

Surgical Management of Intestinal Intussusception in a Holstein Friesian Crossbred Cow

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Abstract

A Holstein Friesian Crossbred cow was presented to the State Institute of Animal Health, Tanuku with a history of blood tinged mucoid faeces, colic, anorexia and reduced ruminal motility. Exploratory laparotomy was done and the condition was confirmed as intussusception. Further, the condition was corrected by enterectomy and entero-anastomosis. Postoperatively the animals were maintained with parenteral fluid therapy for 5 days and antibiotic therapy for 7 days and the animal made uneventful recovery.

Keywords: Cow; Colic; Intussusception; Enterectomy; Entero-anastomosis

Introduction

Obstruction of the intestinal lumen with subsequent impairment to the flow of luminal content is a relatively common occurrence in animals (Radostits *et al.*, 2007). Among the various causes of mechanical ileus, intussusception is an uncommon cause of intestinal obstruction in adult cattle (Imran *et al.*, 2011). Intussusception is the telescoping or invagination of a portion of the intestine (intussusceptum) into the lumen of an adjacent intestinal segment (intussusciens) and is a cause of intestinal obstruction. Intussusception typically develops secondary to altered intestinal motility, and the process occurs more commonly in the direction of peristalsis (Sharma *et al.*, 2001). This process results in the dragging of mesentery and associated blood vessels of the intussusceptum into the neighboring bowel creating an intestinal obstruction, later the affected bowel becomes non-viable because of its compromised blood supply thus results in the development of peritonitis (Fubini and Trent, 2004). Obstruction leads to dilatation of the bowel proximally and disrupts peristalsis. Abnormal peristalsis caused by torsion of mesenteric root after casting and rolling and intramural (or) intra luminal masses also facilitates induction of an intussusception. Sharma *et al.*, (2001) recorded signs of inappetance, suspended rumination, dullness, scanty faeces, hypo motile rumen and dry muzzle but normal rectal temperature in a stall fed six month pregnant Jersey heifer. The present paper discusses the successful surgical management of intestinal obstruction with intussusception in a Holstein Friesian Crossbred cow.

Case history and Observations

A Holstein Friesian Crossbred cow aged 7 years was presented to the State Institute of Animal Health, Tanuku, West Godavari district, Andhra Pradesh with a history of blood tinged mucoid faeces, colic, restlessness, kicking of abdomen, anorexia and reduced ruminal motility since 1 week. Hematological and serological examination was done on the day it was brought to the State Institute of Animal Health, Tanuku and animal had mild leukocytosis and neutrophilia with mild hypoproteinemia. The physiological parameters were within the normal range, rumen motility was around 1 per 5 min and the rumen liquor examination revealed sluggish rumen protozoa movement with a pH ranged from 6.8 – 7.4. The animal was treated with rumenototics, non-steroidal anti-inflammatory drugs, antibiotics, laxatives and parenteral fluids for 1 week at their local veterinary dispensaries which showed no appreciable clinical improvement. Per rectal examination revealed blood tinged mucoid dung, distended and ballooned intestinal loops, impacted doughy rumen. Based on the anamnesis and observed clinical signs the condition was tentatively diagnosed as intestinal obstruction and an exploratory laparotomy was advised to the owner to make a confirmatory diagnosis on the day it was presented to the hospital.

Treatment

The animal was administered with fluids to replace fluid and electrolyte deficits prior to surgery. The animal was restrained in left lateral recumbency and anaesthesia is achieved by proximal paravertebral nerve block and inverted L block with 2% Lignocaine hydrochloride. The surgical site was shaved, cleaned and all the standard procedures were followed for aseptic surgery. Exploratory laparotomy was performed in right flank to approach the intestines. The incision was made halfway between the tuber coxae and the last rib. Examination of abdomen revealed intestinal intussusception involving ileocaecal junction. Manual reduction was attempted but due to adhesions between mucosal and serosal walls of intussusceptum and intussusciens, it was not possible. Caecotomy was performed and ilial intussusceptum was exposed (Fig. 1). Intestinal resection was performed to remove necrosed ileum after ligating mesenteric the mesenteric vessels (Fig. 2) and end to end anastomosis was done using polyglactin 910 of size 3/0 suture material by out-in, in out continuous suture pattern (Fig. 3). Caecotomy incision was closed by single layer of lamberts suture pattern. Ileum and caecum were checked for their patency and repositioned into abdominal cavity. The flank incision was closed in routine manner. Post - operative care was given by administering inj. Ceftriaxone 4gm i/v, anti-inflammatory inj. Melonex 0.5 mg/kg b.wt, intravenous fluids @ 10-20 ml/kg b.wt and rumenototics followed for five days post operatively and owner was advised to feed animal on liquid diet only for 1 week and animal made uneventful recovery (Fig. 4).

