

Caecum impaction in goat: A case study

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ABSTRACT: Caecum impaction is a condition, caused by poor dentition, a sudden change in food, parasitism, and coarse roughages in which caecum remains impacted with indigestible food mass resulting in colic along with depression and anorexia. A 10-month, indigenous Terai mixed breed, male goat having weight 15 Kg was brought to Veterinary Teaching Hospital, Paklihawa, Province Number 5, Nepal, with complaints of anorexia, abdominal swelling, history of excessive wheat flour feeding, and no faecal discharge for two days. Temperature, heart rate, and respiration rate were 102.2°F, 130/minute, and 28/minute respectively. On physical examination, a heterogeneous rod-shaped mass was felt in the right caudal abdomen and abdominal ultrasonography revealed mixed echoism pattern in the lumen of caecum indicating the presence of a foreign body in the caecal region. Laparotomy parallel to the last rib on right paralumbar fossa followed by typhlotomy were performed. Semi-digested hard faeces were milked out manually through caecum and incision was corrected properly. The goat was kept under observation with post-operative care for seven days till the complete recovery. Thus, this case study described a rare case of caecum impaction due to semi-digested feeding particles in goat.

Keywords: Caecum impaction, goat, typhlotomy.

INTRODUCTION

Caecum impaction is a gastrointestinal disturbance caused by severe dehydration, blockage of the caecum orifice by a foreign body, sand ingestion, or consumption of diets low in fibre leading to decrease in digestibility with partial or complete cessation which further leads to the complete absence of defecation (Chakrabarti, 2014; Mozaffari et al., 2009). It is common in horses and quite less in cattle followed by goat (Plummer et al., 2007). This obstruction leads to colic resulting in depression and anorexia (Chakrabarti, 2014). Sometimes, caecum impaction may be due to displacement, torsion, or retroflexion of the organ and additional distension of the spiral colon (Braun et al., 2012). Impaction may be confused with volvulus, intussusception, torsion, strangulation, bacterial enteritis etc. (Chakrabarti, 2014), and it can be diagnosed by the physical examinations, clinical signs, symptoms, ultrasonography and exploratory laparotomy (Blood and Henderson, 1979).

This report describes a case of caecum impaction in goat due to the semi-digested food particle which is quite interesting because caecum impaction is rare in goat.

CASE DESCRIPTION

A 10-month-old, indigenous Terai mixed breed, male goat having 15 Kg body weight was presented to Veterinary Teaching Hospital (VTH), Tribhuvan University (TU), Institute of Agriculture and Animal Science (IAAS), Paklihawa Campus, Province number-5, Nepal, with the history of anorexia since three days, abdomen swelling, difficulties in defecation in earlier stage with hard faeces later on followed by a complete blockage of defecation for last two days, hematuria, weight loss, and signs of dehydration. Before anorexia, it had a history of feeding excessive grain, batter of wheat flour for a long time. Body temperature, heart rate, and respiration rate were 102.2°F, 130/minute, and 28/minute respectively.

Abdominal palpation revealed the heterogeneous rod-shaped mass on the right flank region of the abdomen and ultrasonography revealed mixed echogenic pattern in the caecum regions indicating foreign body on the caecum (Figure 1). Based on the physical examinations, clinical signs, and ultrasonography, intestinal obstruction was

