

The Right Displacement of Abomasum with Ulceration in A Calf ^[1]

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Summary

The aim of this case report is to describe the clinical, ultrasonographic, and surgical findings in an 8-week-old female Holstein calf with right abomasal displacement and ulceration. Auscultation/percussion, auscultation/ballottement, and ultrasound examination were used to identify displacement of the abomasum. Right-flank laparotomy was used for repositioning of the displaced abomasum. The abomasum was greatly distended between the rumen and right body wall. Approximately 7 L of abomasal content was discharged from the abomasum. A few ulcerative areas in the mucosal surface of abomasum were observed. After surgery, antimicrobial and antiulcerative therapy were given. The calf discharged was followed with telephonically. As a result, right displacement of the abomasum is very rarely seen in calves. Right flank laparotomy gives good result in calves with right displaced abomasum, and ultrasound examination helps to distinguish right displaced abomasum from other metabolic disorders of the digestive tract in calves.

Keywords: Calf, Right abomasum displacement, Ulceration, Ultrasonography

Bir Buzağıda Abomazum Ülseri ve Sağa Deplasmanı

Özet

Bu olgu sunumunun amacı, 8 haftalık Holstein ırkı dişi bir buzağıda karşılaştığımız abomazum ülseriyle birlikte abomazum sağa deplasmanı olgusunun klinik, ultrasonografik ve operatif bulgularını tanımlamaktır. Hastalığın teşhisi oskültasyon/perküsyon, oskültasyon/çalkantı ve ultrason aracılığıyla konulduktan sonra tedavisi sağ karın duvarından yaklaşımla operatif olarak yapıldı. Operasyon sırasında abomazumdan yaklaşık 7 L içerik boşaltıldı. Abomazum içeriği boşaltıldıktan sonra abomazum mukozasında bir kaç ülserli alana rastlandı. Postoperatif olarak buzağıya antibiyotik ve ülsere yönelik tedavi uygulandı. Taburcu edilen buzağının telefonla yapılan takibinde herhangi bir komplikasyonla karşılaşılmadığı belirlendi. Sonuç olarak, buzağılarda abomazumun sağa deplasmanı çok nadir gözlenen bir durumdur. Tedavide sağ karın duvarından yaklaşımla abomazumun normal yerine getirilmesi ile gayet başarılı sonuçlar elde edilebilir. Bununla beraber ultrasonografik muayene, buzağılarda abomazumun sağa deplase olduğu olguların ayırıcı tanısında güvenle kullanılabilecek bir teşhis aracı olabilir.

Anahtar sözcükler: Buzağ, Abomazumun sağa deplasmanı, Ülser, Ultrasonografi

INTRODUCTION

The left or right displacement of the abomasum (LDA or RDA) is a very important metabolic disorder of the digestive tract in cattle and is often seen especially in high performing milk breeds ¹⁻³. Moreover, right displacement and dilatation of the abomasum is a subacute disease, which generally occurs in adult cattle. However, in calves, reports related to RDA are very rare ^{2,4}. Clinical signs of LDA or RDA in calves are anorexia, poor weight-gain, recurrent

tympy, depressive behavior, and diarrhea ^{1,4}. The cause of recurrent tympy is accumulation of gas and fluid in the abomasum due to obstruction of the forestomach, and abomasal atony due to its content ⁵. In calves, diagnosis of the RDA is characterized by auscultation/percussion, auscultation/ballottement, and ultrasonography ^{6,7}. In simultaneous auscultation, the tympanic resonance (a "ping" sound) centered over the 10th to 13th ribs is



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the primary diagnostic sign of RDA¹. Ultrasonography is a very useful diagnostic method in indecisive cases of right abomasal displacement^{8,9}.

The purpose of this case report is to describe the clinical, ultrasonographic, and surgical findings in an 8-week-old female Holstein calf with right abomasal displacement and ulceration.

CASE HISTORY

An 8-week-old female Holstein calf was referred to the clinic of Veterinary Hospital of the University of Selcuk on April 07, 2009, owing to anorexia and absence of defecation. These complaints had continued for 2 days. The owner of the calf said that the calf had eaten adult-cow forage.

RDA with dilatation was diagnosed using auscultation/percussion, auscultation/ballotement, and ultrasound examination. Ultrasound examination was performed with

identified between the rumen and right body wall (Fig. 2-A). The abomasum was punctured at its highest point with a needle attached to a tube to allow the release of accumulated abnormal gas (Fig. 2-B). The abomasum was incised about 4 cm in length, and approximately 7 L abomasal contents were discharged from the abomasum (Fig. 2-C). A few ulcerative areas in the mucosal surface of the abomasum were observed. Then, the abomasum was sutured in the usual way and returned to normal position. The muscle layers and skin were closed in the usual manner (Fig. 2-D).

