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A Transmissable Erosive Gastro-Enteritis of Cattle

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A WIDESPREAD OCCURRENCE of an unusual disease of cattle has appeared in Indiana dairy and beef herds. It was characterized clinically by fever, nasal discharge, erosions of the buccal mucosa, lameness, cough and profuse diarrhea and at necropsy by congestion, hemorrhages and erosions of the mucosa of the entire digestive tract and congestion of the upper portion of the respiratory system. The disease was readily transmitted to calves both by direct and indirect contact and by inoculation of filtrates of blood obtained from affected animals. It has been called transmissible erosive gastro-enteritis of cattle.

Transmissible erosive gastro-enteritis resembled in many major respects a number of other reported diseases of cattle. It very closely resembled virus diarrhea as described by Olafson, MacCallum and Fox (1946) from New York and epizootic enteritis, which was described by Hedstrom and Isakson (1951) in Sweden. Many clinical and pathological aspects of this disease were also similar to a disease reported from Saskatchewan by Childs in 1946 and mucosal disease reported by Ramsey and Chivers (1953) and Ramsey (1954). In addition, transmissible erosive gastro-enteritis has some of the characteristics of bovine malignant catarrh and two exotic diseases, blue tongue and rinderpest.

Cross-protection tests conducted with virus diarrhea and transmissible erosive gastro-enteritis indicated that the two diseases were different at least immunologically. No comparisons of this nature have been made with epizootic enteritis. The etiologies of the disease described by Childs and of mucosal disease have not been definitely established, therefore means of conclusively differentiating these diseases from transmissible erosive gastro-enteritis are not yet available. No comparisons have been made between the etiologic agent of this disease and bovine malignant catarrh, blue tongue or rinderpest.

Case reports of two occurrences of this disease are included. Case number 1 was typical of the majority of cases. Case number 2 represents a milder form of the disease and was observed in a small number of cases.

Case Number 1- (Severe Clinical Course)

History

The herd consisted of 41 head of 1,000-1,100 pound fat Hereford steers that had been on full feed in dry lot for about seven months. All of these animals were native to the area and about 50 percent had...
been raised on the farm. The only other cattle on the farm were six 350 pound calves that had been purchased at a public sales barn two weeks earlier. They were quartered in a lot adjacent to these animals and were separated from them by ordinary wooden gates. Both groups consumed water from a common tank. The owner revealed that several of the calves had “snotty” noses and one had a circular “sore” on its muzzle at the time they were purchased. They were sick for about a week subsequent to this time but were not examined by a veterinarian. About 80 pigs were kept in the lot with the fat steers. There was no previous history of illness among the fat steers or swine.

Clinical Observations

Day 1 — The owner noted that one of the steers was “off-feed”, depressed, breathed rapidly and had a profuse watery nasal discharge. He did not call a veterinarian.

Day 2 — Four additional animals were found to be ill by the owner. He suspected shipping fever and called his veterinarian. Examination revealed fever (105-108°F.), tachycardia, polypnea, marked depression, an intermittent harsh dry non-productive cough and a profuse serous nasal discharge. Palpation, percussion and auscultation of the thorax, however, did not reveal signs of pulmonary pathology. Two of these animals were markedly lame and stood and walked with most of their weight on their heels in a manner suggestive of laminitis.

The steer that had been noted to be ill the preceding day was more markedly affected. The nasal discharge had become thick and viscous and covered most of the muzzle. Circular and elongated reddened areas and erosions were found on the lips, dental pad and buccal mucosa. The feces were hard and contained pea-sized flecks of mucus and bright red blood clots. This animal died later that day. No post-mortem examination was made.

Day 3 — Seven additional animals developed early signs of disease. The four that first became ill on day 2 had profuse viscous nasal discharges and mucus and blood were present in the feces. Fever, depression, cough and lameness continued. No evidence of marked pulmonary pathology was detected. One of these animals died. No post-mortem examination was made.

Day 4 — The entire herd was run through a chute and all were subjected to complete clinical examinations. A total of 33 head had fevers (104-108°F.) and nasal discharges. Some of these animals were lame (20 percent) and some had mouth lesions (10 percent). All affected animals coughed intermittently.

Days 6 to 10 — All of the rest of the steers in this herd developed similar early signs of disease. Many of the animals that first became ill were less depressed, had started to eat and had normal temperatures. Their nasal discharges, cough, lameness and to a lesser degree their mouth lesions were still present. In most of these the feces had become soft in consistency and contained large quantities of mucus. Much of the mucus was present in the form of long tough strands measuring one-half to three-fourths of an inch in diameter and several inches to several feet in length. Many pea-sized blood clots were also present. The herd was first observed by the writer on day 10.

Days 11 to 13 — A number of the animals that first became ill developed diarrhea. The feces were very watery in consistency and contained large quantities of mucus and numerous bubbles and blood clots. In some animals the feces was composed almost entirely of mucus so that it rather closely resembled egg albumen. The nasal discharges were still present in these animals, but were less marked than earlier in the course of the disease. Coughing and lameness continued.

Day 14 and 15 — Two of the recently affected animals were very ill. They remained recumbent, were depressed, had profuse nasal discharges, fever, pronounced diarrhea, but no mouth lesions. Both of these animals had a leucopenia. Their total leucocyte counts were 2,200 and 3,000 per mm³.

