

# Case Report:

## Surgical Correction of Jejunal Obstruction by Ductus Deferens (Gut Tie)

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A one-year-old Aberdeen Angus x Santa Gertrudis castrated male steer, weight 300 kg, was admitted to the Department of Veterinary Medicine and Surgery, University of Missouri-Columbia on 7 January 1986 with a history of anorexia and failure to pass feces for 6 days. On presentation the animal was in good bodily condition, bright and aggressive, and had a marked bilaterally symmetrical severe abdominal distension. A considerable volume of clear mucus was passed per rectum shortly after arrival. The heart rate was 108/min and the peripheral pulse was of poor volume. The mucus membranes were injected and capillary refill time was approximately 2 secs. The respiratory rate was 12/min. No abnormal respiratory sounds could be detected. On the left side there were no audible rumenal sounds and on the right side both dorsally and ventrally there were no peristaltic sounds evident. On rectal examination distended bowel loops were detected in the pelvic and caudal abdominal cavities. There was no evidence of pain on palpation of these loops. A band, approximately 1 cm wide, could be appreciated passing obliquely across caudal abdominal cavity towards the left ventral abdominal wall. Laboratory examination revealed a PCV of 28% and total white cell count of 25,000/ $\mu$ l including 16,000 segmented neutrophils, 7850 band neutrophils and 7250 lymphocytes. Plasma protein was 6.9 g/dl and fibrinogen 700 g/dl. The animal was moderately hypochloremic (85 meq/L) and hypokalemic (3.5 meq/L). Serum alkaline phosphatase was 223 units/L. The tentative diagnosis was complete intestinal obstruction due to an adventitious mesenteric band. The animal was initially given 9 L Ringer Lactate IV. Procaine penicillin g (20000 iu/kg SID) IM was given pre-operatively and for 3 succeeding days.

The calf was prepared for right flank surgery by performing a paravertebral block of T13, L1 and L2. The right flank was surgically prepared and a vertical incision was made in the mid-flank region approximately 8 cm caudal to the last rib. Upon entry into the abdominal cavity an excessive volume (approx. 300 ml) of clear, yellow peritoneal fluid was noted. Many distended jejunal loops were immediately palpable. On deeper exploration a fibrous band was found to pass from approximately 15 cm cranial and dorsal to the left internal inguinal ring to the neck of the bladder which was located in midline just cranial to the pelvic

inlet. The ventral portion of this cord continued along the body wall to the internal inguinal ring. This band was sectioned at its two ends. Several mid-jejunal loops were exteriorized and then decompressed with a needle and attached tubing. An incision was made in the same jejunal region along its antimesenteric edge and approximately 5 L very dark brown and foul-smelling bowel contents were drained. The jejunal incision was closed by an inverted suture pattern of #0 chromic catgut and the serosal surfaces were cleansed with sterile saline. The abdominal wall was closed routinely in 3 layers. The first comprised peritoneum and transverse fascia. The second layer was the remaining musculature, using simple continuous sutures of #0 chromic catgut. The skin edges were closed in a horizontal mattress suture using #0 Suprylon.

The calf made a good recovery from surgery and was placed in its stall. The following day the animal passed a considerable volume of foul-smelling feces. The abdominal distention was considerably reduced and laboratory examination revealed that the PCV had dropped to 22% and the total white cell count had increased to 32,900/ $\mu$ l mm. The absolute numbers of both segmented neutrophils and lymphocytes had increased. The fibrinogen concentration had fallen to 500 mg/dl and plasma protein concentration was 5.5 g/dl.

The animal continued to make an uninterrupted recovery and ate grain and hay. Pathological examination of the band revealed a 32 cm long tubular structure lined by mucosa of pseudostratified columnar epithelium characteristic of a normal ductus deferens. The animal was discharged home on January 10. The owner reported 9 and 20 weeks following discharge that there had been a complete recovery. The aggressive trait had also disappeared.

### Discussion

This calf has been purchased as a castrated steer in early October 1985, three months before the first clinical signs, and it was impossible to trace the seller to establish the method of castration. Excessive traction on the spermatic cord during castration is claimed to cause this separation. Incarceration and obstruction of small intestine, primarily jejunum was formerly very commonly due to entrapment in an acquired

hernial ring formed by a hiatus between the lateral abdominal or pelvic wall and the ductus deferens, which usually lies along this surface. In this internal hernia the ductus lies as a free band in the abdominal cavity attached to the abdominal wall, in the most severe cases only at the internal inguinal ring and the bladder neck.

In a review of 129 cases of pelvic hernia due to this cause encountered over a period of 30 years, the majority were right-sided and were corrected by rectal manipulation and rupture of the occluding band.<sup>1</sup> Laparotomy, however has been performed since 1813 and has been claimed<sup>2</sup> to be the preferable method, in particular during the later years of the nineteenth century.

**The condition of "gut tie" is described in detail including left flank laparotomy for section of the intra-abdominal strangulating cord by a bistoury.<sup>3</sup>**

This form of incarceration appears to be much less common today. In 100 cattle with intestinal obstruction Pearson found that the etiology involved inflammatory lesions caused by traction castration or traumatic lesions of

the parietal peritoneum in only four cattle.<sup>4</sup> Adhesions were not present in this current case. Similar obstructions of jejunoileal segments have been caused by a persistent hepatic round ligament, para-ovarian bands and vitello-umbilical bands or by adventitious fibroserosal cords. Differential diagnosis from such abdominal bands was impossible in this case but in retrospect might have been suspected since this particular band is more caudal than other forms reported in the past twenty years. It is doubtful whether it could have been ruptured by digital manipulation per rectum and such manipulation would also have been unnecessarily hazardous to the steer.

#### References

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3. Youatt W.: "Cattle: their breeds, management and disease." London: Baldwin and Craddock 1834.
4. Pearson H: Intestinal Obstruction in Cattle Vet Rec 1977:101 162-166.

## Abstract

### Experimental infection of bulls and cows with bluetongue virus serotype 20

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**SUMMARY:** Bluetongue virus serotype 20 (BTV20) was inoculated intradermally and subcutaneously in 4 bulls and by the intrauterine route in 8 nulliparous cows after insemination at oestrus. Viraemia was detected intermittently between 8 and 21 days after inoculation. Virus was isolated from tissue samples of 2 cows and a bull after slaughter at 14 days and from one bull at 28 days. Group reactive and type specific antibodies to BTV20 were demonstrated from 17 to 27 days after infection. No antibodies were detected in the animals slaughtered at 14 days. No clinical signs of disease were seen during the experiment and no gross or histopathological changes referable to BTV20 infection were observed *post-mortem*. Because of the viraemia and the production of detectable serum antibodies, gametes from these cattle would be excluded from export.

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