Atresia Coli

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Uterus with macerated fetus on Dec. 9, showed no change in the genital tract.

On Dec. 10, the cow died. Necropsy revealed a generalized fibrino-purulent peritonitis, apparently originating in the region of the reticulum at a point where two nails were adherent to its edges. Adhesions were found between the reticulum and the diaphragm. Metastatic abscesses were present in the liver. There was a pleuritis with diaphragmatic adhesions. A conglomerate mass of fetal bones was found lying in the body of the uterus; the walls of the uterus were greatly thickened, especially the mucosa, due to the chronic purulent metritis.

—C. D. Sours, '41

Atresia Coli. A month-old calf was admitted to the Iowa State College Veterinary Clinic on Jan. 20, 1941. The calf would drink milk sparingly, and the abdominal cavity appeared to be distended with gas. The owner reported that as long as the calf was nursing the cow it appeared normal, but when “pail-fed” again, it promptly bloated. The owner had given the calf a cathartic a few days previous to its entry into the clinic, but reported negative results. The calf’s visible mucous membranes were “muddy,” which was evidence of a possible toxemia, but otherwise it appeared to be in fair condition.

The calf was given an enema when first admitted to the clinic; the tube being introduced about 30 inches into the rectum and colon. One-half gallon of warm water was allowed to gravitate into the colon. This was retained for some time by the calf so pressure was applied to the abdomen and the water forced out, washing out a white mucous plug about 18 inches long, but no fecal material. The next day the calf was unable to stand. No hope was held for its recovery, so the clinicians decided to submit the calf for post-mortem examination. Euthanasia was accomplished by electrocution, employing 115 volts of A. C. for 30 seconds.

Necropsy

The most important changes were confined to the forestomachs, small intestine, cecum, and to about 20 inches of the large colon. These were very hyperemic and distended with ingesta, fecal material and gas. The alimentary tract ended abruptly in a blind pouch about 20 inches posterior to the cecum; there was no trace of a connection between it and the terminal portion of the colon, nor was there any evidence that such a connection had ever been present. The terminal colon was overlapped by the distended portion for about 7 inches, but the mesenteric blood vessels did not appear to be pulled out of position. It is logical to assume that there had never been a direct connection between the two blind ends. The wall of the posterior colon and the rectum was apparently normal, but the lumen was only large enough to admit an enterotome blade, probably because it had never functioned.

There was a catarrhal inflammation of the wall of the anterior colon, and the lumen contained a light chocolate colored, offensive smelling liquid and clumps of fecal material. Thus, the “muddy” membranes were due to stercoremia. The peculiar dietary behavior of the calf was probably due to the fact that when with the cow it nursed often, but took only a small amount of milk at a time. As a consequence it never had more food material in its digestive tract than it could quickly digest and absorb, so there was no over-
loading and no gas formation such as occurred when it was pail-fed.

Normal

In the normal digestive tract of cattle the cecum is at the junction of the ileum with the colon. The cecum extends backward and upward along the right flank with its rounded blind end at the right side of the pelvic inlet. The colon should be about 35 feet in length in the adult with the diameter at first being about that of the cecum (5 inches), but soon diminishing to about 2 inches. The colon begins as a direct continuation of the cecum, runs forward a short distance and turns dorsally and backward above the cecum to the posterior part of the sublumbar region. Then it runs forward again parallel with the above part to the region of the second lumbar vertebra, then backward once more and is continued by the spiral part. The terminal part of the colon leaves the spiral mass, passes forward to the level of the great mesenteric artery and then runs backward to join the rectum. In the month-old calf the colon should normally be about 7 feet long, but in this calf the length was not over 4 feet.

Abnormal

From what was seen at necropsy, it is believed that the spiral part of the colon was entirely missing in this calf, for after the colon left the cecum it continued as a greatly enlarged structure for approximately 20 inches in an S-curve, and terminated abruptly in a blind pouch about 6 inches in diameter, in contrast to a normal colon diameter of 2 inches or less. In the mesentery which supported this blind pouch in approximately the position from which the colon normally leaves the spiral portion of the colon, the terminal portion of the colon began, and was continuous with and patent to the rectum.

Lesbre in “Traite de Teratologie” mentions two somewhat similar cases, in one of which a section of the intestine was absent just posterior to the ileum and in the other a section was absent just anterior to the rectum.

The embryological development of the colon is that of an elongating pocket. It begins at the rectum and is continuous to Meckel’s diverticulum which is a short distance anterior to the cecum. Here the intestine is a part of the yolk stalk. The development of the spiral portion of the colon results from a rapid growth in length in a small space. It has no natural demarcation from the remainder of the colon embryologically. There is apparently nothing which might easily become malformed.

Cause

The cause of this anomaly of development, atresia coli with agenesis of the spiral portion, can only be theorized. There is no previous record of anything like this in the herd, therefore it is probably a non-heritable malformation due to some abnormal influence during intrauterine life. One possible cause is increased intrauterine pressure due to a deficiency in the amount of amniotic fluid. In such a condition the fetus is poorly protected against external pressure. Another possible cause may have been the development of an increased intra-abdominal pressure within the embryo which caused the non-development of the spiral portion of the colon.

—C. J. Mickelson, ’41

Hydrops Amnii. Dr. J. C. Carey, practitioner at West Liberty, Iowa, reports the following case of hydrops amnii in a cow.

He obtained the following history from the owner. The cow had developed an enormous increase in abdominal circumference during the two weeks preceding the visit, but this increase had been most perceptible the last three days, during which time she had not eaten but had drunk a great deal of water.

The case was diagnosed as distention of the rumen with possible impaction. On the first day the cow was treated by injecting into the rumen with the Cahill