Int.J.Curr.Microbiol.App.Sci (2018) *7*(9): 2885-2890

International Journal of Current Microbiology and Applied Sciences
***ISSN: 2319-7706* Volume 7 Number 09 (2018)**
Journal homepage: http://www.ijcmas.com

Case Study https://doi.org/10.20546/ijcmas.2018.709.358

Surgical Management of Intestinal Obstruction in Pregnant Cows – A Review of 3 Cases

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Keywords

Colic, Intussusception, Volvulus, Foreign-body and entero-anastomosis

Article Info

Accepted:
20 August 2018
Available Online:
10 September 2018

A B S T R A C T

A total of 3 cross bred Holstein Friesian cows were presented to the Department of Veterinary Surgery and Radiology, College of Veterinary Science, Tirupati with a history of blood tinged mucoid faeces, colic, anorexia and reduced ruminal motility. Out of 3 animals two were in the last trimester of pregnancy and one was in the 2nd trimester with no obstetrical abnormalities. Exploratory laparorumenotomy was done in all the three animals and the conditions were confirmed as intussusception, volvulus, and foreign-body. The conditions were corrected by enterotomy and entero-anastomosis. Postoperatively the animals were maintained with parenteral fluid therapy for 5 days and antibiotic therapy for 7 days.

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 defined as the invagination of a portion of intestine (intussusceptum) into the lumen of the adjacent segment of bowel (the intussuscipiens) (Smith, 1985). 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). The cause of an intussusception is often unknown but any condition that alters intestinal motility has been implicated (Constable *et al.,* 1997). Obstruction leads to dilatation of the bowel proximally and disrupts peristalsis (Burkitt *et al.,* 1996). Radostits *et al.,* (2007) reported that intussusceptions had been associated with alteration of diet, and a nidus such as a small polyp or nodule that caused aberrant intestinal motility in cattle. Abnormal peristalsis caused by torsion of

mesenteric root after casting and rolling and intramural (or) intra luminal masses also facilitates induction of an intussusception. Volvulus refers to the rotation of viscera about its mesenteric attachment whereas torsion refers to the rotation of viscera about its own (or long) axis (Anderson and Ewoldt, 2005). 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, volvulus and Foreign-body in three pregnant animals.

Case history and Observations

A total of 3 cross bred Holstein Friesian cows were presented to the Department of Veterinary Surgery and Radiology, College of Veterinary Science, Tirupati with a history of blood tinged mucoid faeces, colic, restlessness, kicking of abdomen, anorexia and reduced ruminal motility nin a period of one week. Out of 3 animals two were in the last trimester of pregnancy and one was in the 2nd trimester with no obstetrical abnormalities. Hematological and serological examination was done in all the animals out of which one cow had mild leukocytosis and neutrophilia with mild hypoprotenemia and other two had the values of within the normal range. The physiological parameters were within the normal range, rumen motility of all the animals ranged from 0-6 per 5 min and the rumen liquor examination revealed sluggish rumen protozoa movement with a pH ranged from 6.8 – 7.4. The animals were treated with rumenotorics, non-steroidal anti-inflammatory drugs, antibiotics, laxatives and parenteral fluids for 6-10 days 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 and with a healthy fremitus. Based on the anamnesis and observed clinical signs the condition was tentatively diagnosed as paralytic ileus and an exploratory laparorumenotomy was advised to the owner to make a confirmatory diagnosis.

Treatment and Discussion

All the three animals were administered with fluids to replace fluid and electrolyte deficits prior to surgery. The animals were kept in standing position and anaesthesia is achieved by proximal paravertebral nerve block and inverted L block with 2% Lignocaine hydrochloride (Anderson and Ewoldt, 2005; Ducharme and Fubini, 2004). The surgical site was shaved, cleaned and all the standard procedures were followed for aseptic surgery. Exploratory laparotomy was performed in all the three animals by right flank approach in case 1, left flank in case 2 and case 3.

