

ANTHRAX AND BLACK-LEG

The history of anthrax and black-leg can be traced through past centuries with little difficulty, even though their exact causes were unknown until comparatively recent years. In fact, the former affection is one of the first diseases of which we have a record. Both are almost world-wide in their distribution, usually appearing in isolated outbreaks, although they may be quite common in certain districts.

The determining of the cause of anthrax was a direct result of the improvement and perfection of microscopic lenses; its causative organism, however, was observed as early as 1849, though the objects seen in the blood under high magnification were not directly connected with the disease until 1863. A still further period elapsed before the casual relation of these objects to anthrax was generally accepted.

The discovery of the organism causing black-leg followed the finding of the bacillus of anthrax by some years (1878), and it was not until 1880 that its principal characters were determined and studied.

Anthrax may appear in a severe or mild form among all our domestic animals, being contracted, as a rule, by direct inoculation with material containing the germ, through the skin or the mucous membrane of the mouth, intestinal tract, or the lungs. Human beings are susceptible to this disease, infection, as a rule, resulting from direct inoculation of individuals dealing with diseased carcasses or their products, such as hides, hair, and wool. From the fact that the disease is quite frequently observed among people handling wool, it is called in England "Wool sorter's disease."

Black-leg is seen almost exclusively in cattle, particularly among the younger animals, seldom in those over two, and very rarely in those over four, years of age. Swine and sheep may be affected, but outbreaks are infrequently observed among these animals, and not at all in other animals or in man. Black-leg, like anthrax, is contracted by direct inoculation with material containing its germ, through the skin or the mucous membranes of the mouth, digestive tract, or lungs.

The causative bacilli of anthrax are microscopic in size, and occur in enormous numbers in the blood of affected animals. Their presence in the blood renders it tarry in consistency, very dark in colour, and prevents it clotting after the death of the animal. These germs form themselves into long chains during their multiplication and growth, and, when deprived of favourable surroundings, resting bodies (spores) are formed, these having special resistant powers so that ordinary disinfectants to destroy their vitality unless applied for a considerable time. These resting forms or spores do not form in the carcass of an animal dead of the disease, provided the skin is left whole on the animal, as a large amount of air (oxygen) is required for their development, although they are found in the bloody discharges which exude from the natural openings of the body, such as the mouth, nose, anus, etc.

The reappearance of anthrax on ground once infected is due to these spores or resistant forms which retain their vitality for years, even though their surroundings are unfavourable. The destruction of anthrax germs within the carcass, as above described, is in part due to the presence of other microbes, which, while otherwise harmless, are their natural enemies.

Black-leg is caused by a germ distinctly different from the one causing anthrax, it being much smaller and growing only in the absence of air (oxygen). It also forms resting bodies or spores. The organism of black-leg is not found in the blood, save immediately before or after the death of an animal dying of this disease; even then it is found in very small numbers only. The blood of an animal dead of this disease is normal in colour, and clots quickly when exposed to the air, being entirely different in this respect to the blood from an anthrax carcass, which is tarry and will not clot. The germs, while not numerous in the blood, are present in great numbers in the