

## **Rhodococcus Equi Infections**

Rhodococcus equi is a bacteria that lives in the soil. It is an important cause of disease in foals between 2 weeks and 6 months of age. All farms are likely to be infected with the bacteria. Some farms may have a severe problem with the clinical disease that can be devastating to the farm, while other farms may have sporadic problems. Most farms will develop no clinical problems with their foals.

There are several clinical manifestations of Rhodococcus equi in foals. The most common is pneumonia with abscessation in the lungs. This form of the disease develops by inhalation of dust particles containing the organism. Early signs may include a slight increase in respiratory rate and a mild fever. As the disease progresses, signs include decreased appetite, lethargy, fever, increased respiratory rate, and increased breathing effort. Coughing and nasal discharge are inconsistent findings. Some foals will develop a more devastating form, in which they are found dead or found in severe respiratory distress with no previous signs.

Other less common manifestations include intestinal disease, which may or may not be associated with diarrhea. Abdominal abscessation may develop, causing adhesions of the gastrointestinal tract which can lead to colic. Sometimes, a polysynovitis (inflammation of some or all joints) may develop with the pneumonia, resulting in a stiff gait. This frequently resolves when the pneumonia resolves. Spread of the bacteria from the lungs or gastrointestinal tract may occasionally result in a septic arthritis. In this case, they are quite painful and lame. Even with aggressive therapy, the prognosis for life is guarded.

The definitive diagnosis for Rhodococcus equi infection requires bacterial culture and cytology of a transtracheal wash. The procedure consists of

gaining access to the trachea sterilely by placing a catheter in the neck. Sterile saline is flushed into the trachea and aspirated back immediately. A sample of the fluid present in the trachea mixes with the saline and provides a sample to diagnose *Rhodococcus equi* infection. It is important to also obtain radiographs of the lungs to visualize the extent of the pneumonia and perform ultrasonography of the chest to visualize any fluid or lung consolidation. Finally, bloodwork is useful to identify the degree of infection and inflammation in the bloodstream.

*Rhodococcus equi* infection is most commonly treated with the antibiotics, erythromycin (or another macrolide) and rifampin. The combination of these two drugs together provides a synergistic effect and allows effective penetration into abscesses. Resolution of clinical signs, normalization of the bloodwork, and radiographic resolution of the lung lesions are commonly used to guide the duration of therapy, which typically ranges from 4 to 9 weeks. The long-term therapy is expensive but essential since relapses can occur if therapy is discontinued early. Potential side effects of the erythromycin therapy include diarrhea, mild colic, partial anorexia, increased respiratory rate, and fever. A newer drug with fewer potential side effects and more effectiveness is clarithromycin combined with rifampin. Although this combination is superior to the erythromycin-rifampin, it is significantly more expensive. It is also associated with diarrhea, but in most cases it is mild and self-limiting.

Prevention of *Rhodococcus equi* infection is difficult, but there are important management factors to help reduce the risk of infection. It is important to house foals in well-ventilated, dust-free areas, and avoid dirt paddocks and crowding. Pastures should be rotated and irrigated to reduce dust formation. Finally, infected foals should be isolated, as they are the major source of contamination of the environment with the bacteria.

Early recognition of foals with *Rhodococcus equi* infection will help reduce foal losses and prevent the spread of the organism. Careful daily observation of foals as well as bloodwork performed on all foals on the farm at 2 to 4 week intervals will help early detection of the disease. It is useful to perform periodic ultrasonographic examination of the chest of all foals on farms with a known history of infection.

Farms that have not previously had problems with *Rhodococcus equi* infections should follow preventive measures to avoid future problems. Farms with known history of infected foals should consider establishing a program with their veterinarian to monitor foals for detection of problems as soon as they arise.

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