



A Case of Abomasal Impaction and Ruminal Trichobesoar in A Calf

Ali BELGE¹, Serdar KOKLU¹, Abidin ATASOY², Onur Ozgun DERİNCEGOZ¹, İbrahim AKIN¹, Nuh KILIC¹

¹Department of Surgery, Faculty of Veterinary Medicine, University of Adnan Menderes, 09100, Aydın-TURKEY
²Internal Medicine, Faculty of Veterinary Medicine, University of Adnan Menderes, 09100, Aydın-TURKEY

Summary: A six-month old, male calf was presented with a history, abdominal distention, inappetence, depression and inability defecation. In clinical examination, irregular ruminal contractions, abdominal distention and pain were obtained. In laboratory analysis, increased hematocrit, hyponatremia and hypochloremia were determined. Based on the current examination findings, an exploratory laparotomy was recommended by the internal disease department for the definitive diagnosis and operative intervention was performed. In this report, it was mentioned that a six-month old male calf with abomasal impaction and concurrent ruminal trichobezoars and nylon twine ingestion were successfully treated by rumenotomy and abomasotomy.

Key words: Abomasal impaction, calf, trichobesoar

Bir Buzağıda Abomasal İmpaksiyon ve Ruminal Trikobezoar Olgusu

Özet: Altı aylık erkek bir dana abdominal gerginlik, iştahsızlık, depresyon ve dışkılamama anamnezi ile getirildi. Klinik muayenede düzensiz ruminal kontraksiyonlar, abdominal gerginlik ve ağrı gözlemlendi. Laboratuvar bulgularında hematokritte artış, hiponatremi ve hipokloremi saptandı. Muayene bulguları doğrultusunda iç hastalıkları ana bilim dalı tarafından kesin tanı amacı ile deneysel laparotomi önerildi ve operasyon gerçekleştirildi. Bu raporda, altı aylık erkek bir danada abomasal impaksiyon ve eş zamanlı ruminal trikobezoar ve naylon ip ingesyonunun rumenotomi ve abomasotomi operasyonları ile başarılı şekilde sağaltımı konu edilmiştir.

Anahtar kelimeler: Abomasal impaksiyon, buzağı, trikobezoar

Introduction

Abomasal impaction is the accumulation of solid ingesta in the abomasum and concurrently the failure of aboral transport. Abomasal impaction is classified as primary or secondary according to the reasons as primary or secondary (6,8). Primary abomasal impaction in adult calves usually results from extremely fibrous feeding or intensely ingestion of sand, nut shells, or rocks. However, it may occur as idiopathic (5,8). The animals fed with low-fiber diets may tend to eat wooden object or baling twine (6). Pyloric outflow disturbances due to ventral vagus nerve injuries, vascular or neurogenic damage due to abomasal volvulus, abdominal adhesions, pyloric masses or adhesions, and lymphosarcoma are the most common secondary causes of abomasal impaction. Clinical signs include inappetence or anorexia, reduced feces, variable

dehydration, and moderate to severe abdominal distention (13). However, severity of the symptoms gradually increases, and the disease recognizes in the terminal stage (8).

In calves, the primary causes of abomasal impaction are abomasal volvulus/displacement and abdominal adhesions. Also idiopathic abomasal impaction may develop (5). Also, calves feeding with low quality milk replacers eat bedding material or indigestible objects. These materials may lead to formation phytobezoars which may create a mechanical obstruction (6,8). The prevalence of phytobezoars is higher in winter compared to that of other seasons in sheep (3). Trichobezoars develop as a result of the grooming behavior among the group-housed calves and cause to parakeratosis, abomasal ulcers, and obstruction of the cardia, reticulo-omasal orifice or the small intestine (6,15).

Although the etiology and the pathogenesis of the abomasal impaction are known in detail, very little is known about its incidence. In this report, it was mentioned that a six-month old

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male calf with abomasal impaction and concurrent ruminal trichobesoar and nylon twine ingestion were successfully treated by rumenotomy and abomasotomy.

Case

A six month old, male Holstein crossbreed calf was presented to Adnan Menderes University, Faculty of Veterinary Medicine, Large Animal Clinics of Animal Hospital with a history of anorexia, abdominal distension and pain, cachexia and inability to defecation.

According to the history, it has firstly got mild to moderate abdominal distention at the weaning period and then inappetence and depression. Symptoms were gradually worsened and then food intake and defecation stopped in the last few days.