In general, any focal disturbance of intestinal motility can incite invagination of a portion of the bowel into an adjacent segment causing an intussusception. A previous study suggested that it may begin as a result of local intestinal incongruity in homogeneity or a mechanical linkage of intestinal segments (Rallis et al. 2000). Submucosal abscesses, fibrous granulation, intestinal tumours, enteritis (viral, bacterial, and parasitic), and



Fig 1: intussusception in small intestine



Fig. 2: Resected portion of intussusception

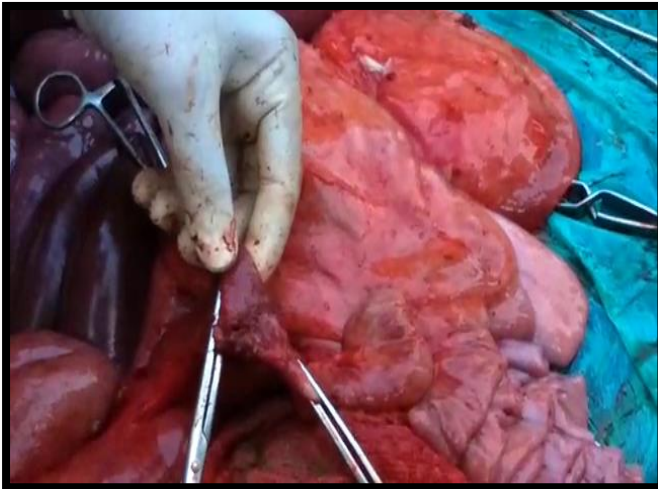


Fig 3: End to End anastomosis of intestines



Fig 4. Recovery of animal post-surgery

sudden diet changes resulting in vigorous and uncoordinated intestinal motility or hyper-motility and gas distension are predisposing factors (Pravettoni *et al.*, 2009). Mechanical intestinal ileus is the major cause of intestinal obstruction which occurs due to wide variety of causes which includes luminal and extra luminal obstruction such as complicated hernias, faecoliths, volvulus, mesenteric torsion, caecal dilatation, intussusception, abscess and tumors (Radostits, 2007). In the present case report also, the etiology was due to mechanical ileus which occurred due to intussusception. An exploratory laparotomy is necessary for a definitive diagnosis of intussusception. In this case, although the general condition of the patient was emaciated, surgery was urgently needed to correct the underlying cause. The treatment goal of intussusception is to reduce the intussusceptum from the intussusciptiens and restore gastrointestinal tract patency. However, most cases are managed surgically during exploratory celiotomy for a definite diagnosis. Manual reduction is possible when serosal adhesions are minimal but there is a risk of serosal tears or vascular damage (Erkert *et al.*, 2003). If manual reduction is impossible, resection of the intussuscepted region and intestinal anastomosis, mostly end-to-end type, is performed. In cattle, the common mesentery is shorter than that in other animals, and some parts of the intestine cannot be exteriorized and palpated during surgery. This characteristic is responsible for the difficulties encountered during resection and anastomosis. The prognosis of intussusception depends heavily on the length of time the lesion was present prior to surgical correction, anatomical location, degree of mechanical obstruction, and the predisposing cause (Erkert *et al.*, 2003). Underlying systemic disease will increase

morbidity and mortality. Moreover, it takes time to diagnose intussusception on feed-yard management because of symptomatic treatment. Thus, the prognosis is more guarded for farm animal surgery. A better prognosis can be expected if patients are referred and diagnosed earlier.

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