What's Your Radiographic Diagnosis?

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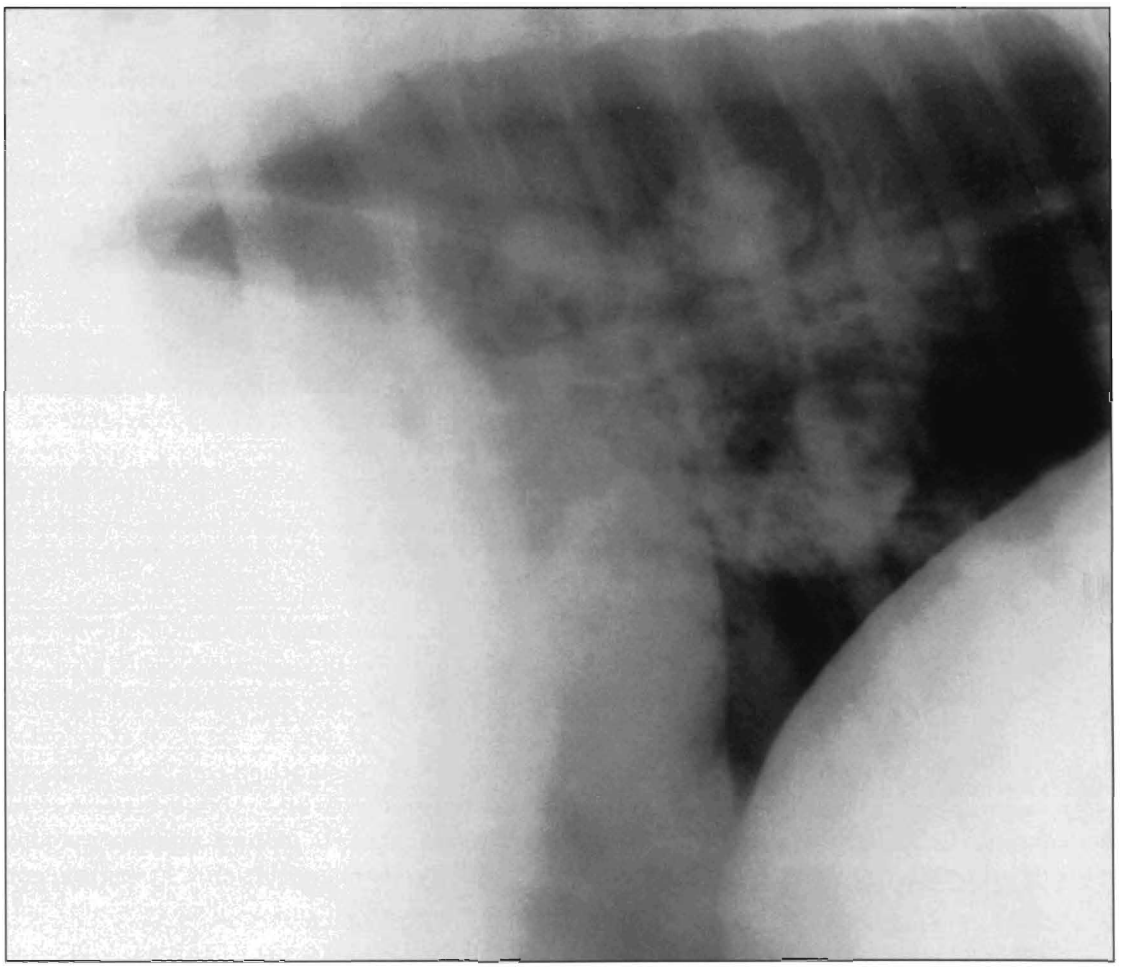

Clinical Presentation

A quarterhorse filly born in March was referred to the Iowa State University Veterinary Teaching Hospital with a two week history of respiratory problems. Symptomatic treatment with ampicillin, tribrissen and amikacin had not resolved the problem. At the physical examination the filly was bright and alert. She had an elevated body temerature, 103.4°F, a strong and increased pulse rate of 80 per minute and an increased repiratory rate of 64 per minute. Lung sounds were harsh in the dorsocaudal region and crackles and wheezes were heard ventrally. A serous nasal discharge was noted bilaterally. Thoracic radiographs and blood analysis were done for the initial data collection.

Radiographic findings

There is dorsal displacement of the cranial trachea. There is increased opacity of the lung with an interstitial to patchy alveolar pattern in the caudal ventral lung. Three to four focal, circular to oval, 4-6 cm heterogenous soft tissue masses are seen in the hilar and central to dorsal-caudal lung. The non-uniform appearance of these masses suggests that some gas is present within them. A small amount of air is present in the esophagus.

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Radiographic Diagnosis

Enlarged cranial mediastinal lymph nodes, caudoventral pulmonary consolidation and focal cavitary lesions. This spectrum of changes is typical of chronic bacterial pneumonia with absessation. Considering the age of the foal and lack of response to the antibiotics, *Rhodococcus equi* should be strongly suspected.

Clinical Diagnosis

The complete blood count revealed a marked leukocytosis consisting of marked neutrophilia without a left shift. Fibrinogen level was normal on the day of presentation but was elevated the following day. Culture of a transtracheal wash yielded large numbers of *R. equi* mixed with low numbers of *Escherichia coli*. Treatment was initiated with rifampin and erythromycin combined with Naxel (for the *E. coli*). At a four week re-evaluation, the filly showed good improvement.

Discussion

Bacterial pneumonia of foals occurs most commonly between four weeks and six months of age.[1,2] Bacteria involved are generally opportunistic types that are the normal bacteria of the upper respiratory tract or gastrointestinal tract or are found in large numbers in the environment. *Rhodococcus equi* is a gram-positive pleomorphic rod that inhabits fecal contaminated soil. If endemic on a breeding farm, it can cause severe pneumonia with high morbidity. *R equi* replicates rapidly when the ambient temperature increases and moisture decreases. Dusty and windy conditions promote aerosol dispersion of the organism, especially in stables, holding pens and non-pasture exercise areas. A high incidence of clinical infection is often seen in the early months of the summer season.

Although foals with *R. equi* pneumonia may present with acute clinical signs, they typically already have chronic pulmonary changes reflecting the gradual nature of this organism's pathogensis. Radiography is a valuable diagnositic procedure for these foals as the chronic pyogranulomatous pulmonary changes are readily apparent. Variable consolidation of the ventral lung, multifocal mass lesions often with a gas capped fluid appearance and mediastinal lymphadenopathy are very common findings in chronic *R. equi* pneumonia.[3] However, the radiographic appearance should not be considered to be pathognomonic for *R. equi*. *R. equi* shows in vitro sensitivity to a number of antibiotics. However, the most successful treatment has been achieved with a rifampin and erythromycin combination, especially in the presence of significant pulmonary consolidation and abscessation.[2] Several recent reports[4,5] suggest that with successful treatment, there does not seem to be residual lung damage that negatively influences the success of these horses for their intended use.

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