After surgery, antimicrobial therapy with Dipenisol (Penicillin-Streptomycin, Bayer - Istanbul) 1 ml/25 kg body weight was given by intramuscular injection daily for 5 days. For the abomasal ulceration, Ulcuran (Ranitidine 25 mg/2 ml, Abfar, Istanbul) Antepsin (Sucralfate 1 g, Bilim, Istanbul), and diet were prescribed. For the postoperative analgesia, Meloxicam 0.5 mg/kg body weight was given (Maxicam, 5 mg/ml, Sanovel, Istanbul) by the subcutaneous injection a single dose. Sutures were removed after

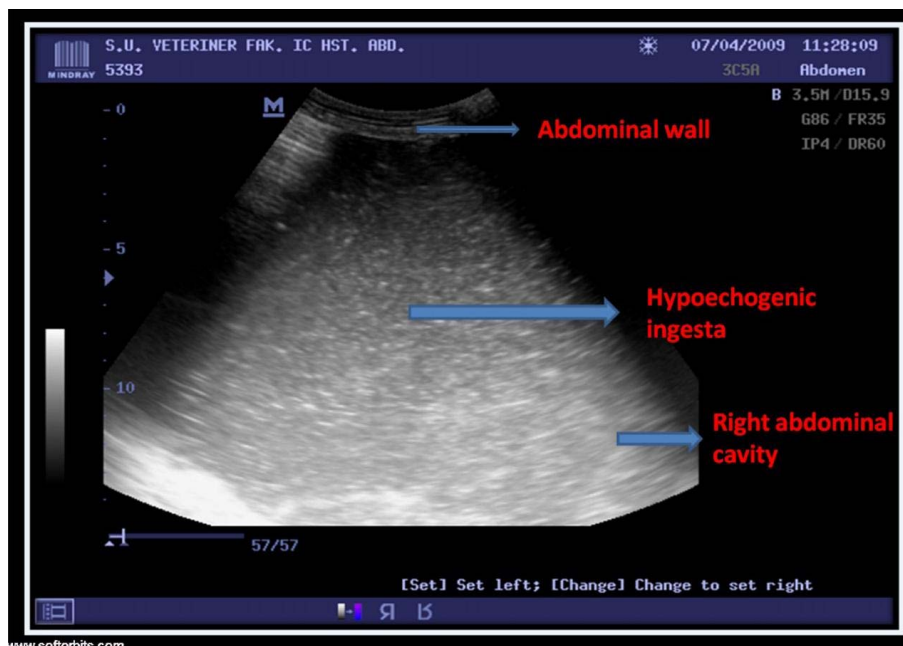


Fig 1. The abomasum and its hypoechoic ingesta by ultrasound examination

Şekil 1. Ultrason muayenesinde abomasum ve abomasum içeriğinin hipokojenik görünümü

a 3.5-MHz sector transducer and real-time scanner (Pie-Medical scanner 250). The 10th and 13th intercostal spaces on the right side and area was examined ventrally to dorsally with 3.5-MHz transducer held ventro-cranial to the ribs. In ultrasonography, the displaced abomasum was seen on the right abdominal area with its hypoechoic ingesta (Fig. 1), and the liver was not seen its normal location. Blood sample was taken from the jugular vein. Laboratory results are given in Table 1.

The right flank was clipped and prepared routinely. A right-flank laparotomy was performed under local infiltration anesthesia. The abomasum was greatly distended with gas and abomasal content, and the abomasum was

Table 1. Results of blood gas evaluation performed before surgical intervention

Tablo 1. Cerrahi müdahaleden önce ölçülen kan gazı sonuçları

Calf	Measured Rate	Referents Rate
pH	7.424	7.3-7.5
Na ⁺	132 mmol/L ↓	134-146
K ⁺	3.30 mmol/L ↓	3.40-4.50
Cl ⁻	104 mmol/L	97-111
pO ₂	24.8 mmHg ↓	>40
pCO ₂	36.2 mmHg ↓	42-46
HCO ₃ ⁻	23.2 mmol/L	22.4-25.5

