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"SWELLED HEAD" IN RAMS

By C. R. TOOP, B.V.Sc., Chief Veterinary Surgeon

DURING the summer and autumn months a disease of rams, popularly known as "swelled head" or "big-head" is encountered from time to time in Western Australian flocks. The condition is almost entirely confined to rams of the horned breeds and outbreaks which have come under notice in this State have occurred only among Merinos and Dorset Horns. Young rams and weaners are most frequently affected and the disease results from the infection of wounds about the forehead sustained by the animals when fighting.

Rams of all ages may become affected but the disease is seen most frequently in weaners which appear to be less resistant to infection than are older rams. Moreover, weaners are usually allowed to run in fairly large mobs and at this age are more prone to indulge in fighting than are the more mature animals.

SYMPTOMS

The disease gains its popular names from the main symptom, a dropsical swelling of the head which in consequence becomes enormously enlarged. The outward indications of the disease usually commence with a slight swelling beneath the lower jaw which rapidly increases in size until, at the end of 24 hours, the head may be distended to twice its normal size. The swelling involves the lower jaw, throat, nose, face, eyelids and ears and may in some cases extend to the upper portion of the neck.

At this stage the animal is unable to eat or drink and spends most of its time lying down in the normal resting position. As a result of the swelling, the eyelids are completely closed and a discharge containing pus is usually observed. The eyes are normal in appearance, however, when examined by parting the lids. The breathing rate is increased and in some cases is accompanied by snoring. In the majority of cases, death occurs within two or three days of the onset of symptoms unless treatment is given, but spontaneous recovery may occur in less severe cases.

Although the percentage of rams which become affected is usually small, rarely exceeding five per cent. of the flock, the disease may become a matter of serious concern particularly to the studbreeder on account of the high value of individual animals which may succumb to the disease.



"Swelled head" in a young Merino ram.
(After Bull.)

POST MORTEM APPEARANCES

On opening the swelling, the tissues immediately beneath the skin are seen to be infiltrated with a clear straw-coloured fluid which exudes freely from the cut surface and coagulates to form a gelatinous mass on coming into contact with the air. The deeper muscular

tissue is normal in appearance. The thorax or chest cavity contains a large quantity of the same straw-coloured fluid. The pericardial sac which encloses the heart, also contains an excess of fluid but no other changes of note are observed at post mortem.

CAUSE

The disease is caused by a micro-organism known as *Clostridium oedematiens*, which is widely distributed in nature and is frequently found in the soil of farm lands. These organisms gain entrance to wounds in the region of the forehead and bases of the horns where they become established and multiply, setting up the characteristic changes in the tissues already described. The wounds are often quite small and insignificant and their presence may be overlooked unless a careful examination is made.

Mortalities in rams resulting from "swelled-head" appear to be confined to the dry period of the year, occurring particularly during the autumn months. Outbreaks of the disease have not been observed during winter or spring when the soil is moist and covered by a good growth of green herbage. This rather suggests that the infection of the wounds results from the contamination by dust containing spores of the casual organism.

DIAGNOSIS

The fact that the disease is confined to rams and more particularly young rams, will usually serve to distinguish "swelled-head" from other diseases. Light sensitization is probably the only condition with which it is likely to become confused.

Light sensitization may be induced by the consumption of a variety of plants which under certain conditions form a substance in the blood which sensitizes the body cells to the sunlight, resulting in the formation of oedematous (containing a watery fluid) swellings in the skin and underlying tissues.

Sheep suffering from light sensitization may show considerable swelling of the head, but this is accompanied by dermatitis or inflammation of the skin, which may cause considerable irritation. Vesicles and pustules which subsequently rupture and discharge make their appearance on the affected skin, which in consequence becomes covered with crusts and scabs. In severe cases sloughing of the superficial layers of the skin may occur. The condition may also affect the lower portions of the limbs, and the backs of newly shorn sheep.

In contrast with "swelled-head," which is largely confined to young rams, light sensitization may affect sheep of both sexes and all ages. Moreover, when affected sheep are removed from the offending pasture and placed under cover out of the direct rays of the sun, recovery usually occurs. Cases of "swelled-head" rarely recover without special treatment.

PREVENTION BY VACCINATION

Vaccination provides the only practical and reliable method of prevention. Black disease vaccine prepared from cultures of the organism which cause the disease is used for this purpose.

The dose of this product for the sheep is 2cc. which should be injected beneath the skin of the bare area on the outer surface of the brisket. A single injection of the vaccine confers a strong and lasting immunity which may be relied upon to protect the animal from infection for at least one year after vaccination.

A very high degree of immunity is developed 14 days after the injection, the maximum being reached at about 21 days.

On properties on which the disease is known to occur, rams should be vaccinated at the beginning of summer, which will provide them with adequate protection during the ensuing 3-4 months when they are exposed to the

greatest degree of risk. Ram lambs could, if found convenient, be inoculated at the time of weaning:

In passing it is interesting to note that the same organism (*Cl. oedematiens*) which causes swelled head in rams also causes "black disease"—a braxy-like disease, which is responsible for serious mortalities in sheep in Eastern Australia. "Black disease," however, occurs only in association with infestation by the liver fluke. Fortunately the liver fluke does not occur in Western Australia, which in consequence is also free of "black disease." The same vaccine protects against both diseases.

TREATMENT

For the treatment of affected rams the injection of gas-gangrene antiserum (*oedematiens*) in a dosage of 5,000-10,000 units may be recommended. Provided treatment is commenced early enough, a satisfactory response may be expected.

This product is prepared by the Commonwealth Serum Laboratories and is available from the Commonwealth Department of Health, Fourth Floor, G.P.O., Perth. It is administered by injection beneath the skin of the brisket by means of a hypodermic syringe.

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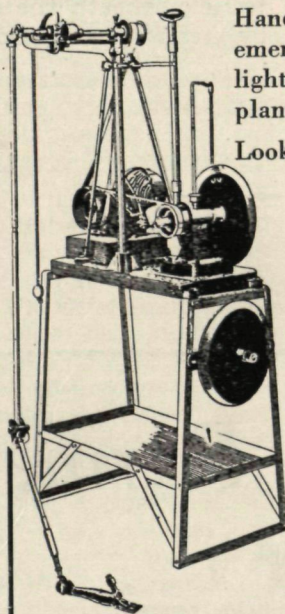
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