

SURGICAL MANAGEMENT OF PHYTOBEZOAR INDUCED MECHANICAL AND FUNCTIONAL ILEUS WITH PROCTOCLYSIS IN A PREGNANT COW – A CASE REPORT

M. Sabarinathan¹, P. Sankar^{2*}, R. Pooja³, Varsha Pradeep⁴,
S. Kokila⁵, J. Sakthi⁶, S. Dharmaceelan⁷ and S. Kathirvel⁸

Department of Veterinary Surgery and Radiology
Veterinary College and Research Institute,
Tamil Nadu Veterinary and Animal Sciences University
Namakkal -637002

ABSTRACT

A four year old five months pregnant cross bred Jersey cow weighing 245 kgs was presented with the history of anorexia and complete cessation of defecation for past ten days. Clinical findings were distended intestinal loops, dehydration, hyper motility of rumen, tachycardia and empty rectum suggestive of ileus. Pre-operatively proctoclysis along with fluid therapy, antibiotics, anti-inflammatory drugs and supportive treatment were administered. Per rectal examination revealed empty rectum with gravid uterus with distended intestinal loops. Animal was anaesthetized with xylazine, butorphanol and ketamine with regional anaesthesia. Right flank exploratory laparotomy confirmed the presence of phytobezoar at the ileo-caeco-colic junction which was responsible for mechanical and functional ileus. Phytobezoar was removed through enterotomy. Post operatively animal was administered with antibiotic, anti-inflammatory and supportive treatment for 5 days. The animal recovered uneventfully and resumed normal feeding and voided faeces on third post operative day. This case highlights the importance of early diagnosis, proctoclysis and prompt surgical intervention in the successful management of phytobezoar induced ileus in pregnant cattle.

Keywords: : Ileus, pregnant cow, proctoclysis, ketamine stun, phytobezoar,

Received : 16.06.2026

Revised : 07.09.2026

Accepted : 16.09.2026

¹M.V.Sc Scholar,

²Associate professor

*Corresponding Author Email: sunsurvet@gmail.com

³M.V.Sc Scholar

⁴M.V.Sc Scholar

⁵Assistant Professor, Dept.of Clinics,

⁶Internship student, Veterinary College and Research Institute, Theni

⁷Professor and Head

⁸Professor and Head, Dept.of Clinics

INTRODUCTION

Ileus is the interruption of the passage of intestinal contents (intestinal obstruction). Ileus can be either functional (paralytic, adynamic) or dynamic (mechanical) (Constable *et al.*, 2017). Among this dynamic or mechanical ileus is

more common in cattle (Braun, *et al.*, 1993). Ileus caused by small intestinal obstruction results from blockage of the intestinal lumen by blunt foreign bodies or from space occupying masses of intraluminal or intraperitoneal origin (Dirksen and Doll, 2002). Numerous case reports described small intestinal obstruction due to phytobezoar is more common (Braun *et al.*, 1993).

CASE HISTORY AND CLINICAL OBSERVATION

A four year old five month pregnant cross bred Jersey cow weighing 245 kgs was presented with the history of anorexia and complete cessation of defecation for past 10 days. The animal was previously treated by a field veterinarian by fluid therapy and oral administration of paraffin oil. Inj. azithromycin (8 mg per Kg) along with Inj. dicyclomine hydrochloride 10ml and Inj. metoclopramide (0.3 mg per Kg) were intramuscularly, respectively with no improvement. On physical examination, the animal has congested conjunctival mucous membrane, rectal body temperature of 99.6°F and increased heart rate (100 beats per minute). No colic sign was observed at the time of examination. Rumen motility was also recorded, which was increased to 1 per minute indicates hypermotility of rumen. Per rectal examination revealed gravid uterus with palpable fetal mass (4 months). On retracting the hand following rectal examination, tarry white mucus coated discharge was noticed on the sleeve suggesting intestinal obstruction.

Abdominal ultrasonographic examination was done from the right flank to find the extent of intestinal dilatation and intestinal motility. A curvilinear probe with 3.5-6.5 MHz capacity was used to scan the abdomen, starting from the lower right flank up to the 11th and 12th intercostal space. Intestinal diameter was measured with maximum of 55 mm (Fig. 1) suggesting distended intestinal loops. Hemoglobin content, packed cell volume and RBC count was found to be 14.9 g/dL, 61 % and 11.57 million RBC's respectively suggesting haemo concentration which may occur due to dehydration. On the basis of clinical findings, the case was tentatively diagnosed as intestinal obstruction with functional ileus and a right flank exploratory laparotomy was planned. The animal was stabilized with Ringer's Lactate and dextrose normal saline. In addition to IV fluid, per rectal administration of fluid (0.9% sodium chloride in luke warm water) was carried out via gravity flow through a small, well-lubricated hose pipe passed 10–15 cm into the rectum (Gardiner, 2013) at 20 ml per Kg body weight to improve hydration and to improve intestinal motility.

