A. Ü. Vet. Fak. Derg.
34 (3) : 494-499, 1987

DILATATION AND TORSION OF THE CECUM IN A COW

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Bir inekte sekum dilatasyonu ve torsiyonu

Özet: *7 yaşlı Holstein Fresian ırkı bir inek Ankara Üniversitesi, Veteriner Fakültesi Büyük Hayvan Kliniğine, anoreksi, karın ağrısı ve* 48 *saattir dışkılamanın azaldığı anamnezi ile getirildi. Klinik muayene sonucunda, sekum dilatasyonu ve torsiyonu teşhisi konuldu. Operasyonda sekumun saat yönünün aksi yönünde* 180° *torsiyona uğradığı sağdan görüldü. Sekum,* 80 *cm uzunlukta ve* 25 *cm'den daha büyük çapta gerilmiş olarak bulundu. Torsiyon düzeltildikten sonra, sekum içindeki gaz ve sıvı içerik bir kanül aracılığıyla boşaltıldı. İnek operasyonun ertesi günü yemeye başladı ve* 36 *saat süresince çok miktarda sulu gayta yaptı. İyileşme komplikasyonsuz devam etti ve operasyondan beş gün sonra taburcu edildi.*

Summary: *A 7-year-old Holstein Fresian cow was submitted to the Large Animal Clinic at Ankara University, Faculty of Veterinary Medicine with a history of anorexia, abdominal pain and decreased fecal output for* 48 *hours. As a result of clinical examinations, cecal dilatation and torsion was diagnosed. At surgery, the distended cecum was found to be about* 80 *cm long and more than* 25 *cm in diameter. It was torsed counterclockwise about* 180° *when viewed from the right. After reducing the torsion, the gas and fluid in the cecum were drained using a cannula. The cow started to eat the day after surgery and passed a large quantity of watery feces during the next* 36 *hours. The recovery continued unevenfully and the cow was discharged on post operative day* 5.

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Introduction

In cattle, the prevalence of cecal disorders is lower than that of the rumen, reticulum and abomasum (13, 17), however, cecal disorders may occur as acute cases requiring immediate medical and surgical intervention.

Cecal disorders have been observed in pregnant (4, 11) and non-pregnant (9, 17) cows; a few cases have been reported in bulls (3, 8).

The pathogenesis of cecal dilatation and displacement has been reported to be similar to that displaced abomasum (3, 9, 14). The effect of hay and grain feeding on cecal motility was investigated of volatile fatty acids in the cecum lowering the pH of cecal contents, and inhibiting cecal motility (15).

Diagnosis of cecal disorders is based mainly on selected clinical sings, rectal palpation, and ausculatory percussion (3, 12, 13). Medical and surgical treatments have been used to correct cecal disorders (2, 4, 5, 7, 9, 16).

The aim of this study is to present the cecal dilatation and torsion in a cow which was detected for the first time in our clinic.

Materials and Methods

History: A 7-year-old Holstein Fresian cow, six and a half months pregnant was presented to the Large Animal Clinic at Ankara University, Faculty of Veterinary Medicine with a history of anorexia, decreased fecal output for 48 hours and abdominal pain.

Clinical findings: The cow had been kept in a stable and recieved 5 kg grain and 10 kg hay daily. During the clinical examination, the cow was uneasy and slightly unsteady. The rectal temperature at 39.5 °C was about normal, however, the pulse rate (92 beats/min) and respiratory rate (36 breaths/min) were both elevated. The mucous membranes were heamorrhagic. Hydration as assessed by skin turgor was satisfactory. Ruminal movements were totaly absent. Percussion with auscultation of the right flank revealed a particular area of increased resonance (ping), centered in the right dorsal paralumbar fossa and extending cranially as far as the 11 th rib (Fig. 1). The right side of abdomen was slightly distented by a gas filled viscus, palpeable and visible in the right paralumbar fossa. Rectal examination disclosed an empty rectum and "strawberry jam" blood-tinged mucus in the

descending colon, and the distended cecum was palpated as a long cylindirical organ up to 25 cm in diameter.

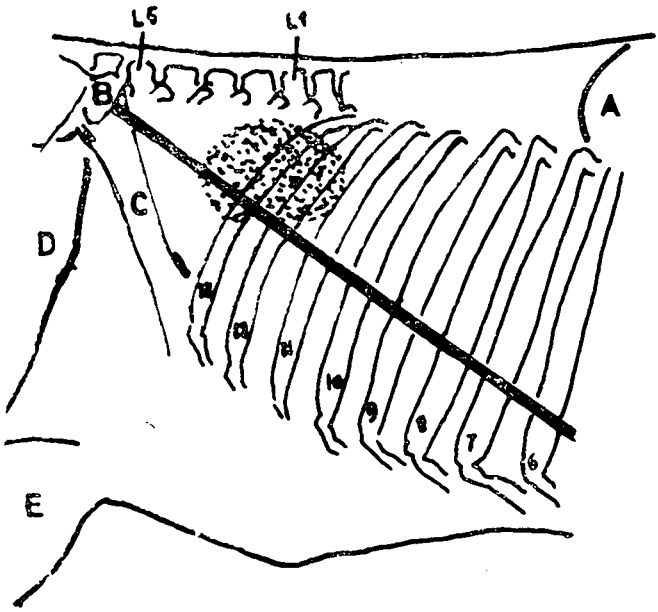

Fig. 1. Detected ping areas in the cecal dilatation and torsion in the cow.