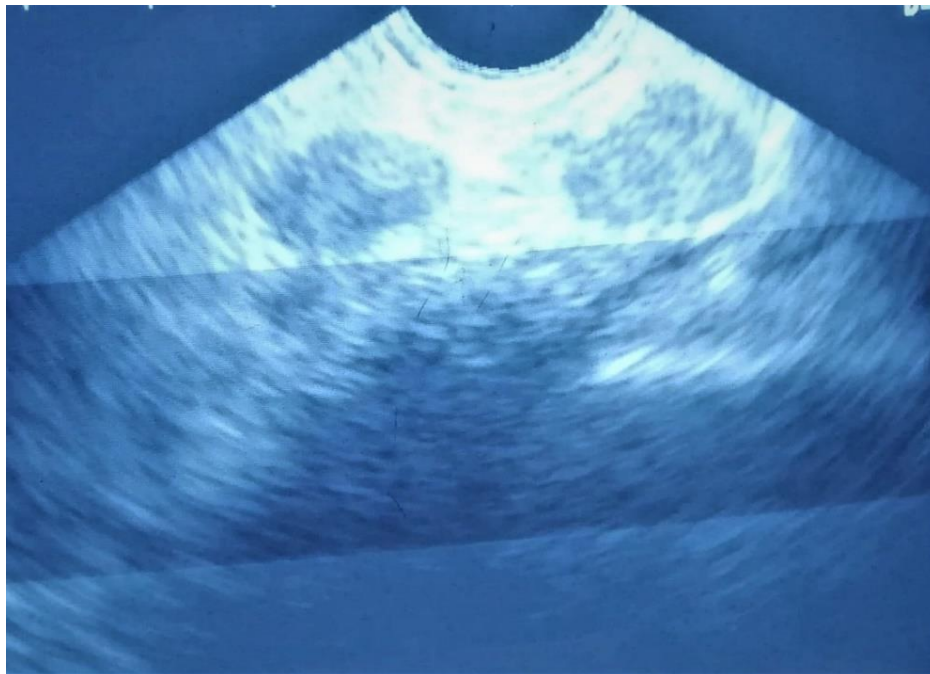


Figure 1. Ultrasonography of caecum revealed dilated colon and mixed echogenic pattern of the caecum lumen indicating impaction of faecal material

confirmed in the caecum. So, for the successful removal of impaction laparotomy was scheduled. Then the goat was admitted in VTH and initially treated with 500 ml Intravenous ringer's lactate fluid for the first two days.

On 3rd day, the goat was premedicated with antibiotic: Amoxicillin (10 mg/kg), pain killer: Meloxicam (0.2 mg/kg), sedative (Xylazine @0.5 mg/kg,i/m body weight). Local anaesthesia (2% lignocaine hydrochloride) were infiltrated at the line of incision and also in the form of inverted 'L' for desensitization of paralumbar fossa and laparotomy was performed. In laparotomy, the caecum was found in its normal position, but it was approximately dilated and impacted from base to apex (Figure 2A). So, typhlotomy was performed from apex to the part of the body of caecum, obstructed semi-digested ingesta (Figure 2B) was found in it due to the ingestion of excessive grain and these occlusive materials were completely milked up and rinsed with normal saline. The typhlotomy incision was closed with Vicryl 3-0 size in a cushion followed by lembert pattern whereas peritoneum and muscular layer were closed by lock stitch (Figure 2C) with Vicryl 2-0. Subcutaneous layer was sutured by in out with Vicryl 2-0 and the skin layer was sutured by simple horizontal mattress with nylon. Normal saline was administered throughout the whole surgical period continuously by the IV route.

On post medication, antibiotics ointment was applied at the surgical wound. Follow up was done with post medication: Intravenous fluid 500 ml (D10 q12 hr), antibiotics (Amoxicillin, 10 mg/kg q 12hr i/m) and NSAID (Meloxicam, 0.2 mg/kg q 24hr i/m) for 7 days with the

advice of complete restriction of feed and water for the first 3 days. Soft grasses were allowed to feed from 4th day and the goat was recovered after ten days of the surgery (Figure 2D) with normal feeding and defecation. The outermost suture was removed after 12th day. The goat was returned to its normal life (Figure 3).

CASE DISCUSSION

Pathogenesis of the diseases remains poorly understood and most likely to be multi factorial (Aitken et al., 2015). Caecal impaction is associated with feeding coarse roughages, more grain, and poor dentition, reduce water intake and disrupt gastrointestinal motility (Chakrabarti, 2014; Mozaffari et. al., 2009). *Anaplocephala perfoliata* located at the cecocoli orifice induces thromboembolism in the horse which leads to caecal impaction (Aitken et al., 2015). Two distinct classifications of caecal impaction in horses are present: Type I and Type II. Type I- occurs due to caecum filled with dry, relatively solid ingesta whereas highly dilated caecum due to motility dysfunction and contains fluid as content results type-II.

In this case, it seems likely that a type I impaction occurred as a result of caecum packed with semi-solid ingesta. Based on history, overfeeding of wheat flour is found which contributing to increased production of volatile fatty acid (VFA). The contractility of the caecum is highly reduced by the overproduction of VFA leading to caecum dilation and it may be the primary cause of impaction (Desrochers and St-jean, 1995). Here, Type I (primary

