40. ACTINOBACILLOSIS, ACTINOMYCOSIS, NOCARDIOSIS, EPERYTHROZOONOSIS, HEMOBARTONELLOSIS, AND TRICHOMONIASIS

J.P. Kreier and I.E. Selman

Abstract. Actinobacillosis is a relatively common, but usually sporadic disease of adult cattle, caused by the Gram-negative bacterium, Actinobacillus lignieresi. The lesions are often found in soft tissues around the head and neck, particularly in the oral cavity and pharynx. Lesions, which consist of granulation, suppuration and fibrosis, spread via the lymphatics. Occasionally, the disease may arise in the skin, lymph nodes and body cavities. Treatment with streptomycin is usually highly effective in all forms of the disease.

Actinomycosis, a common sporadic disease of adult cattle, is caused by the Gram-positive organism Actinomyces bovis and usually arises in hard tissues, particularly the mandibles and maxillae. Spread of the disease is usually by extension or by the hematogenous route. Except for the difference in tissues affected, the pathological features of actinomycosis are virtually identical to those described for actinobacillosis. Treatment is only occasionally successful.

Nocardiosis is a relatively common, usually benign, sporadic disease of cattle in tropical areas. While there is some controversy as to the actual cause, it is generally believed that the Gram-positive organism Nocardia farcinica, is the causative agent. Infection is thought to arise via skin abrasions and, in some countries, ectoparasites are considered of prime importance in induction of infection. Clinical signs are subcutaneous swellings and, in some cases, eventually marked lymphadenopathy; sometimes the disease progresses further. Pathologically, the disease is characterized by granulation, suppuration, fibrosis occasionally with caseation and calcification; thus, it may be confused with tuberculosis. To date, no effective treatment has been developed.

Eperythrozoonosis and hemobartonellosis of cattle are infections caused by Eperythrozoan wenyoni and Haemobartonella bovis, respectively. In general, infection with these microorganisms does not result in any clinical disorder. Anemia may rarely occur following primary infection of susceptible cattle, particularly if the animals are debilitated by poor nutrition or concurrent disease. As the parasites are spread by biting arthropods, their control will coincidently aid in control of these parasites. Because the parasites are generally not the cause of disease, however, treatment is usually unnecessary. If treatment should be desired, these parasites are susceptible to the action of tetracyclines and arsenicals.

Bovine trichomonial abortion is caused by Tritrichomonas foetus. Infection is common in many areas of the world and the means of spread is sexual intercourse. Bulls become carriers of the parasite but generally show no disease. Cows bred by infected
bulls will usually abort early in gestation. The fetus may die and not be expelled, in which case pyometria may develop. Prevention by elimination of infected bulls and rigid control of breeding stock into the herd is the best course of action for the herdsman to follow. Metronidazole (Flagyl, Seale & Co.) can be used to treat infected cattle and, if given properly, will sterilize the infection in carrier bulls.

Actinobacillosis

Synonyms: timber-tongue, wooden-tongue.

The disease

Actinobacillosis is a relatively common but usually sporadic disease of adult cattle caused by the Gram-negative bacterium, *Actinobacillus lignieresii*. The lesions are usually in soft tissues around the head and neck but particularly in the oral cavity and pharynx. The lesions consist of granulation, suppuration and fibrosis and spread via the lymphatics is common. Occasionally, the disease may arise elsewhere such as in the skin, lymph-nodes and body cavities. Treatment with streptomycin is usually highly effective in all forms of the disease.

Etiology

The causal agent is *Actinobacillus lignieresii*, a bacterium which, on primary isolation, appears as a small (1.2 × 0.4 μm) rod-shaped organism, although marked pleomorphism may occur. It is Gram negative and sometimes shows bipolar staining. For more detailed information regarding the morphological, cultural, biochemical and antigenic properties of this bacterium, the reader is directed to the work of Soltys (1963).

Pathogenesis

*Actinobacillus lignieresii* is a common inhabitant of the normal alimentary tract and it is generally accepted that it gains access to tissues through breeches in the epithelial lining such as occur following trauma, ulceration or the eruption of permanent teeth.

The primary lesion is a small purulent focus which gradually enlarges and extends, sometimes with the formation of discharging ulcers. Later, there may be extensive development of granulation and fibrous tissue containing pockets of pus which is usually thick, yellowish-green in colour and contains small (0.4 mm diameter) granules. The associated lymph-nodes are usually also