In clinical examination; irregular ruminal contractions, heart rate of 140 beats per minute, respiration rate of 35 breaths per minute, body temperature of 39.5°C, bilateral abdominal distention and right abdominal pain was recorded. Complete blood count was within the reference range except with increased hematocrit value (51%) exception. Serum chemistry and blood gases analysis revealed hyponatremia and metabolic alkalosis with hypochloremia. Ultrasound examination and further laboratory diagnostics

were not available. Therefore, based on the current examination findings, an exploratory laparotomy was recommended by the internal disease department for the definitive diagnosis and operative intervention was performed.

Briefly, right paralumbar region and its distal part of the calf were shaved and disinfected and then, line block anesthesia with 2% Lidocaine HCl (20 ml, L-Anestin[®], Alke, Turkey) to the operation region was applied. After skin incision, muscles and periton were bluntly dissected. When the abdominal cavity was examined, distended rumen (Figure 1/A) was seen and hard and dense abomasum (Figure 1/B) was palpated as a whole at the ventral region. Firstly, rumenotomy (Figure 1/C) was performed and a portion of the rumen contents (pH was determined as 7.0) with nylon twine and trichobezoars (Figure 1/D) were removed. Subsequently, solid abomasum contents were taken out via abomasotomy (Figure 1/B). Both rumen and abomasum were closed by using Lambert and Schichten sutures with 1 no polyglycolic acid (USP:1, Surgisorb[®], Sutures Ltd, UK) suture material. Saline containing Crystallized penicillin G potassium (20000 IU/kg, Kristapen[®], Deva, Turkey) was applied into the abdominal cavity for prophylaxis. Muscles, subcutaneous tissues and skin were sutured routinely. Ceftiofur HCl (1

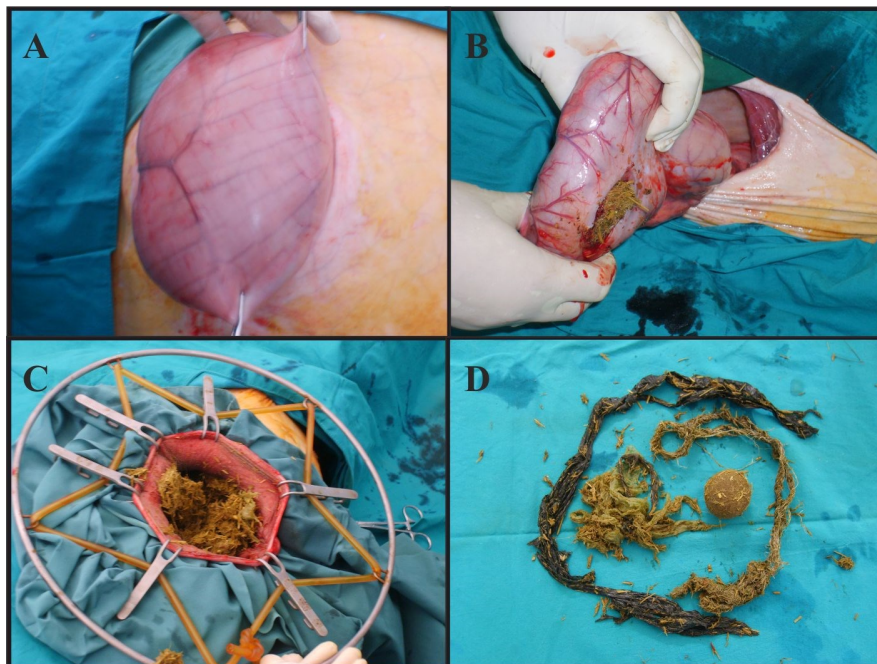


Figure 1. A, rumen; B, Solid ingesta in the abomasum; C, exploration of the rumen through the rumenotomy; D, trichobezoar and nylon twine removed from the rumen.

mg/kg Cefcloren®, Provet, Turkey) was given for 5 days postoperatively. The calf was supported with serum infusion (saline 0.9% and 10% dextrose, 30 ml/kg/day, intravenously) for two days after operation and then high-moisture diet and hay-based ration were recommended. The stitches were removed on 10th day after surgery and the calf completely returned to normal in terms of eating and drinking on 20th day.

