

Mycoplasma Ear Infection in Calves

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Ear infections have been reported in calves due to bacteria, mites and mycoplasma. *Mycoplasma bovis* has drawn much attention in the last few years. The disease has been reported to occur as early as 4 days of age up to 10 weeks of age in pre-weaned calves. It has also been reported in post-weaned calves up to 18 months of age.

Affected calves may have facial paralysis shown by ear droop, head tilt and excessive tearing. Purulent material may also be present in the ear canal and on the external ear. In some cases, the infection involves the inner ear and brain resulting in wobbly, unsure gait, downers, uncontrolled eye movements, abnormal body posture and death. The infection may cause purulent material to be found in the inner ear and perhaps changes in the bones around the ears. The infection may affect one or both ears. In herds with ear problems there may also be multiple joint infections, mastitis, pneumonia, genital infections and abortions. When mastitis occurs, the mycoplasmas are shed in the milk. Mastitis may be clinical with obvious changes in the milk and udder or subclinical with normal appearing milk. In either case, the milk may contain the mycoplasma.

In a 1997 report about a Michigan dairy milking approximately 600 cows, ear infections had occurred sporadically for about 2 years¹. Calves on this dairy received about 2 gallons of colostrum in 3 feedings during the first 24 hours of life. Thereafter they were fed waste milk when available or a commercial milk replacer. The ear infections were first noted between 2 and 5 weeks of age. The initial signs were ear droop and excessive tearing. Soon the calves were unable to stand and lay with their necks extended. None of the calves had pus in the external ear. Up to 10% of the calves were affected and 50% died within 2 weeks. Four out of 5 calves examined had pure cultures of *M. bovis* isolated from the inner ear. It was speculated that the mycoplasma entered the calves in the colostrum or waste milk and initially infected the upper throat. Later it extended to the inner ear.

In a more recent outbreak in Japan, between 8-40% of the calves on 4 calf ranches were affected with inner ear infections due to *M. bovis*². Calf numbers on the ranches ranged up to 2300. Between 30-100% of the affected calves died over a two year period usually within 21 days after arrival on the ranch. A detailed examination was done on 8 calves between 30-90 days of age. These calves had weakness when walking, purulent ear infections, head tilt, abnormal eye movements and drooping of one or both ears. All calves that showed signs of coughing and nasal discharge were treated immediately with antibiotics. There was some improvement following treatment with tetracyclines. *M. bovis* was isolated from the ears, lungs, nose, head and lung lymph nodes, brain, and heart. Other tests demonstrated the organisms in the kidneys suggesting that the

mycoplasma could be shed in the urine and contaminate the environment. Mycoplasma was also isolated from the feeding equipment.

Pasteurization of waste milk fed to calves will significantly reduce risk of inner ear infections as well as infections in other body organs. Pasteurization at 158 F for one minute or 148 F for 2 minutes has been shown to kill mycoplasma. Pasteurization is strongly recommended for dairies known to have mycoplasma mastitis. By preventing contamination of feed by pasteurization and reducing exposure to the calves, it will also be anticipated that less contamination of the environment will occur. Treatment options for suspected inner ear infections should be discussed with the herd veterinarian. Early detection can be expected to increase the effectiveness of treatments.

Reference

1. Walz PH, et al. Otitis media in preweaned Holstein dairy calves in Michigan due to *Mycoplasma bovis*. *J Vet Diagn Invest* 9:250-254, 1997.
2. Maeda T, et al. *Mycoplasma bovis*-associated suppurative otitis media and pneumonia in bull calves. *J Comp Path* 129:100-110, 2003.