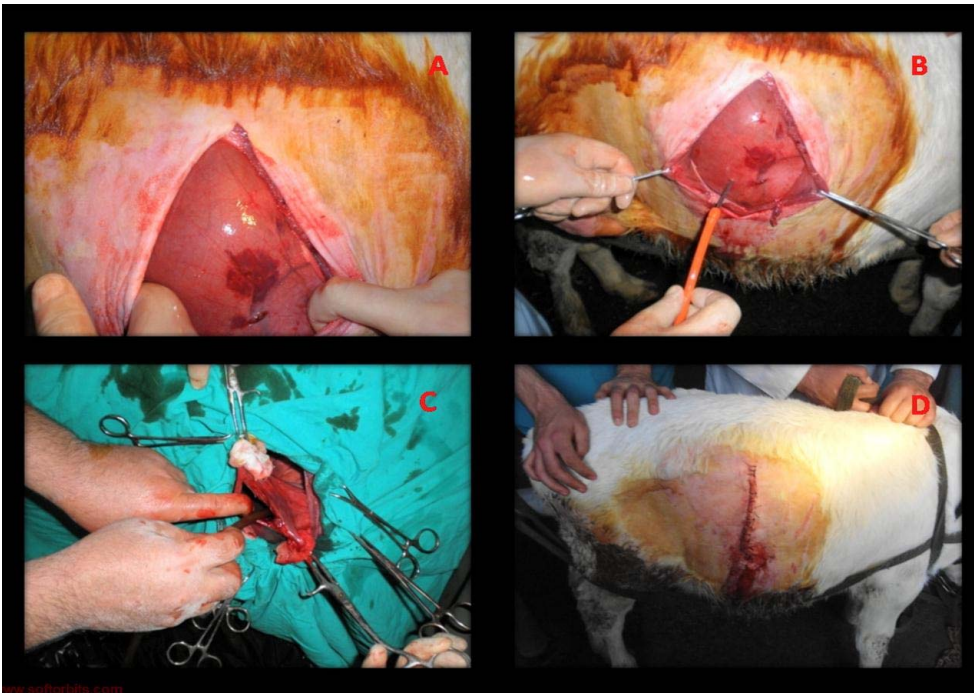


Fig 2. A- Distended abomasum the right abdominal wall, B- Discharging of abomasal gas with a needle attached to a tube, C- Discharging of abomasal content with rubber tube, D- Closed skin incision

Şekil 2. A- Sağ karın duvarında şişkin abomasum, B- Bir boruya takılmış kanül vasıtasıyla abomasum içindeki gazın boşaltılması. C- Kauçuk bir boruyla abomazum içeriğinin boşaltılması. D- Deri ensizyonun kapatılması

healing of operation wound. Follow-up information about the calf discharged was obtained telephonically.

DISCUSSION

According to literature, right displacement of the abomasum is very rarely seen in calves. Generally, calves between 6 and 14 weeks old are more sensitive for abomasal diseases^{10,11}. Consistent with this knowledge, in the present case the calf was 8-weeks-old. According to reports, majority of abomasal displacements in calves happen in male calves and especially in fleshy male calves^{12,13}. However, it was seen also in female calves⁴. In the present case, the calf was a female and not fleshy as well.

The diagnosis of right displacement of the abomasum and dilatation is consistent with authors^{1,4} who reported that in diagnosis of abomasal displacement, simultaneous auscultation and ballotement as well as auscultation and percussion give the best results followed by auscultation, external palpation, and observation. However, ultrasonographic examination is very useful in suspect cases^{2,8}. We used ultrasonography as well as methods that were mentioned previously in diagnosis. In animals with right displacement of the abomasum, the liver is displaced from the abdominal wall and cannot be distinguished in an ultrasonography image because the abomasum is seen where the liver would normally be in the right abdominal cavity⁹. In ultrasonographic examination of the 10th and 13th intercostal space in the right side and adjacent area, the abomasum was placed between the rumen and right abdominal wall. We did not see where the liver would normally be on the right abdominal

wall by ultrasound because of right displacement of the abomasum. The abomasum on the right abdominal wall could be clearly differentiated from the adjacent organs by ultrasound. Because the abomasal contents seemed as a heterogeneous and moderately echogenic structure with echogenic stippling, the displaced abomasum was seen in a dilated form⁸. Our ultrasonographic findings were consistent with these informations.

Abomasal displacements in calves generally have been seen with pneumonia, diarrhea, and abomasal torsions to perforating ulcers². When we incised the abomasum, we observed a few ulcerative areas in the abomasal mucosa. In calves, hypochloremic metabolic alkalosis may occur because of hydrochloric acid sequestration within the abomasum. Such metabolic changes are well substantiated in dairy cattle^{5,14}. However, in this calf there was no metabolic alkalosis. Calves with RDA had increased blood pH, HCO_3^- , and sodium, and decreased chloride and potassium⁴. In the present case, in contrast to this knowledge, blood pH, HCO_3^- , and chloride had not changed but sodium and potassium had decreased.

In conclusion, the RDA is seen adult cattle rather than calves. However, sometimes it could be seen in calves, which is wrongly fed. This digestive tract disturbance of calves can treat easily with adult cattle RDA operation.

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