

Listeria in the feed: A dangerous hygiene problem in fattening pigs

January 28 2019



Swine. Credit: ©Vetmeduni Vienna

In a recent study, researchers from Vetmeduni Vienna investigated an episode of fatal listeriosis in fattening pigs with a mortality rate of nearly 10 percent. The research team traced the source of infection to the feed

silage. Following simple guidelines during the ensilaging process can minimize this risk—with benefits for food safety and public health.

The present case investigated at Vetmeduni Vienna is the first clinical report on this form of listeriosis in fattening [pigs](#). In their study, researchers from the Institute of Microbiology, the Institute of Pathology and the Institute of Milk Hygiene, under coordination by Lukas Schwartz from the University Clinic for Swine, showed that the bacterium *Listeria monocytogenes*, as the causative agent of listeriosis, should—contrary to current practice—form part of the list of differential diagnoses when fattening pigs suffer from bloody diarrhoea and septicaemia.

Fatal listeriosis in Lower Austria

The study was motivated by an episode of fatal listeriosis in fattening pigs in a pig farm in Lower Austria with an integrated fattening unit with space for 450 pigs. Clinical symptoms such as anorexia, bloody diarrhoea and an increased body temperature up to 40°C were observed in about 10% of the fattening pigs, mostly in well-fed animals with a bodyweight of 40-100 kg. In total, 35 fattening pigs died in a period of about 3 weeks.

A real crime thriller: evidence from DNA fingerprinting

Two fattening pigs with clinical symptoms as well as fed maize silage samples were investigated for further diagnostics. Molecular biological characterization isolated identical *L. monocytogenes* strains from samples taken from the pigs and in the maize silage. Additionally, a high content of deoxynivalenol was found in the maize silage. Deoxynivalenol is a mycotoxin found above all as a metabolic product in affected grains with

potentially negative effects for the immune system. "The feeding of maize silage contaminated by listeria, which survive under poor ensilaging conditions, was the most likely source of infection of the fattening pigs," says first author Heiko Stein.

Ensilaging under anaerobic conditions provides reliable protection

The researchers were able to show with their study that *L. monocytogenes* can cause clinical disease in fattening pigs that may be the result of immunosuppression due to high deoxynivalenol exposure. Stein therefore formulates the following appeal: "When feeding silage, it is important that all ensilaging procedures occur under appropriate anaerobic conditions to guarantee suppression of listerial growth."

Important new insights for food safety

Listeria are rod-shaped bacteria that naturally occur in many different places. Most are harmless for people. The species *L. monocytogenes*, however, is anything but harmless for humans and animals. An infection caused by these bacteria can result in serious diarrhoea and encephalitis in humans and may even be fatal.

It is known from cattle and sheep that feeding silage of poor quality can lead to *L. monocytogenes* transmission causing encephalitis or bloody diarrhoea. In the [scientific literature](#), however, only a few older case reports have dealt with *L. monocytogenes* transmission in pig herds despite the fact that *L. monocytogenes* contamination of pork products is of great concern for public health.

"Whenever bloody diarrhoea combined with increased mortality occurs in fattening pigs, *L. monocytogenes* should be part of the list of

differential diagnoses, especially if [silage](#) is part of feeding. Since in our case therapeutic and prophylactic measures led to a fast recovery of diseased animals, antimicrobial therapy is indicated as soon as possible to avoid further shedding of *L. monocytogenes* via faeces and to prevent additional fatal cases," says Stein in conclusion.

More information: Heiko Stein et al. Listeriosis in fattening pigs caused by poor quality silage - a case report, *BMC Veterinary Research* (2018). [DOI: 10.1186/s12917-018-1687-6](https://doi.org/10.1186/s12917-018-1687-6)

Provided by University of Veterinary Medicine—Vienna

Citation: Listeria in the feed: A dangerous hygiene problem in fattening pigs (2019, January 28) retrieved 20 April 2024 from <https://phys.org/news/2019-01-listeria-dangerous-hygiene-problem-fattening.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.