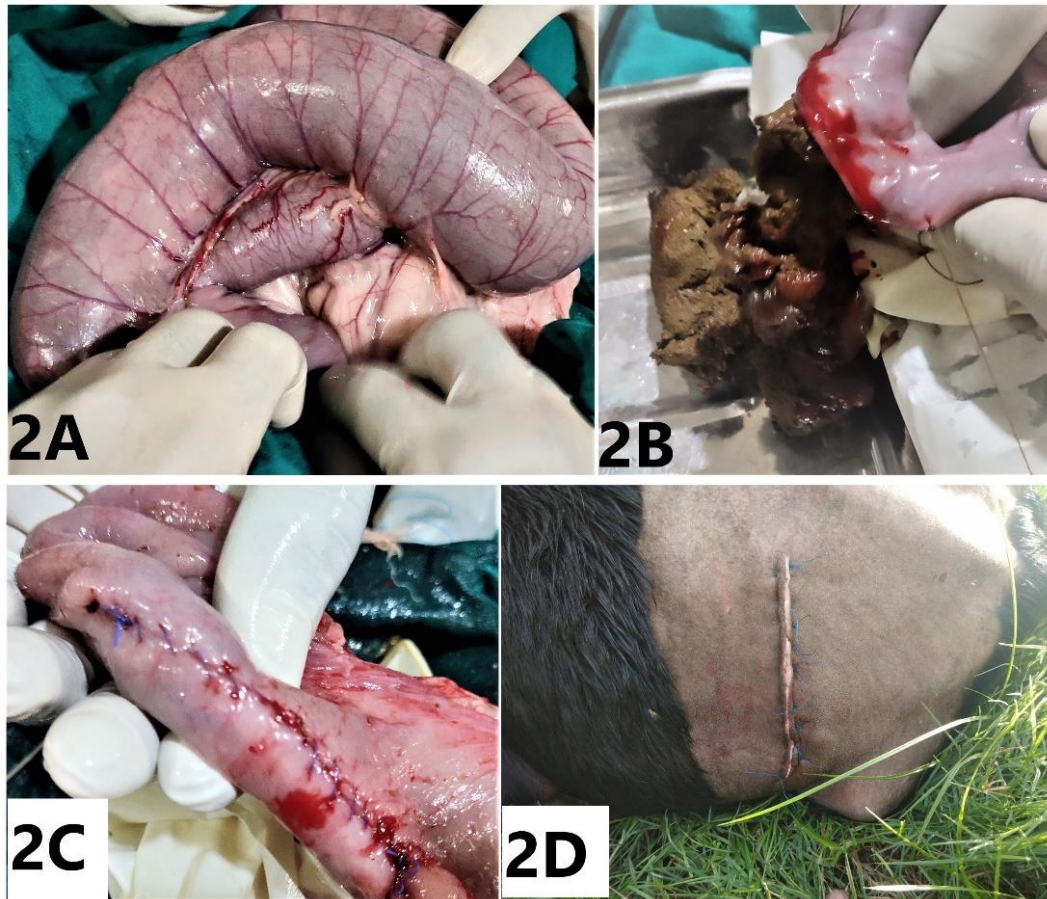


Figure 2. Dilated caecum (2A); semi-digested feed materials causing impaction (2B); suturing of caecum with vicryl in cushing followed by lembert pattern (2C); Skin suture with nylon in horizontal mattress pattern (2D).



Figure 3. Uneventful recovery of the animal with normal grazing after 12 days.

impaction of feed) leads to Type II (impaction secondary to caecal dysfunction). Ruminant animals require a source of fibre to maintain effective caecum and rumen function (Singh et al., 2018) whereas refined flour contains almost none amount of fibre. And such diet increases the VFA in caecum and rumen which might have resulted in impaction.

For a successful outcome, early diagnosis and surgical intervention are required. On auscultation, ping sound is absent with dilated caecum on rectal examination and it is the basis to distinguish caecal impaction from caecal dilation (gas) (Singh et al., 2018). For caecum impaction, per rectal examination along with ultrasonography is used as a confirmatory diagnostic tool. Here, in this case, the confirmatory diagnosis was possible only after ultrasonography.

Conservative treatment is found to be ineffective for caecal impaction and to overcome the complication, typhlotomy should not be delayed (Singh et al., 2018). The suggestive medical management includes oral administration of isotonic electrolyte solutions, mineral oil, or dioctyl sodium sulfosuccinate and the feed should be restricted until the impaction is relieved (Aitken et al., 2015). An ideal surgical procedure for the correction of cecal dilatation and caecum impaction in bovine is left flank exploration after laparorumenotomy and right flank typhlotomy respectively (Singh et al., 2018). Animal after surgery should be kept in intravenous fluid therapy, NSAIDs, feed restricted postoperatively. The most important factor to be considered during post-operative management is the refeeding regimen which refers to feeding for the first time after surgery, types of diet offered, and time to normal full feeding (Aitken et al., 2015).

Conclusion

This is a rare case of caecum impaction due to semi-digested feed particles in ten-month-old, male goat, which was diagnosed with the help of the history of excessive intake of grain, physical examination and ultrasonography. Laparo-typhlotomy was performed to correct the impaction. After 12 days of surgery with post-operative medication, the goat was recovered with normal feeding and defecation.

CONFLICT OF INTEREST

The authors declare that they have no conflict of interest.

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