

## CASE REPORT

### INTUSSUSCEPTION IN A CHAROLAIS BULL

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#### *Introduction*

Intussusception in cattle is rare except in young calves when it is often secondary to diarrhea (4). This report describes an intussusception in a mature Charolais bull with complete separation of the intestine at the point of intussusception.

#### *History*

In November 1974 a five year old three-quarter bred Charolais bull was presented to the Large Animal Clinic. The bull had been purchased in June and was in poor physical condition. During the summer he was on pasture with two other bulls and 100 cows. When the owner removed the cattle from pasture he noticed the bull was sick. The bull had not been seen during the previous week. The owner had seen the bull stretch occasionally, switch his tail, kick at his belly and pass small amounts of urine. The bull was anorexic and adipic. An injection of 20 ml penicillin-streptomycin had been administered the day before admission.

#### *Clinical Findings*

The bull was very thin, depressed and dehydrated (8%). He stood with his hind legs stretched out and appeared uncomfortable. The temperature and respirations were normal and the pulse rate was 82 per minute. The muzzle was dry and a marked halitosis was present. There were a few erosions 1 cm in diameter on the dorsal and lateral surfaces of the tongue. The rumen was static and empty. The rectum contained tenacious foul-smelling feces and a tense band of mesentery extending in a right anterior ventral direction could be palpated in the lower left quadrant. The right abdomen contained distended loops of bowel.

#### *Laboratory Findings*

The significant laboratory findings are presented in Tables I and II. The pH of the

rumen fluid was 7 and it contained moderate numbers of dead protozoa.

On day 1, the packed cell volume (PCV) and total plasma proteins were elevated. There was also a significant metabolic alkalosis and hypochloremia.

#### *Tentative Clinical Diagnosis*

Based on the clinical and laboratory findings, a diagnosis of an upper intestinal accident was made. Since the administration of antibiotics had left this animal unsuitable for slaughter, a right flank exploratory laparotomy was carried out.

#### *Surgery*

A segment of small intestine was adhered to the cranial aspect of the bladder. The adhesions were approximately 7 cm long, immature and easily broken. Another segment of small intestine was adhered to the ventral aspect of the bladder approximately 50 cm caudal to the first one. This adhesion was also immature. Both ends of the intestine were exteriorized. These two blind stumps of small intestine were connected by the same mesentery and in the proximal segment there was an intussusception. The intestine was clamped, 100 cm proximal and distal to the intestinal stumps by Rommel's tourniquets. Fifty cm of intestine was resected proximal and distal to each blind end. The two ends were anastomosed using simple interrupted crushing sutures of No. 0 chromic catgut. The tear in the mesentery was closed with simple interrupted 00 chromic gut sutures. The Rommel's tourniquets were removed and intestinal content was milked across the anastomosis. No leakage was seen. The intestine was replaced within the abdominal cavity and a four layer closure of the abdomen was completed (3).

#### *Gross Pathology*

The two segments of the intestines were examined (Figure 1). There was a 16 cm tear in the mesentery at the area of separation. One segment of the intestine ended as a blind sac and was distended with ingesta. On the antimesenteric surface of this segment there were two areas of infarction approximately 8

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INTUSSUSCEPTION

TABLE I  
HEMOGRAMS OF A CHAROLAIS BULL WITH AN INTUSSUSCEPTION

	Hospital Day No.				
	1	2	3	4	6
Hemoglobin (g/100 ml)	14.4	10.6	9.0	9.3	9.0
Packed Cell Vol. (%)	43.0	32.0	27.0	25.5	26.6
RBC ( $10^6/\text{mm}^3$ )	8.9	7.0	5.9	5.9	6.1
MVC ( $\mu\text{c}^3$ )	48.3	45.7	45.8	43.0	38.0
MCHC (%)	33.5	33.1	33.3	35.0	34.0
WBC ( $\times 10^3/\text{cu mm}$ )	12.5	20.9	16.5	5.6	4.8
Neutrophils (/cu mm)	9375.0	13167.0	13365.0	3472.0	2640.0
Bands	125.0	5225.0	495.0	—	—
Lymphocytes	2125.0	1463.0	1980.0	2016.0	2112.0
Eosinophils	—	—	—	112.0	—
Monocytes	875.0	836.0	660.0	—	48.0
Disintegrated	—	209.0	—	—	—
Fibrinogen (mg%)	500.0	600.0	300.0	600.0	400.0
Toxic Change in WBC	—	2+	sl.	—	—

TABLE II  
BIOCHEMICAL RESULTS FROM A CHAROLAIS BULL WITH AN INTUSSUSCEPTION

	Hospital Day No.				
	1	2	3	4	6
Na (mEq/l)	140.0	142.0	136.0	141.5	138.0
K (mEq/l)	3.0	2.6	4.2	4.5	4.9
Cl (mEq/l)	79.0	85.0	94.0	106.0	100.0
Venous Blood					
pCO <sub>2</sub> (mm Hg)	58.0	—	59.5	—	—
pH	7.56	—	7.49	—	—
HCO <sub>2</sub> (mEq/l)	51.0	—	44.0	—	—
pO <sub>2</sub> (mm Hg)	40.6	—	54.1	—	—