In case 1 the right paralumbar fossa was employed to approach the intestines. The incision was made halfway between the tuber coxae and the last rib. After approaching the peritoneum the distended cecum was identified which was incised to evacuate the contents. The incision was closed using chromic catgut of size 0 in inversion pattern. The rest of the intestines were palpated and the intussusception is exteriorized from the abdomen. The lesion was non-reducible, friable with oedematous mesentry (Fig. 1). The adjacent mesenteric blood vessels were ligated and the non-viable intestinal loops along with the intussusception was excised and isolated from the rest of the abdomen. An end to end anastomosis was performed using polyglactin 910 of size 3/0 suture material in simple continuous pattern. The mesenteric defect was closed using chromic catgut of size 0 in simple interlocking pattern and the abdomen incision was closed routinely.

In case 2 and case 3 left flank was preferred by making a dorsoventral skin incision caudal and parallel to the last rib and ventral to the transverse process of the lumbar vertebrae.

The incision was extended deeper and subcutaneous tissue, external and internal oblique muscles, transverse abdominis and peritoneum were incised. The wall of dorsal sac of rumen was held the rumen was fixed to the abdominal wall by applying two stay sutures. The space around the rumen was draped and packed using a sterile towel to avoid spillage of ruminal contents into the abdomen. A blunt incision was made on the least vascular part of the rumen and it was extended using a metzenbaum scissors. All the contents were evacuated and examined for any sharp foreign bodies in rumen and reticulum. After confirming the absence of sharp metallic foreign bodies the rumen was closed using chromic catgut of size 1 in cushing followed by lamberts.

After gaining the space the intestinal loops were examined for the palpable abnormalities. In case 2 the intestinal volvulus were identified and exteriorized from the abdomen. The nonviable loops were excised along with the part of volvulus (Fig. 2) and end to end anastomosis was done using polyglactin 910 of size 3/0 (Fig. 3).

Fig.1 In case I showing the excised intestines with the presence of intussusception, which was non-reducible, friable with oedematous mesentry

Fig.2 Case II showing the intestinal volvulus which was identified and exteriorized from the abdomen. The nonviable loops were excised along with the part of volvulus

Fig.3 Showing end to end anastomosis done using polyglactin 910 of size 3/0

Fig.4 Case III showing the intestinal foreign-body (mango seeds) in the intestinal loops which caused the obstruction

Fig.5 Showing the closure of incision and enterotomy using polyglactin 910 of size 3/0 after removal of foreign body

In case 3, the intestinal foreign-body (mango seeds) was identified in the intestinal loops which caused the obstruction (Fig. 4). An incision was made on the obstructed area and the contents were removed and the enterotomy incision was closed using polyglactin 910 of size 3/0 in simple interlocking pattern (Fig. 5) and the abdomen incision was closed routinely.

All the three animals had passed liquid faeces within 24 hours after surgery (Ducharme and Fubini, 2004) and started ruminating after a day of surgery. Per rectal examination of the abdominal cavity is often most helpful test in establishing the diagnosis of intussusception (Smith 1990). The clinical signs of the colic in cattle are manifested only within first 12 hours after the onset of intestinal intussusception and subside with the progression of the lesion, usually characterized by an appearance of placidity and/or recumbency. In the present study the temperature and respiratory rates are relatively unaffected and similar findings were observed with reference to Imran *et al.*, 2011. Ultrasonography is a useful diagnostic aid in supplementing and substantiating the transrectal findings in bovine intestinal intussusception (Pravettoni *et al.*, 2009).

The intestinal obstruction caused by intussusception, volvulus and a foreign-body in three pregnant cross bred Holstein Friesian cows and its successful surgical management by laparorumenotomy followed by enterotomy, enterectomy and enteroanastomosis are reported.

Acknowledgement

The authors are thankful to the Dean, College of Veterinary Science, Sri Venkateswara Veterinary University, Tirupati, Andhra Pradesh, India for the facilities provided to conduct the study.

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How to cite this article:

Vani, G., C. Premsairam, P. Veena, G. Sridhar, K. Rammohan, M.V. Swamybabu, B. Vijaykumar, M.L. Prasanna and Sureshkumar, R.V. 2018. Surgical Management of Intestinal Obstruction in Pregnant Cows – A Review of 3 Cases. *Int.J.Curr.Microbiol.App.Sci.* 7(09): 2885-2890. doi: https://doi.org/10.20546/ijcmas.2018.709.358