal Health in Pirbright, United Kingdom (the Office International des Épizooties BT reference laboratory).

Keywords

Bluetongue – Diagnosis – Isolation – Serbia – Montenegro – Yugoslavia – Virus.

Introduction

Catarrhal fever in sheep, or bluetongue (BT) is a disease that has only recently been detected in Yugoslavia. It is a viral disease of sheep, goats and cattle, to which deer are also susceptible. It appears to be enzootic, taking the form of infections with natural foci, and is transmitted by biting midges of the genus *Culicoides* (Diptera: Ceratopogonidae). The world-wide incidence of the disease is connected with the movements and spread of infected insects. Infected cattle rarely develop clinical signs and present viraemia for two to six weeks; consequently, they play a role in viral amplification. Immunoprophylaxis is an unpopular method of protection, prevention and eradication of the disease, so attention is focused on general measures, namely detection and removal of reactors, as well as attempting to control *Culicoides*. Correct diagnosis and timely detection is of vital importance in the control of the disease. During the first ever recorded occurrence of BT in Serbia and Montenegro in 2001, field studies were conducted to identify the disease and samples were collected for laboratory diagnosis. The virus was isolated and the results verified as BT serotype 9 by the Institute for Animal Health (Office International des Épizooties BT reference laboratory) in Pirbright, United Kingdom.

Materials and methods

Serum samples were collected from cattle and sheep. In addition, blood in heparin, spleen, lymph nodes, lungs, liver and kidney were collected from sick sheep (Figs 1 and 2).

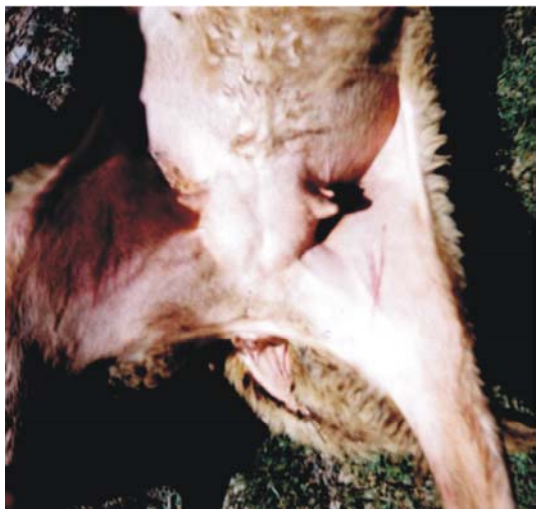

Figure 1
Positive skin test for bluetongue

Blood sera were used for serological tests and washed blood cells were used for virus isolation. Parts of organs were used for virus isolation and preparation of frozen sections for fluorescent antibody examination. Virus isolation was carried out in 11-day-old embryonating chicken eggs, Vero cell cultures and newborn mice. Serum samples were tested using the competitive ELISA (c-ELISA) and immunodiffusion test.

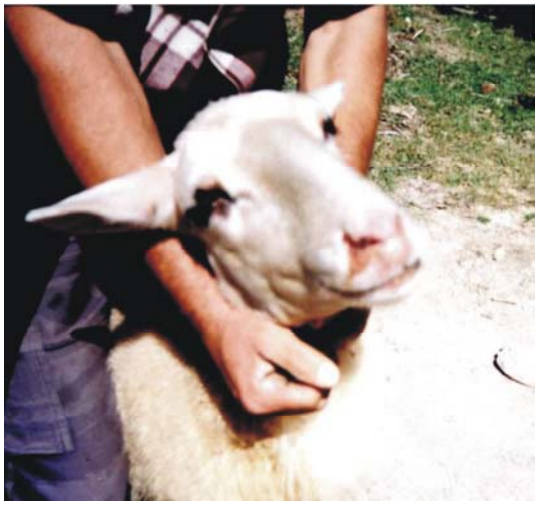

Figure 2
Typical clinical picture of bluetongue

Results

Serologically positive test results matched the clinical appearance of the disease in the outbreaks, as well as matching the results of the fluorescent antibody tissue section technique, and the appearance of cytopathic effect in Vero cell cultures (Fig. 3).

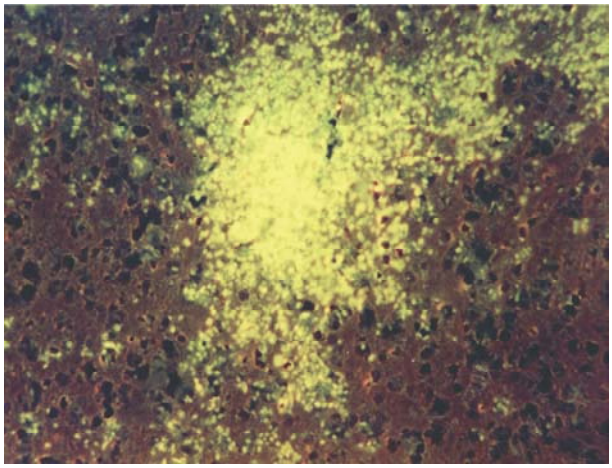

Figure 3
Positive fluorescent antibody tissue section technique

Conclusions

Standard virological and serological methods can be used successfully for the laboratory diagnosis of BTV. For a quick presumptive diagnosis, the c-ELISA method can be used for the detection of antibody against BTV. Diagnosis can be verified by virus isolation and fluorescent antibody tissue section techniques.

Additional reading

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