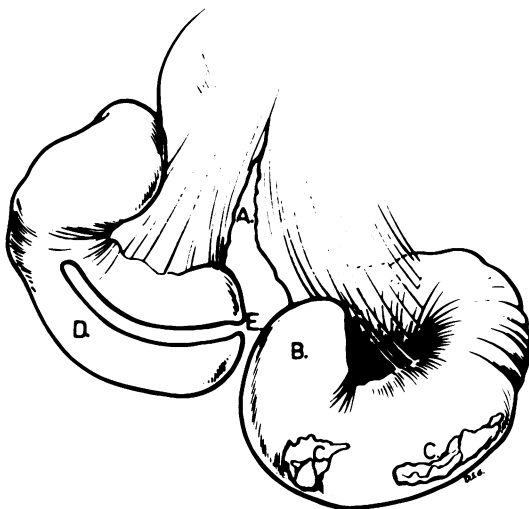


FIGURE 1. Surgeon's view of the intestinal segment involved in the intussusception. A - tear in mesentery, B - blind sac containing ingesta, C - infarct, D - segment containing intussusception, E - invaginated end.

cm  $\times$  4 cm. The other intestinal segment contained a 30 cm intussusception. The blind end of this segment was invaginated. There was minimal peritonitis associated with the site of the intestinal separation.

*Final Diagnosis*

A final diagnosis of intussusception and intestinal separation with localized peritonitis was made.

*Treatment and Outcome*

During surgery the bull was started on 20 liters of an isotonic saline solution intravenously. Before closure, 20 million units of crystalline penicillin<sup>1</sup> dissolved in eight liters of saline were put into the peritoneal cavity. Twenty million units of crystalline penicillin<sup>1</sup> and 150 mg of dexamethazone<sup>2</sup> were given intravenously.

<sup>1</sup>Crystapen, Glaxo Laboratories, Toronto, Ontario.

<sup>2</sup>Dexagen 5, Rogar/STB, London, Ontario.

When the bull was returned to his pen, he started to nibble at hay and drink water. Two hours after surgery the bull passed a large volume of fluid, foul-smelling feces. The fluid therapy was continued with 20 liters of Ringer's solution intravenously. Six grams of oxytetracycline<sup>3</sup> were given intravenously.

The next morning the bull was standing and eating hay. Rumen contractions were evident. Ten liters of Ringer's solution were given during the day and 6 g of oxytetracycline<sup>3</sup> were given intravenously twice a day.

In the evening the intravenous fluids were discontinued and the bull was maintained with a solution of oral electrolytes. The antibiotics were discontinued on day 4 and the bull was sent home on day 8.

### Discussion

Although many cases of intussusception in cattle are reported in the literature (1, 2, 4, 5, 6), this case is unusual in that there was complete intestinal separation as a sequela to an intussusception.

The intussusception in this case had sufficient blood circulation to allow the process of healing to seal off the two sections of intestine with minimal leakage of ingesta into the abdominal cavity. The localized peritonitis and adhesions on the urinary bladder would explain the small amount of urine that was voided at one time.

The laboratory findings of a low serum chloride and a metabolic alkalosis are consistent with an abomasal or upper intestinal disorder (2, 4). After surgery and rehydration, the blood pH and serum chloride levels returned to normal. The increased white cell count on day 2 is related to surgical manipulation and to reactivation of the localized peritonitis.

### Summary

Clinical examination of a five year old ¾ Charolais bull with a history of colic, anorexia

and adipsia revealed a tense mesenteric band indicative of an intestinal accident. At surgery there was an intussusception of the small bowel. The intussuscepted bowel was separated, the ends healed and a local peritonitis present which involved the urinary bladder. An intestinal anastomosis was performed and the bull made a complete recovery.

### Résumé

L'examen clinique d'un taureau de sang Charolais à 75% et âgé de cinq ans, dont l'anamnèse mentionnait des coliques, de l'anorexie et de l'adipsie, révéla une ligne de tension mésentérique, indice d'un trouble intestinal. Une intervention chirurgicale démontra que l'animal souffrait d'une intussusception de l'intestin grêle. Les extrémités de cette lésion s'étaient complètement séparées et cicatrisées; la réaction avait provoqué une péritonite locale impliquant la séreuse de la vessie. Les auteurs effectuèrent une anastomose intestinale et le taureau se rétablit sans complication.

### Acknowledgments

The authors thank Dr. D. S. Geary, Veterinary Anatomy, for his illustrations.

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<sup>3</sup>Oxyvet 100, J. Webster Laboratories Ltd., Downsview, Ontario.