Surgical Management

Preoperatively the animal was administered with Streptopenicillin (22000 IU per Kg) and Flunixin meglumine (1.0 mg per Kg) intramuscularly respectively. To desensitize the flank, a 2% lignocaine wheal (a small, raised blister of local anesthetic injected just under the skin) was administered which was used to numb the

skin surface before a spinal block, then right proximal paravertebral nerve block was achieved by administering 2% lignocaine 10 ml each at ventral and dorsal branch of T13, L1 and L2 spinal nerves along with inverted L block. Along with paravertebral nerve block 'ketamine stun' technique was performed using xylazine-butorphanol-ketamine (XBK) mixture made by combining the respective compound at 1, 2 and 3mL respectively and it was administered @ 1 mL per 100 kg (bodyweight). 5-10-20 regimen of ruminant field anaesthesia for standing procedure was taken in consideration during the mixture formulation and administration of xylazine @ 0.02 mg, butorphanol @ 0.01 mg and ketamine 0.04 mg per Kg body weight respectively which provides anaesthetic effect for the duration of 60-90 minutes (Abrahamsen, 2008). Out of the total dose, 2.5 mL was administered intramuscularly.

The surgical site was prepared aseptically using 7.5% povidone iodine. A linear incision approximately 30cm was made on the right para lumbar fossa 4 inches below the third lumbar vertebrae and parallel to the last rib. Then three layers of muscles and peritoneum was incised and the intestinal loops were examined. On palpation a firm mass was felt on the caudal segment of the ileum approximately a 6 cm×3 cm length phytobezoar (Fig.2) composed of fibrous plant material was retrieved through a incision on the anti-mesenteric border of the ileo-caeco-colic junction through enterotomy. Then the enterotomy incision was closed by continuous suture pattern

using PGA 1-0. The abdominal muscles were sutured in two layers by lock stitch sutures using catgut no.2, followed by skin suturing in cross mattress pattern using cotton thread.

Post Operative Care

Postoperatively, the animal was maintained on intravenous fluid therapy with nil-per-os for 5 days and administered with antibiotic (streptopenicillin at the dose rate of 22000 IU per Kg, meloxicam 0.5 mg per and chlorpheniramine maleate @ 0.1 mg per Kg body weight and vitamin B1, B6 and B12 injection for 5 days. To maintain the pregnancy, animal was administered with hydroxy progesterone 750 mg intramuscularly at the same day of surgery. The cow showed improvement with restoration of normal ruminal motility and passed the faeces successfully 74 hours after the surgery (Fig 3) and returned to normal appetite after 5 days.

DISCUSSION

Intraluminal obstruction of the intestinal tract of cattle, sheep, and goats are caused by a trichobezoar, phytobezoar, or enterolith. A phytobezoar is gastric concretions which are agglomeration of indigestible plant or feed material, vegetable fibers, with seeds and skins of fruits in the digestive system of ruminants. Wild ruminants and small ruminants like sheep and goat had mechanical intestinal obstruction due to bezoars which are mostly aggregations of vegetable fibers, cereal awns and hairs impregnated with some phosphate

salts are rolled and forming as balls which are approximately round and smooth (Gahlot *et al.*, 2006). Ultrasonographic findings in the case of ileus due to phytobezoar were dilated loops of intestine and reduced or absence intestinal motility (Braun *et al.*, 2024). Per rectal administration of fluids (proctoclysis) can provide rapid delivery of fluids and medications while attempting or awaiting IV placement. Proctoclysis is a method followed in equine medicine which results in hydrating the luminal contents and enhances hydration to the animal. It is not considered to be primary source of fluid therapy. Once fluid resuscitation established through IV fluid therapy, proctoclysis serves to balance the fluid requirement in the gastrointestinal tract. A study conducted in equine revealed per rectal administration of fluids resulting in haemodilution and decreases the PCV helps in correcting the dehydration. Usually tap water is tolerated which is in accordance with Khan *et al.*, 2019. Therefore, in our case proctoclysis aids in hydrating luminal contents, restoring the electrolyte balance and improves gastro intestinal motility through increased blood circulation to the gastrointestinal tract.

In the anaesthetic protocol, xylazine, alpha2 agonist was used which causes decreases in the fetal heart rate through increased uterine activity and/or alpha2-receptor mediated vasoconstriction. However, the changes in uterine contractility and fetal heart rate caused by a single injection of 20 mg xylazine IV to heifers in the first trimester of gestation have no short-term adverse effect on pregnancy (Dobriniski *et al.*, 1994). The presented animal was about five months pregnant, after one dose of 10 mg of xylazine animal didn't show any adverse effects for about 10 days. The rectal examination after 10 days showed +++ fremitus and in ultrasonography the fetal heart rate was under normal range.

Surgical intervention for intestinal obstruction provides good prognosis which was in accordance with Braun *et al.*, (2024). In this case right flank exploratory laparotomy was performed and phytobezoar was removed. Postoperative treatment consisted of correcting fluid, electrolyte and acid-base imbalances along with antibiotics, analgesics and prokinetics. To conclude that this was a case of intestinal obstruction due to phytobezoar induced ileus.



Fig.1. Ultrasound image showing intestinal diameter of 5.5 cm



Fig.2. Phyto bezoar composed of fibrous plant material measuring 6× 3 cm



Fig.3.: Animal voided faeces on the third post operative day

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