Discussion and Conclusion

Abomasal impaction is commonly occurs in the cattle fed with high ratio of low quality roughage and low ratio of concentrate feed. It appears similar to the pyloric obstruction (5,7). According to some reports (3,9) abomasal impaction is often seen in beef cattle (5,13) and pregnant cows (13), and it occurs rarely in dairy cows. Lack of water consumption is a predisposing factor for abomasal impaction (5).

In a retrospective study, in a total of 80 cattle with abomasal impaction encountered in the 23 years (16). Melendez et al. (10) determined five abomasal impaction cases resulting from sand accumulation by the diagnostic laparotomy in 22 indigestion cases in a farm with 650 dairy cattle. Our case was a six-month old crossbred calf. The calf was growing in a small family farm of 16 dairy cattle. All of the animals in the farm were eating roughage and concentrate feed and were grazing on pasture. Clinical signs of the calf started at weaning period and treated by a veterinarian several times.

Mitchell (11) reported that excess almond shells in the ration led to dietary abomasal impaction in a herd of dairy cows and removal of the almond shells and increase in the energy and digestibility of the ration solved the problem. In a study, 20% of 75 necropsy reports of cattle diagnosed as abomasal impaction had lesions of traumatic reticuloperitonitis and origin of 60% of them primarily dietary due to the ingestion of too much fiber (2). In our case, abomasum was quite solid. The content consisted of big straw pieces. It was thought that the calf ingested the straw used as bedding material and foreign materials in the rumen most likely prevented the digestion of ruminal content.

In a retrospective study on 80 cows with abomasal impaction, the locations of impaction were only pyloric antrum in 69% of 80 cows, and pyloric antrum and abomasal body in 31% of 80 cows. The cows with only impaction of the

pyloric antrum had significantly higher short-term survival rate (93%), than cows with impaction of the body and antrum (50%) (16). Although the complicated condition of our case which includes abomasal impaction of pyloric antrum and abomasal body concurrent with ruminal trichobezoar and foreign bodies (nylon twine), the calf completely recovered after surgery.

In calves, neurologic damage secondary to abomasal volvulus/displacement, and abdominal adhesions secondary to peritonitis may cause abomasal impaction, or idiopathic abomasal impaction may develop (5). In a study, bezoars were determined in 260 of 10240 slaughtered sheep abomasum (12). Trichobezoars also are mentioned as one of the most common reasons of abomasal impaction in calves (5,6,13,15). Trichobezoars remaining in the rumen for a long time may cause ruminal parakeratosis and baling twine ingestion may lead to obstruction of digestive system (6). However, Jelinski et al (9) reported that abomasal hairballs are not contributed to the development of fatal perforating ulcers in beef calves. Trichobezoar and nylon twine were found in the rumen of our case. Ruminal mucosa was healthy. Probably previous treatments for indigestion prevented the development of rumenitis.

Most common clinical signs of small intestinal obstruction caused by a trichobezoar were lack of the fecal output, inappetence, abdominal distension, and abdominal pain in a retrospective study (1,4). Ogilvie (13), pointed out that anorexia, decrease of fecal output, various degree of dehydration and moderate abdominal distension were seen in cases of abomasal impaction. History and clinical examination findings of our case were compatible with that of literature. There was gradually worsening inappetence and depression in the history. Clinical symptoms were bilaterally distended abdomen, irregular ruminal contractions, abdominal pain at the right, poor body condition and dehydration. The heart rate, respiration rate and body temperature were slightly high.

The determination of fluid and electrolyte disorders is more difficult in calves than adult cattle (15). In a study on 368 cows with various abomasal disorders, there was mild or moderate dehydration in 84% of all of abomasal impaction cases and profound hypokalemia and hypochloremia was present in all dehydration states

(14). Laboratory findings were consistent with literature in our case. While no abnormality seen in complete blood count test results except for increased hematocrit (51%); hyponatremic, hypochloremic metabolic alkalosis was determined by blood gases analysis.

The case of abomasal impaction concurrent with ruminal trichobezoar and foreign bodies, which detected in a six-month old calf, was found interesting. Positive results of the surgical treatment in such a complicated digestive disorder were found appropriate to share.

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Corresponding author:

Prof. Dr. Ali BELGE
 Department of Surgery,
 Faculty of Veterinary Medicine,
 Adnan Menderes University, 09100,
 Isikli, Aydin, TURKEY.
 Tel: +90 (256) 2470700, +90 (536) 6381727
 E-mail: alibelge@hotmail.com