Rhodococcus equi Infection in Foals

Rhodococcus equi infection in foals is a significant cause of morbidity and mortality on breeding farms. Interestingly, only foals, typically between 1-6 months of age, develop R. equi pneumonia suggesting a deficiency in immunity of this age of horse. If diagnosed and treated early, the prognosis is good with complete recovery possible. However, if not detected, foals can succumb to severe respiratory failure and possible death.

Key Points
- R. equi infection typically affects foals between the ages of 1-6 months.
- R. equi is inhaled early in life and has a slow and insidious onset. Thus affected foals may have significant pneumonia before clinically recognized.
- Many cases of R. equi pneumonia resolve with appropriate therapy. However, complications such as abdominal abscessation and septic arthritis are possible.

Causative Organism: Rhodococcus equi
- Gram-positive intracellular coccobacillus.
- Common environmental pathogen, especially in large equine breeding operations. Can be readily aerosolized during dry and dusty periods.

Pathogenesis:
- Organism is inhaled, especially in dusty environments, and subsequently invades the respiratory tract. Foals less than 1 month of age are particularly sensitive.
- Foals are generally 1-6 months of age when they demonstrate clinical signs of fever, weight loss, decreased energy, cough, elevated respiratory rate, nostrils flaring and occasionally nasal discharge.
- Some foals with R. equi infection develop diarrhea or septic joints.

Prognosis:
- The prognosis with R. equi pneumonia in foals is fair to good as long as appropriate therapy is instituted as soon as the disease is recognized. Because of the slow and insidious nature of the disease, some foals do not get examined and treated until the disease is severe, thus worsening the prognosis. Occasionally foals are found acutely dead from respiratory distress. Many foals with the disease that do not show any clinical signs will recover without any treatment.

Treatment:
- Includes a variety of antibiotics and anti-inflammatories. If diagnosed and started early this can be very effective.
- It is not recommended to treat all foals as the treatments are quite expensive and there is a risk of developing antibiotic resistance.
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**Prevention:**

- There is currently no vaccine available.
- Ensure all foals receive good quality colostrum at birth or receive a plasma transfusion to ensure their immunity levels are high. Foals that are at an increased risk should receive *R. equi* hyperimmune plasma which contains high levels of antibodies against *R. equi*.
- Prevent foals from inhaling fecal contaminated dust especially when less than a month of age.
- Carefully monitor all foals for clinical signs of the disease including taking the foal's temperature; measuring levels of inflammation (fibrinogen) and levels of white cells (CBC).

**EARLY DETECTION IS THE KEY!**

Equistar Vet Services has initiated the following procedures to help reduce the occurrence of *R. equi*:

- all foals born at Equistar will have a blood sample drawn and tested for IgG levels. Any foals that will be staying at Equistar and have an IgG level of less than 800 mg/dl will have a plasma transfusion done. Foals that have an IgG of 400-800 are considered marginal and owners will be contacted regarding appropriate treatment for their foal. All foals with less than an IgG of less than 400 will have a plasma transfusion.
- Any foals with an increased risk of exposure to *R. equi* will receive the *R. equi* hyperimmune plasma.
- All foals that are less than a week of age will be boarded inside.
- Older foals will be placed in newly created individual pens and manure will be removed daily. (standard policy for Equistar)
- When the risk is higher ie dry, dusty conditions foals less than 1 month of age may be required to be boarded inside.
- Foal 3 weeks of age or older will be actively screened and monitored for signs of *R. equi*. Temperatures will be taken weekly and blood samples taken monthly. Any foals exhibiting any clinical signs, will be further evaluated by Ultrasound or radiograph.
- Any wet mares that are ready to go home are encouraged to be picked up to reduce their possible exposure.