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## Surgical management of rumen impaction due to plastic material in cow: A case report

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### Abstract

Rumen impaction in cattle is accumulation of the indigestible foreign materials in the rumen. The indigestible foreign materials were polythene bags, ropes, fibers and hairballs. A 5 year old stray cow presented at Goshala with the history of reduced feed intake, and hard pellet mucous coated dung since last 3 to 5 days. On examination, pale mucous membrane, subnormal temperature, palpation of the rumen from left paralumbar fossa and per rectal revealed severely impacted rumen was recorded. The rumenotomy was performed under proper asepsis and rumenotomy paravertebral nerve block was performed by infiltrating the 5 ml of 2% lignocaine hydrochloride. Post-operative treatment was given to the cow with Ceftriaxone, meloxicam, multivitamins, fluid therapy and daily antiseptic dressing. After 10-12 hrs of the surgery, cow started the feeding. Animal recovered thereafter.

**Keywords:** Rumen impaction, plastic, paralumbar fossa, rumenotomy

### 1. Introduction

Rumen impaction is a condition which results from the accumulation of the indigestible materials in the rumen which interferes with the flow of ingest a leading to distension of the rumen and passing of scanty or no feces [1]. Most common indigestible foreign body in rumen is plastic bags materials [3, 5]. Rumen impaction due to plastic materials is caused by the indiscriminate feeding of ruminants on indigestible plastic and other waste materials predisposing factors like urbanization, industrialization, type of grazing system, mineral deficiencies play an important role for ingestion of plastic waste materials [9]. In animal, Ingestion of indigestible materials may distress the animal health, production loss & decrease reproduction performance [4, 10]. This paper presents successful management of rumen impaction due to plastic materials in stray cow.

### 2. Case History and Clinical Observation-

A case of five year old stray cow weighing 295 kg was presented at Goshala, District Balaghat, Madhya Pradesh, India with the history of reduced feed intake, progressive weight loss, reduced dung quantity, suspended rumination, dehydration. On clinical examination the rectal temperature was measured to be subnormal and palpation of the rumen from left paralumbar fossa and per rectal revealed severely impacted rumen. Accordingly, based on the history and clinical observation, the case was diagnosed as rumen impaction so rumenotomy was decided.

### 3. Treatment

Preoperatively, cow food was withheld for 12-24 hours, to minimize the potential for vomiting and aspiration during anesthesia and water restricted 8-12 hours before pre-medication. The animal was stabilized with fluids and electrolytes for the imbalances preoperatively. The preparation of the surgical site was done by washing with water, soap followed by shaving the hairs of the animal at the left Para lumbar fossa. Operated portion was prepared for aseptic surgery. Standing position was preferable than recumbent, but cow may go down. Finally desired surgical site was scrubbed three times by application of 5% povidone iodine solution for maintaining asepsis and followed by application of drapes, for rumenotomy paravertebral nerve block was performed by infiltrating the 5 ml of 2% lignocaine hydrochloride per paravertebral space to block T13, L1 and L2 nerve using and 18 gauge syringe to desensitize the flank area and waited for 10 minutes. A long vertical skin incision starting about three to four centimetres below the transverse process of the lumbar vertebrae was made after blunt dissection of the skin from the subcutaneous tissue and abdominal muscles. Then peritoneum and rumen were exposed. Then all muscular layers together with skin were grasped with

handheld retractor to get adequate surgical field and exposure to the rumen. After the incision of the rumen, exploration of the rumen and reticulum was conducted. During surgery hard majority of plastic materials, few ropes fibers and few hairballs were shown in the rumen which were removed (Fig.1).

In addition, bleeding throughout the surgery was managed by applying sterile gauze and by using different straight and curved hemostatic. Rumen and surrounding area were rinsed with sterile isotonic saline solution and is closed by double lambert suture using sterile chromic catgut no. 1 and after the replacement of rumen in the abdomen to its normal position; the peritoneum & muscles was closed by simple continuous suture by using 1-0 vicryl.



**Fig 1:** Plastic Materials Removed From Cow

After that, the skin together with subcutaneous fascia was closed by using breaded multi filament silk 1-0 with simple interrupted suture pattern. Finally, the area was properly cleaned (Fig. 2).



**Fig 2:** Cow after Rumenotomy

Post-operative treatment included parenteral administration of Ceftriaxone @ 10mg/kg b. wt., IV Meloxicam @ 0.5 mg/kg b.wt., IM, fluid therapy for the five successive day and daily antiseptic dressing was performed with Neosporin-H ointment and himax ointment near the incision site to avoid fly's infestation. The cow started taking feed from the next day onwards and made an uneventful recovery the skin sutures were removed on 14th day postoperatively.

#### 4. Discussion

Animals roaming the streets and eating from garbage bins. Mostly in urban area, there is no farming area for grazing the

animals, so animals search for food at non feeding places also. Ingestion of the polythene bags/plastics accumulated in rumen become large tight balls which ultimately leads to impaction where animal passes scanty or no faeces<sup>[10]</sup>. Rumenotomy is advocated for treatment of severe/ long standing cases of ruminal impaction which are unresponsive to conservative treatment<sup>[6]</sup>. Rumenotomy provides direct access to the rumen, in that way allowing removal of indigested foreign bodies, sharp penetrating objects and foreign bodies lodged in the distal portion of the esophagus<sup>[5, 8, 11]</sup>. At present, rumenotomy is one of the most widely used surgical technique for both diagnosis and treatment of ruminal impaction due to plastic materials in ruminants<sup>[6, 9]</sup>. Removal of indigestible foreign materials from the rumen revealed positive effect on animal health<sup>[2]</sup>. Animal rearing in farming conditions with sufficient natural feedstuff is the preventive measure for this condition. No further complications were found after fourteenth day post-operatively.

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