

## ***Mycoplasma*—More Than Just Mastitis**

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Most all dairymen that have been around the block once or twice are aware that *Mycoplasma* causes a serious form of mastitis. *Mycoplasma* mastitis is usually seen as clinical mastitis often involving more than one quarter. It is difficult for dairymen to ignore as the clinical cases do not respond to treatment. In herd without monitoring programs, many cows can quickly become infected with marked increase in the bulk tank somatic cell count. Fewer dairymen are aware that *Mycoplasma* may be involved in several disease conditions such as “pinkeye”, meningitis, ear infections, abscesses, pneumonia, vaginal inflammation, abortions and arthritis. Outbreaks of these conditions maybe associated with *Mycoplasma* mastitis outbreaks within their herds. The purpose of this article is to review these less known conditions caused by *Mycoplasma*.

### Conjunctivitis and “Pinkeye”

Eye infections caused by *Mycoplasma* may appear very similar to the “pinkeye” that is often caused by the bacteria *Moraxella bovis*. *Mycoplasma bovaculi* is the most common *Mycoplasma* involved in eye infections, however, it is not commonly associated with mastitis. *Mycoplasma bovis*, a common bovine mastitis pathogen, has occasionally been reported as being involved with ocular lesions. The signs of the disease may be only weeping or excessive tearing with some reddening of the white portion of the eye. Other times, severe swelling and ulceration of the cornea may occur. When mycoplasmas are involved in conjunction with bacteria, treatment response is often poor compared to bacteria “pinkeye”.

### Meningitis

Occasionally, outbreaks of brain infections have been reported in young calves. The clinical signs are usually rather non-specific and give no definite suggestion that *Mycoplasma* may be involved. The signs are lethargy, off feed and lying down a lot more than normal. Calves may also show fever, abnormal eye movements, extension of the head, convulsions, be hypersensitive to touch or sound and appear to have neck pain. *Mycoplasma bovis* is the *Mycoplasma* that has been isolated in some instances. Clinical signs are usually severe, respond to treatment is poor and mortality in these cases is usually high.

### Ear Infections

*Mycoplasma bovis* has been isolated from some young calves with ear infections. These calves showed drooped ears and head tilt along with excessive tearing and recumbency.

*Mycoplasma* has been isolated from the exudates from the inner ears from some of these calves. In some cases, many calves may be affected.

### Abscesses

*Mycoplasma bovis* was felt to be the cause of superficial abscesses found on the brisket, knees and stifles of young calves in hutches. The abscesses were found on the surfaces where pressure and skin abrasion commonly occur. The investigators thought that the *Mycoplasma* gained entry through the injured skin or that the organisms had localized in these areas following entry through another site.

### Pneumonia

*Mycoplasma dispar*, usually not associated with mastitis, and *Mycoplasma bovis* have been isolated from calves with respiratory disease. With *Mycoplasma* alone, the respiratory signs are often unnoticed or very mild. Usually the cases are predisposed by environmental stress particularly in housed calves with poor ventilation; the presence of other respiratory pathogens; and immunosuppression. It is often felt that for *Mycoplasma* to cause pneumonia, other more virulent pathogens must be present in the lungs. For this reason, it is not uncommon to isolate bacteria or viruses along with mycoplasmas from calves with pneumonia.

### Vaginal Inflammation

Several mycoplasmas species have been isolated from both normal and infected reproductive tract of cows. The effect of mycoplasmas on fertility is questionable as reports in the scientific literature have been both positive and negative. *Mycoplasma bovigentialium*, a mastitis pathogen, has been frequently isolated from cows with vulvovaginitis. This organism also causes mastitis and the source may be from infected vaginal discharges running down onto the udder and teats. In these infected cows, the lining of the vagina may have raised granules or papules and an abnormal, cloudy to purulent discharge may be present. The infections usually last about 3-10 days and then spontaneously disappear. These same mycoplasmas can also be isolated from bull semen and may cause infections in the reproductive organs of bulls. In bulls and cows the mycoplasmas may be only intermittently shed thus complicating diagnosis by isolation. When outbreaks of vulvovaginitis occur, veterinarians often recommend suspending natural bull breeding and using double-sheathed AI instruments. Many times culling of infected animals is suggested.

### Abortions

Both *Mycoplasma bovis* and *Mycoplasma bovigentialium* have been associated with bovine abortion. It is thought that they cause abortions by infecting the placenta or by causing fetal pneumonia. Thus to establish a diagnosis of abortion due to *Mycoplasma* the diagnosticians usually have to find either placental infection or fetal pneumonia along with the isolation of *Mycoplasma*. Finding these lesions is necessary as *Mycoplasma* is

often found throughout the reproductive tract. In one study, *Mycoplasma bovigenitalium* was isolated from 12% of normal appearing reproductive tracts.

### Arthritis

Arthritis in a single joint or polyarthritis in many joints is another syndrome that may be caused by *Mycoplasma*. The lesions may be confined to a single joint or involve multiple joints with damage to the joint surfaces and cartilage. Calves and cows may show stiffness, shifting leg lameness, difficulty in getting up or non-weight bearing lameness. The affected joints are usually hot, painful and swollen. The animals themselves may have fever, go off feed and loose weight when multiple joints are involved. Attempts at treatment give variable results and are often unrewarding.

### Control Measures

The possible control measures for *Mycoplasma* are the same as those for most infectious diseases. New arrivals should be quarantined for at least 30 days. Early identification of cows with *Mycoplasma* mastitis and other conditions may help to control outbreaks. Minimize contact of known infected animals with other animals in the herd. This is particularly important to prevent spread from infected cows to calves. Hospital milk should not be fed to young calves. Pasteurization effectively destroys these organisms and should be used when waste milk is fed to calves. Cows with pneumonia should be isolated from other cows. Cows with multiple joint lamenesses should be marketed quickly as they can be anticipated to have poor response to therapy. The use of preventive vaccinations may be warranted to minimize the ability of other diseases to collaborate with *Mycoplasma* to cause severe clinical disease.

### Summary

*Mycoplasma* organisms can be isolated from normal and sick cows. *Mycoplasma* can cause or be contributory in many disease situations seen on dairies such as pinkeye, ear infections, meningitis, abscesses, pneumonia, vaginal infections, abortions, and arthritis along with mastitis. Many times several of these conditions occur at the same time on a dairy. As an example, calves may be having pneumonia and arthritis while the milking cows are going through an outbreak of mastitis. Cows with *Mycoplasma* mastitis may also have arthritis. The *Mycoplasma* organisms have the ability to move in the blood stream, to result from trauma and to extend from one infected area to a nearby area. During outbreaks of pneumonia, infected animals may spread the *Mycoplasma* by aerosol and droplets that may contaminate feed and water. In many instances, *Mycoplasma* acting alone will only cause mild infections, however, when coupled with other bacteria or viruses, severe conditions can result. The exception to this is mastitis where *Mycoplasma* alone is sufficient to cause severe disease. Often therapy is not successful for any of the *Mycoplasma* diseases. Your veterinarian can assist you in taking the proper samples to get a definitive diagnosis and setting up a plan for controlling *Mycoplasma* within your dairy herd.