

Schmallenberg virus (SBV)

Susceptible species

Schmallenberg virus (SBV) infects cattle, sheep, goats and further ruminants. In addition, antibodies have been detected in alpaca, bison, roe deer, red deer, fallow deer and mouflon. The virus is not transmissible to humans.

Distribution area

The origin of Schmallenberg virus is unclear; it was first detected in 2011 in Northwestern Germany. Thereafter, it spread rapidly throughout Germany and large parts of Europe. In subsequent years, alternating low-level circulation and re-emergence to a larger extent have been reported from affected regions. In 2013, cases of this virus infection were reported in Germany, the Netherlands, Belgium, Great Britain, France, Italy, Luxemburg, Spain, Denmark, Estonia, Ireland, Finland, Norway, Sweden, Poland, Austria, and Switzerland. It has to be anticipated that SBV has established an enzootic status in Europe and will re-appear to a larger extent in regular intervals in the future.

Causative agent

Schmallenberg virus is an *Orthobunyavirus*. It shows close relationship with viruses of the Simbu serogroup, which also includes the Akabane virus. So far, the highest genetic similarity has been seen with Sathuperi and Douglas virus within this group. The genome of these viruses has three segments (S, M, and L) which encode five proteins.

Transmission

Infected animals mainly excrete AIV with their feces. Eggs from infected animals also may contain virus. The infection is transmitted by direct contact between birds or by ingestion of virus-contaminated material or contaminated drinking water. Transmission between holdings may occur by trade with animals or indirectly by contaminated vehicles, persons, equipment, packaging material etc.

Clinical Picture

Cattle with acute infection show none or only mild symptoms such as fever, diarrhea, or reduced milk yield. These symptoms are mostly seen during the vector-active season (April to November). The viraemic stage is very short (1 to 6 days) and clinical symptoms also disappear within a few days. So far, there are no reliable reports of symptoms of acute infection in small ruminants (sheep, goats). Infection in these animals as a rule seems to be clinically inapparent.

Fetal infection is of particular importance. If infection occurs during the susceptible stage of pregnancy (in sheep most likely between days 30 and 50, in cattle between days 75 and 175 of pregnancy), the virus may infect the fetus and cause severe damage. In addition, return to estrus, abortions and mummified fetuses, stillbirth or premature birth may occur. Often severe malformations of extremities (ankylosis, contracture of tendons) and head (torticollis, hydrancephaly, hydrocephalus) are

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seen. The central nervous system may show most severe deformation.

Diagnostics

Schmallenberg virus is detected by real-time RT-PCR or virus cultivation.

For more detailed information please refer to the [“Amtliche Methodensammlung”](#) (in German language only).

Similar clinical pictures

The clinical picture strongly resembles that of infections with Akabane virus. In some cases encephalitis of different degrees of severity is observed in acute infections and infections of newborns with viruses of the Simbu serogroup.

Control

Infections with Schmallenberg virus are notifiable. Classical control measures do not provide reliable protection from SBV infection. Still protection of susceptible animals from biting midges/mosquitos is a possibility to reduce the infection risk in particular during the vector-active season. In addition, insemination of female animals can be planned so that the vulnerable stage of pregnancy will be outside the vector-active season. Vaccines are approved.

More Information

Information of the FLI on [Schmallenberg virus](#)

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