Day 16 — The two animals that were severely involved died. Post-mortem ex-
amination revealed congestion, hemorrhages and superficial erosions of the mucosa of the entire digestive tract. A catarrhal exudate was present throughout the intestines. The most marked lesions were found in the esophagus, the abomasum and the small intestines. An ulcer measuring 1 x 3 inches was found in the abomasum of one animal. The lymph nodes were large and edematous. Congestion of the mucosa of the nasal cavity, larynx, trachea and bronchi was observed. A sticky mucus exudate was present in these areas. Feronitis which resulted from a perforation of the large intestine was found in one animal.

Day 18 — Another animal died and was necropsied. Similar lesions were found.

Day 19 — A few animals appeared to have completely recovered. Most of the rest had diarrhea and most of them still coughed. Much mucus and blood was present in the feces. Nasal discharges were no longer present in about 50 percent of the animals. Six animals were still markedly lame. A few others walked with a stiff or halting gait.

Day 34 — Marked improvement was noted. About 50 percent of the animals appeared to be completely recovered. Two, however, were completely “off-feed.” Twelve had nasal discharges which were becoming more serous in character. The six steers with laminitis were still lame. Diarrhea was definitely noted in only two animals although a number had soft feces. The herd was eating about 50 percent as much concentrate as they had before the onset of the disease. Weight loss since the onset was estimated at 150 to 200 pounds per animal.

Days 45 to 50 — All animals were believed to have recovered although many were not eating as well as might be expected.

At no time did the swine running with this herd exhibit any signs of disease.

Day 80 — The herd was sold for slaughter.

Treatment

The first 35 head of steers to become ill were repeatedly treated with massive doses of penicillin, streptomycin and terramycin by the attending veterinarian. In addition many of them were treated daily with intravenous doses of triple sulfas (sodium sulfathiazole, sodium sulfamerazine and sodium sulfapyridine). During the early part of the second week of illness sodium sulfathiazole was administered in the drinking water to all animals. All of the five animals that died had received these treatments. After day 10 all therapy was discontinued except in the three severely affected animals that eventually died. No difference in the course of the disease was noted in those that were treated as compared to those that received little or no treatment.

The disease was reproduced in a calf in the laboratory by the intravenous administration of 5 ml. of defibrinated blood obtained from an animal in this herd during a period when leucopenia was present.

Case Number 2 — (Mild Clinical Course)

History

The herd consisted of 116 head of 800 pound Hereford feeder steers. Nine had been raised on the farm and 107 had originated in Colorado. They had, however, been fed at another Indiana farm for six weeks prior to delivery at this farm. They were on full feed in dry lot and had made satisfactory weight gains. About 100 head of feeder pigs were kept in the same lot. Thirty-one days after they were purchased the owner noted that one animal had a “snotty” nose, was “off-feed”, depressed and had a profuse watery diarrhea. This animal died the next day. No post-mortem examination was made. No veterinarian had been called. The rest of the herd remained healthy and continued to make satisfactory weight gains for 36 days or until day 1 below.

Clinical Observations

Day 1 (67 days after purchase) — The owner noted that several of the animals had watery nasal discharges and were off feed. He suspected shipping fever and called a veterinarian. Physical examina-
tions revealed mild fever (103-104.5°), serous nasal discharges, depression, a cough and mucus and blood in the feces in six animals. Two animals had superficial erosions of the buccal mucosa. No evidence of pneumonia was obtained. A diagnosis of transmissible erosive gastroenteritis was made and no treatment was given.

Day 2 to 21 — During this time most, if not all, of the animals in the herd became affected. The herd was first observed by the writer on day 11. New cases appeared at the rate of approximately 30 per week. The course of the disease was mild and generally conformed to the following pattern. The first 2-7 days of illness were characterized by moderate fever (103-104.0°F) partial anorexia, depression, nasal discharge, cough, leucopenia and passage of mucus and blood with the feces. Erosions of the buccal mucosa occurred in about 10 percent, and approximately 20 percent developed varying degrees of stiffness but no laminitis. A few also developed diarrhea during this period. This period was followed by one of 2-10 days in which diarrhea was the only marked clinical sign. Coughing occurred, however, and to a much lesser extent the nasal discharge persisted in some during this period.

Day 34 — The herd appeared to be practically recovered although several animals were not eating normally. The owner and the attending veterinarian estimated the weight loss from this disease to be approximately 75-100 pounds per head. None of the pigs in this lot developed any signs of disease. The stock cattle on the other part of the farm were cared for by a person who had no contact with the steers and did not develop disease.

The disease was reproduced in a calf in the laboratory by the intravenous administration of 5 ml. of defibrinated blood obtained from an animal in this herd at a time when leucopenia was present.

Summary

A description is given of an apparently new disease of cattle that has been tenta-

vively named transmissible erosive gastroenteritis. The disease has been observed in many beef and some dairy herds in Indiana. It bears some resemblance to several other diseases of cattle, and presently the only definitive information available indicates that it is immunologically unrelated to virus diarrhea (New York).

Bibliography


Semen (Continued from page 151)

15 to 25 volts. The prepuce is thoroughly cleansed prior to stimulation and semen may be collected in a funnel and tube or a large mouth beaker.

No adverse effects have been noticed on 10 bulls so stimulated. However, it is not a substitute for an artificial vagina if the animal in question will mount.

The intramuscular use of 1.5 Gm. of ACTH as initial dosage, followed by 1.0 Gm. daily where recovery is not apparent after the first dose or in relapses, is suggested in treatment of ketosis in dairy cattle. Satisfactory response was reported in the limited number of cases treated. There is usually improvement in the appetite in 24 hours with normal appetite in 48 hours. Cortisone in similar dosage provides the same therapeutic action and clinical response in ketosis.

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