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Mississippi Agricultural Experiment Station.

BULLETIN No. 71.

MILK FEVER.

By J. C. ROBERT.



Cow sick with Parturient Paralysis. "Milk Fever," (Armtage.)

AGRICULTURAL COLLEGE, MISS.,

JANUARY, 1902.

MILK FEVER.

Parturient paralysis, parturient apoplexy, or "milk fever" is the name applied to the disease peculiar to cows seen at or about the time of calving. The disease is one especially to be dreaded because it occurs only in deep milkers at the prime of life, and has usually resulted in death. The name "milk fever" is misleading since there is no fever when the disease is uncomplicated, but frequently a sub-normal temperature.

Cause.—The pathology of this disease is not well understood. Many theories concerning its production have been advanced, the latest and most rational of which is that given by a Danish veterinarian, J. Schmidt, which is as follows: viz.; that the disease is due to a poison generated in the udder and absorbed by the system. The sudden increased flow of milk incident to birth of the calf results in casting off into the milk channels great quantities of glandular cells. These decompose, form poisons, are absorbed into the circulation, permeate the tissues, and produce auto-intoxication. The toxic effect of this poison is especially manifested by the nervous system resulting in paralysis, hence the name, parturient (at the time of birth) paralysis.

Symptoms.—These usually occur from a few hours to three or four days after birth of the calf, (in rare cases a few weeks after calving), and, as a rule, follow an easy and rapid delivery. The symptoms are mainly those of nervous disturbance. At the onset of the disease the cow becomes excited, she moves around the lot or pasture as if in pain; may lie down and then get up immediately, turn head to side, and kick at flank; groans, and grinds her teeth. Later, she loses control of her muscular power as seen in dragging the hind legs, staggers, lies down and rises with great difficulty, finally becomes so paralyzed that she cannot rise at all. When down she usually rests upon her chest with head turned to the side or flank, but she may stretch her head out straight. The bowels and urinary bladder are more or less paralyzed, resulting in a torpid

condition of intestine and retention of urine. Later, loss of reflex motion occurs, so that the eye-ball may be touched with the finger and she may not close the lid. The pharynx and gullet are unable to take food to the stomach, so that an effort to drench the cow is apt to result in death, by the liquid entering the lungs and producing broncho-pneumonia from irritation of the bronchial tubes or possibly, producing immediate suffocation and death. As the stomach and intestines are paralyzed, the food may ferment and cause the animal to become bloated. The pulse is rapid and weak (60 to 120 per minute), respiration labored, and temperature about normal (100.5 to 102.0 degrees F.), in some cases the temperature is sub-normal.

Treatment.—*Preventative.*—Since parturient apoplexy is almost invariably confined to *deep milkers at the time of parturition*, our efforts should be directed towards lessening the activity of the udder at that time. This may be done by scanty feeding for a few days before she calves. If the cow is on a rich pasture, change her to a poor one. Cows kept on rich pastures seem just as subject to the disease as those that are stall-fed. We should see that the bowels are not costive. This condition may be obviated by giving daily a little laxative food, or giving one-fourth or one-half dose of Epsom salts.

It is very important that the cow have sufficient exercise, and it would be quite a mistake to confine her in a stable waiting for her to calve. Since the disease seems to be produced by an absorption into the general circulation of decomposed, cast-off glandular cells, it would appear quite rational to milk out the udder thoroughly two or three times daily just before calving, especially when a cow seems predisposed to the disease. We have never tried this but some practitioners have, and they report good results. We have, however, had good results by restricting the diet and giving sufficient exercise.

Curative Treatment.—But few diseases probably, have given rise to the use of so many drugs as this one. Many cases have been aggravated and some killed by internal medication. Schmidt's treatment, based upon his theory of its cause, is to infuse into each quarter of the

udder a solution of iodide of potash. The idea of this infusion is to neutralize the poison and temporarily lessen the activity of the udder. This seems to be the effect of the potash, which has, in the majority of cases, been followed by speedy recovery. We have not had extensive experience with Schmidt's treatment, but sufficient to convince us of its efficiency; and it has proven by far the best we have ever used.

This treatment is in detail as follows: Wash the udder, and teats of the animal, and hands of the operator with soap and warm water, so as to remove all dirt and trash. After this, wash especially the orifice of the teats, with some strong antiseptic, say a 5 per cent. watery solution of creolin or carbolic acid. From two to three drams of iodide of potash (depending upon the size of the cow) are dissolved in 1 quart of boiled water that is perfectly clear. It is better to use distilled water if we can secure it. This solution is infused into the udder by means of a small glass funnel, to which is attached one end of a rubber tube of sufficient length and one-eighth of an inch in diameter. The other end of the rubber is attached to an ordinary milk tube. Before using, the funnel, tube, and rubber should be sterilized by placing them in cold water and boiling. Milk each teat carefully so as to remove all milk from the udder, and then insert the milk tube into the teat and pour in the fluid having it about the temperature of the body; first, hold the funnel on a level with the teat while filling it, then elevate funnel so that the potash solution flows into the udder. Use one-fourth of it in each quarter of the udder. Rub the udder for 10 or 15 minutes, and in about an hour milk all out that can be removed. If necessary, this treatment may be repeated in from 8 to 12 hours.

In addition to the iodide of potash treatment, we should place the cow upon a comfortable bed of straw, rub the feet, legs, and back to excite free circulation of the blood. Inject warm water containing 4 to 6 ounces of glycerine into the lower bowels to move them. If the cow is down and cannot rise, remove the urine every eight hours by means of an ordinary large soft rubber catheter. The catheter guarded by the index finger, is passed along the floor of the

vagina, where we find a small opening about 4 inches from the vulva which leads into the bladder. If the cow can swallow well, we should drench with from one to one and a half pounds Epsom salts combined with three ounces of ground ginger. When the cow cannot swallow some advocate passing a three-fourth inch rubber hose about 7 or 8 feet long, after oiling it, down the gullet to the stomach and then pouring in the drench. *Do not try to drench when the cow is paralyzed*, as some of the liquid will enter the lungs and sooner or later result in death. The constipation, we think, is of comparatively minor importance, so you should never try to drench when the disease has reached the stage of paralysis.

If the cow becomes bloated sufficiently to interfere with the breathing, the paunch should be punctured (on the left side at a point equally distant from the last rib, hip-bone and back-bone) with a trocar and canula. Use great care in disinfecting the instruments and skin of animal, and in withdrawing the instrument hold the skin firmly against the abdominal muscles. The hypodermic use of such drugs as caffeine, strychnia, eserine, and pilocarpin give good results in some cases.

Within the last few weeks I have had 4 cases of parturient paralysis, treated them with Schmidt's treatment with result of a rapid recovery of three. Two of the cases that recovered were completely paralyzed before seen by me; two of them received one infusion of iodide of potash, one received two infusions of this drug and recovered; one died before the second infusion was made.

Dr. Leonard Pearson, of Pennsylvania, sent out circular letters to a number of veterinarians in reference to this subject and showed that 75 per cent. of the cows treated by the iodide of potash solution recovered; Danish statistics claim 90 per cent of recoveries in 412 cases; a German writer claims 82 per cent cures; and Dr. Jno. J. Repp, of Iowa, has collected statistics of 166 cases in Iowa, with results of recoveries in about 76 per cent in uncomplicated parturient paralysis, by use of Schmidt's treatment. Where a funnel, milk tube, and rubber tubing cannot be had one may readily use a very small, soft rubber catheter to enter the teat and a small, hard rubber syringe to inject the fluid therein.