Western Beef Resource Committee

Fourth Edition

Cattle Producer's Handbook

Animal Health Section 653

Histophilosis

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Histophilosis, previously called hemophilosis, is a complex of diseases in cattle caused by the Gram negative bacterium *Histophilus somni*, previously classified as *Haemophilus somni*. The disease complex includes respiratory infections, encephalitis ("brainer" or thromboembolic meningoencephalitis [TEME]), abortion, cardiac disease, and lameness.

The organism is widely distributed in cattle populations, colonizing the nasopharynx and upper respiratory tract. *H. somni* is considered an opportunistic pathogen, that is, one establishing or causing disease secondary to or in conjunction with another infectious agent such as another bacterium or a virus, or after stress such as shipping, processing, or comingling. The organism is transmitted via respiratory secretions requiring close contact.

Normal, carrier animals have been identified through isolation of the microorganism from respiratory secretions. Carrier significance is undetermined since disease remains sporadic in all populations.

While the organism infects all ages of cattle, feedlot age animals are most often affected. Respiratory infections (often without overt clinical illness), heart failure, CNS disease (TEME), and occasionally lameness are the common feedlot syndromes. Respiratory and reproductive disease may occur in cow-calf operations, although the diseases are more sporadic than observed in feedlots.

Recent studies have identified strain variations within the *Histophilus somni* isolated from the various clinical presentations. The different strains, however, have not been conclusively correlated to a particular strain of *H. somni* with a particular clinical entity. There does appear to be variation in the pathogenicity between strains in experimental studies, but this has not been verified in natural infections.

Respiratory infections with *H. somni* are generally subclinical. Most outbreaks involve less than 1 percent of a herd, although respiratory outbreaks may reach 25 to 30 percent. Clinically, animals with respiratory disease can present a multitude of signs: rapid breathing (tachypnea), cough, nasal discharge, and depression. Acute, clinical respiratory disease is routinely accompanied by a fever (greater than 103°F). Necropsy lesions include consolidated and congested lungs (generally the front and lower lobes), increased thoracic fluid, and fibrous adhesions of the lung lobes to the chest wall (Fig. 1). Abscesses may also be present in the lungs.

Reproductive infections generally result in abortions, although the incidence of *H. somni* induced abortions is poorly defined. Abortions can occur at any stage of

Fig. 1. Pneumonic lung due to *H. somnus*. See adhesion (arrow).

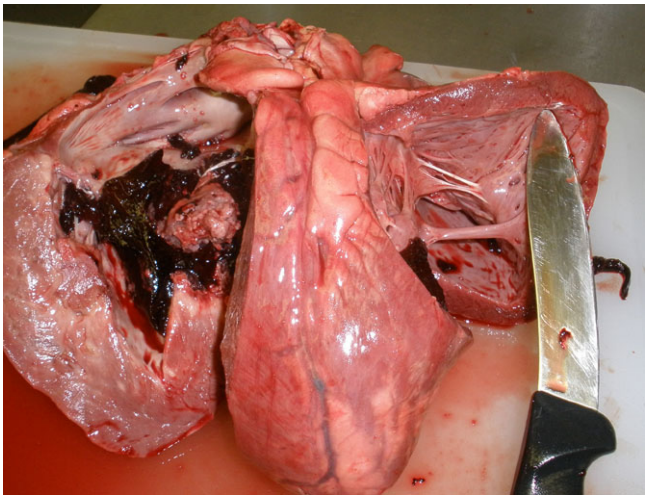

Fig. 2. Valvular mass due to *H. somnus* (indicated).

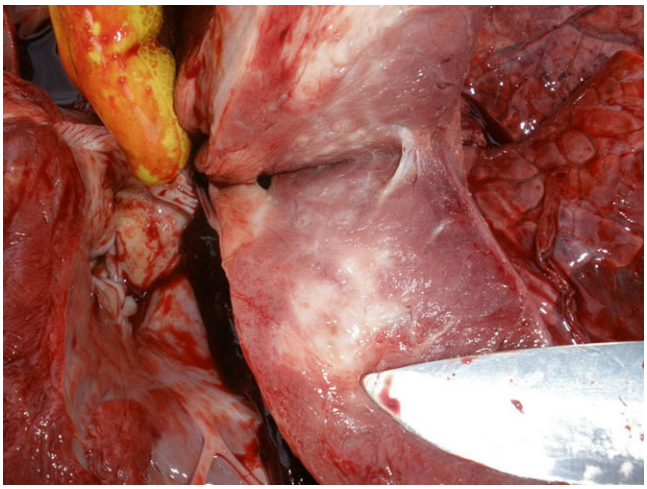

Fig. 3. *H. somnus* absess/fibrosis in heart wall (indicated).

gestation, and there is often "a history" of respiratory disease in the herd.

Lameness, like abortions, is often accompanied by "a history" of respiratory disease in the herd. Most often, the lameness is limited to one limb. On necropsy, however, multiple affected joints are routinely found. The affected limb/joint may or may not exhibit swelling or heat.

The "brainer" form of *H. somni* is called Thromboembolic Meningoencephalits (TEME). TEME occurs most commonly in feedlot animals. Signs include tremors, circling, convulsions, paralysis, and death. The incidence of TEME has continued to decline.

Myocarditis, infections of the heart, has increased in incidence and is most commonly seen in feedlot animals. There is, again, often "a history" of respiratory disease in the herd. The syndrome most often occurs in animals on-feed longer than 60 days but may occur in as little as 3 or 4 weeks post entry. The most common sign is sudden death, but labored breathing without fever and nasal discharge may be observed. Brisket enlargement is commonly present in chronic or slowly developing myocarditis.

Necropsy reveals increased thoracic and pericardial fluid and extensive edema of the muscles of the brisket, chest, and neck and often an enlarged heart. Abscesses may be observed in the papillary muscle of the left ventricle, on the heart valves, and/or in the wall of the heart (Figs. 2 and 3).

Treatment of *Histophilus somni* diseases relies on early disease recognition and use of the appropriate antibiotic. Antibiotic resistance is of limited concern with this organism, so most antibiotic approved for treatment of bovine respiratory diseases are beneficial.

Prevention through vaccination is controversial! As an aid in control of respiratory infections with *H. somni*, the sporadic nature of *H. somni* infections and associated disease and the costs associated with cow herd vaccination may outweigh the cost:benefit of using the vaccine. Vaccination of calves, weanlings, and at entry into a feeding program may be beneficial in reducing Histophilosis in the feedlot.

The value of the vaccine in reducing the other forms of *H. somni* disease is unknown because these diseases are even more sporadic than the respiratory disease, and there is concern that the strain variation of *H. somni* compromises the value of the vaccines for abortion, lameness, and, possibly, myocarditis prevention. Discussions with your attending veterinarian are recommended before using any vaccination program.

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