Pregnancy Disease In Ewes

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Pregnancy Disease In Ewes

Some recent notations

Donald E. Moore, '45

PREGNANCY disease may be defined as a toxemia of advanced pregnancy characterized by paralysis and convulsions, a high mortality, extreme fatty degeneration of the liver and an extreme ketonuria.¹

It is a world wide disease occurring wherever sheep are raised, and it is the major disease of pregnant ewes in Iowa. All breeds of sheep are susceptible. Usually only the older and more mature ewes are seen with the disease. In Missouri, Elder and Uren⁵ report that 80 per cent of the trouble is seen in poorlyconditioned ewes. Losses vary from 1 to 25 per cent in a flock and over 90 per cent of the cases are fatal.

Etiology

Many explanations have been suggested as to the etiology. Heavy feeding and lack of exercise were suggested by H. L. Foust.² Colorado workers report a bipolar organism was found in their studies, but this has not been confirmed. Roderick and Harshfield⁴ were of the opinion the disease is primarily a toxemia of pregnancy, while Sampson, Gonzaga and Hayden⁶ maintain the disease is a ketosis. Dimock, Heally and Hull⁹ state the condition is an acidosis resulting from improper nourishment and care, and an increased demand on the maternal calcium during the last two months of pregnancy. Murille and Izcara⁷ consider the disease an infectious inflammation of the bile ducts and gall bladder. Elder and Uren⁸ are of the opinion the disease is largely one of feeding and management and is probably closely associated with a disturbance of carbohydrate metabolism. It seems logical that the drain of Vitamin A is much greater in a pregnant ewe than in a barren ewe. A barren ewe may survive 27 to 30 months on a Vitamin A deficient ration. The prompt results obtained by Foss and Eveleth¹⁰ suggest there is possibly a relation of a lack of Vitamin A in the ewe's body to pregnancy disease.

In the early stages of the disease clinical symptoms are not noticeable. However, if a urine analysis of the suspected individual reveals a positive test for ketone bodies one may reasonably suspect pregnancy disease and begin treatment. The disease is first noticed by the farmer when the losses start to occur. Usually the losses occur in ewes 10 to 20 days prior to parturition. The individual appears dull and often begins to walk in circles. This necessitates a differentiation from Listerellosis. In differential diagnosis, Olafson¹¹ describes the seasonal incidence and the course as the same; facial and ear paralysis are absent in pregnancy disease and grinding of the teeth is more common. The head may be turned to one side, but does not fly back when straightened such as in Listerellosis. A ketonuria in most cases is present from the beginning in pregnancy disease.

Conjunctivitis

Foss and Eveleth¹⁰ in their cases found a marked conjunctivitis and corneal opaqueness with orange discolorations.

Generally the ewes become recumbent in several days. They assume a position with their heads turned back to the side giving a picture much like that of a cow with milk fever. The temperature is normal or sub-normal. The appetite is lost,
but the animal will often drink water. As the disease progresses there is a general weakness and a marked incoordination.

A clinical laboratory study of the urine reveals a state of acidosis in the body. The urine is acid, it contains albumin, an increased amount of ammonia and acetone bodies. Blood analysis reveals a hypocalcemia, and an increased amount of phosphorus resulting in a Ca/P ratio lower than normal.

Although the ewe is emaciated, there still remains a fairly large amount of fat on the omentum and the internal organs, but it is mottled in appearance. The spleen and heart appear normal. The lungs may show congestion and hyperemia, but this is a secondary change due to the animal being down for a period of time. The digestive tract shows little or no change.

**Liver**

The liver and kidneys show the major pathological changes, according to Dimock, Healy and Hull. In their study of the liver they found it uniformly enlarged, soft, friable and mottled with irregular shaped areas of a yellowish or clay color. Often the entire liver may be of this color. A microscopic examination of the liver reveals varying degrees of degeneration. Sometimes the degenerated areas are scattered throughout the tissue, other livers have only interlobular changes, although some extend into the lobules. In the outer portion of the lobule there is a distinct cellular degeneration. An examination of the deeper layers of the lobule show cell changes granular in nature.