A: Caudal border of scapula.

B: Tuber coxae.

C: Prominence caused by internal abdominal oblique muscle (Caudo ventral border of paralumbar fossa).

D: Cranial border of tensor fasciae latae muscle.

E: Mammary gland.

The straight reference line extends from the tuber coxae to the tuber olecrani (not shown).

The cecal fluid was collected for the liptac test using a cannula on the right abdominal wall and it's pH was 6.5.

The blood picture showed a mild neutrophlic leucocytosis. The cow was slightly uremic (BUN 37 mg/dl), hypochloremic (88 mEq/L), hypokalemic (2.5 mEq/L) and hypocalcemic (6.3 % mg) while alkaline phospatase (33.4 IU) was slightly decreased. The serum total protein (8.32 % mg), sodium (141 mEq/L) and magnesium (13.2 mEq/L) values were normal.

Differential diagnosis included cecal dilatation with or without torsoin or volvulus. It was referred to surgery with a tentative diagnosis of cecal torsion.

Surgery: Laparatomy in the right paralumbar fossa was performed with the cow in standing position. The right paralumbar fossa was prepared for surgery. Local anesthesia was performed with 2 % Lignocain Chl. Immediatelly upon opening the abdomen, the blind end of the cecum was exteriorized and held by hand to ease the tension on the common mesentery. It was noticed that the cecum just before the ileocecal junction was torsed counterclockwise about 180° when viwed from the right. After reducing the torsion, the cecum was observed to be about 80 cm long and more than 25 cm in diamater. It was distended with gas. The gas and fluid were drained through a cannula inserted near the blind end of the cecum. After the cannula was withdrawn the area of punction was closed by twice purse-strings suture. The distended cecum which were initially congested returned to the normal color within ten minutes of completion o the detorsion.

The peritoneum and transversalis muscles were closed as one layer using No. 3 catgut in a simple continuous pattern, the internal and external abdominal oblique muscles and subcutaneous tissue were closed as separate layers in the same manner. The skin was closed with a nonabsorbable suture in a continuos interlocking pattern.

Results

A penicillin (2 400 000 IU) and streptomycin (3 gr) combination was administrated intramusculary, daily for five days. In addition, intravenous fluid therapy (Ringer's solution, 2L) and intramusculary calcium (10 gr) injections were carried out for four days. During the next 36 hours the cow passed a large quantity of watery feces and started to eat the day after surgery with a good appetite. The recovery continued unevenfully and the cow was discharged on post operative day 5. At home the cow continued to improve and the owner reported that it was active, alert and had gained weight normally.

Discussion

The relatively uncommon condition of atony, distension, displacement of the cecum and proximal loop of the colon is usually called torsion of the cecum (1, 2, 14, 16, 17). Altough in many cases of tor-

sion of the cecum, the torsion appears to involve the proximal loop of colon only (2, 6, 16, 17), in this study, the torsion occured just before the ileo-cecal junction.

An increase in the concentration of volatile fatty acids within the gastrointestinal tract results in a drop in the intraluminal pH and causes an atony (2, 14). Cecal dilatation and torsion has been related to decreased motility of the cecum caused by an accumulation of volatile fatty acids (1, 6, 9, 10, 14, 17). Cecal dilatation probably precedes and predisposes to torsion of the cecum (4). Accumulation of fluid and gas may result in cecal torsion in either a clockwise or counterclockwise direction (1, 14, 17). These conditions also have been associated with advenced pregnancy (9). In this study, the predisposing factors such as feeding patterns, advenced pregnancy and decreased serum calcium levels may result in cecal dilatation and torsion.

It has been reported that the most useful criteria for the determination of cecal dilatation and torsion were rectal palpation, ausculatory percussion, abdominal pain and decreased fecal output (1,5,6). In addition, in this study, the liptac test was found to be very useful in detecting whether cecal dilatation and torsion or right displacement of the abomsum has occured. The fliud collected (pH: 6.5) for the liptac test from the viscus using a cannula showed that the gas filled viscus was not the abomasum, because the pH of the abomasal fluid ranges between 1.5 and 3.

It has been reported that the prognosis for the cattle with cecal dilatation and torsion is good unless there is no severe vascular pressure of the cecum (6). In this study, severe vascular pressure of the cecum was absent and the cow started to eat the day after surgery and passed a large quantity of watery feces.

Acknowledgment

We are greateful to Erol Kırvar and Betül Tanyel for their technical assistance.

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