One may conclude by saying the cellular change is a cloudy swelling or parenchymatous degeneration, followed by fatty degeneration.

In most cases the kidneys are found to be greatly enlarged. When an incision is made on the capsule the kidney tissue protrudes. As a whole the kidney is soft, and almost a pulpy mass in some cases. It is dark in color and engorged with blood. The histology is variable, from cloudy swelling in the convoluted tubules to a complete break-down of the cytoplasm lining the tubules.

In Dimock's report on the autopsy of 106 ewes an occasional case of fatty degeneration of the kidney was found.

In general, the glomeruli are not abnormal. However, some may show congestion and hemorrhage while a few might have a granular exudate within the capsule, but not in contact with the cellular structure of the glomeruli.

Foss and Eveleth report that on post-mortem examination they found the brains of some ewes to be congested. This they attributed to the moribund condition of the ewe.

The most constant feature and one which many consider a necessary predisposing factor in the cause of the disease is the presence of twins, triplets or an abnormally large lamb in the uterus. Some authors say if the ewe is killed and opened immediately the lambs will be found alive. The development of the fetus is not affected. However, South Dakota workers found macerated lambs with a mottled liver and opaque corneas.

At the present time no specific treatment has been found for the condition.

Foss and Eveleth, in 1944, have reported some success with the addition of Vitamin A and D to the ration. However, no controls were run as their work was done on clinical cases. Some have obtained results by the parenteral administration of 500 cc. of 5 per cent glucose daily until the condition improved.

**Use of Molasses**

Leslie used molasses in his work and got a 40 per cent recovery of his cases. The following doses were given on the feed. One and one-half pounds per day for large ewes, such as Oxords; three-fourths to one pound for medium sized ewes like the Shropshire, and for small ewes, such as Southdowns, one-half pound per day was given. Parenteral injections of 500 cc. of a hypotonic solution of glucose may be administered in conjunction with the molasses.

Van Rensburg of South Africa used sterilized bone meal in a dose of one teaspoonful three times a day for each ewe. Since that time bone-meal licks have been supplied to the sheep in that region and (Continued on page 230)

The following interpretation has been given by one of the State Directors concerning refresher and retraining courses:

“A veteran, to receive the fullest benefits of refresher training, should have a complete program before beginning the refresher work. If such a program has been prepared it may extend over the maximum time available to the veteran. It is not necessary that the quarters, semesters, or periods be consecutive, that is, it would appear that considerable time might elapse between refresher training courses but it must be borne in mind that the program of courses for the trainee must have been prepared in all details previous to his entrance upon the refresher courses, provided that all of the work in the program be completed within the specified time permitted by the law. Furthermore, if a program is made out previous to the veteran’s entrance upon his work, he may take work in different institutions.”

In response to recent inquiries most Colleges of Veterinary Medicine have indicated they have tentative programs of retraining or refresher courses for veterans of the Veterinary Corps. These programs may only become effective when numbers sufficient to warrant forming separate groups for instruction are available. Such programs vary in length and in content with various colleges.

In the event that but a few wish to take refresher courses they may enter the classes of regular students for the work they desire. This arrangement is being followed by some colleges at the present time.

There may be those who may qualify under either Public Laws 346 or 16 for more formal training which may lead to credit toward graduate courses and degrees.

Prospective applicants for the work which may be offered by the various colleges should direct inquiries for further information to the colleges in which they desire to do refresher, retraining, or graduate work. The procedure for application to the Veterans Administration is given in the first portion of this discussion.

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up to 1931, when the article was published, the disease had vanished.

Acetylcholine Bromide was used by Hall on seven cases of pregnancy disease and good results were obtained. The pharmacological action, according to the Merck Index\textsuperscript{15}, results in vasoconstriction. It decreases the heart beat, lowers the blood pressure, and increases intestinal peristalsis.

In general, all workers agree that the ewe and fetus should be fed a balanced ration and receive adequate exercise. A ration should be of a quality to meet the demands of the body and in a sufficient quantity for the ewe and fetus. There should be a gradual improvement in the general condition of the ewe as well as a gain in weight throughout the period of pregnancy.

REFERENCES

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