Differential Diagnosis Between Abomasum Torsion, Mesenteric Torsion and Caecum Dilatation/Volvulus In Calves

Navetat, H.,* Schelcher, F.,, Rizet, Cl.,* Cabanie, P.,** Espinasse, J.*****
**rue du Général de Gaulle 03130 Le Donjon 03130 France*
***23, Chemin des Capelles 31076 Toulouse France*
****Deceased*

Abstract

In calves aged 3-6 months, colics and abdominal distension are due to an abosum torsion, or to a mesenteric torsion or to a caecum dilatation (with/without volvulus). A tabulated format of clinical signs may facilitate the differential diagnosis. Surgical and medical therapies are detailed.

Introduction

Abomasum torsion, mesenteric torsion, caecum dilatation (with/without volvulus) are common calf disorders in our country. Many practitioners are well aware of these and apply convenient therapies; however literature on this subject is very limited. We thought it would be useful to clarify this point, based on the practical expertise we have been able to develop over the last several years. A few clinical cases were already published (Dirksen, Doll 1986; Navetat, Espinasse 1989; Naylor, Bailley 1987; Radostits 1981). This paper summarizes the key elements of a differential diagnosis, as well as the surgical and medical therapies.

Epidemiology and Frequency

Predominant clinical signs found in suckler calves are colics and abdominal distension. Usually, these disorders are seen during the 2-6 months age period, or at turn-out, and very often is seen in fast growers.

Their frequency varies a lot, depending on the year or the farm. It does, however, represent 15% of abdominal disorders found in this age class (Navetat, Espinasse 1989; Naylor, Bailley 1987). The main features of these entities are the suddenness of the outbreak and the equally fatal outcome in the absence of therapy.

Symptoms and Clinical Signs

The symptomatology has already been described (Navetat, Espinasse 1989). Table 1 shows the general, functional and physical signs of each disorder in order to facilitate a differential diagnosis.

Table 1. Symptoms and differential diagnosis.

	Abomasum torsion	Mesenteric torsion	Dilatation/volvulus of the caecum
General signs:			
appetite	anorexia	anorexia	unstable
rectal temperature	hypothermia	hypothermia	normal
cardiac rhythm	tachycardia	tachycardia	normal
dehydration	+++	+ at onset +++ if shock condition	0, 00
Functional signs:			
colics	severe at start, then absence	very severe and continuous	sight presence at start
digestive transit	progressive stop according to torsion importance presence of mucus and blood	sudden stop of transit presence of mucus	progressive transit interruption
Physical signs:			
inspection	right flank distension, (both sides if abomasoruminal reflux, or if development of a third sector)	distension of both sides	right flank distension from external hip angle to right hypocondrium
palpation	distension of organ	intestinal loops	possible in the right costoabdomenal angle
succussion	very important flow sound	flow sound	very important flow sound if dilatation
auscultation/percussion	ping sound in lower part of right flank	absence of abnormal sounds	tinkling sound in the right costoabdomenal angle
auscultation/succussion	liquids sounds	flow sound on both sides	high tonality mettalic sounds
Complications:	abomasoruminal reflux abomasum ulcerations	peritonitis	caecum wall necrosis

Exploratory laparotomy is often recommended for a clear diagnosis and remains, however, the first step of the surgical treatment. It helps to solve difficult cases, to evaluate the volume and position of the organs, the direction/intensity of the rotation as well as to check further complications which happen early and frequently. Indeed, abomasum torsion in the first 24 hours after the

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onset of clinical signs is often complicated with ulceration (Dirksen 1994a), the mesenteric torsion is complicated with peritonitis and the caecum volvulus with wall necrosis after 48 hours. A third sector might even be created by abomasorumenal fluid retention in the rumen in case of abomasum torsion.

Therapy

Surgical treatment is always required and followed by medical therapy. The sooner the surgery is performed, the better the chance of success. The animal must be laid on the left flank with right-side paravertebral anaesthesia utilized (Navetat 1985; Navetat, Espinasse 1989; Navetat, Schelcher, Espinasse 1991). After laparotomy of the right flank in its upper-caudal region (in case of caecum dilatation), or in its lower paracostal region (in case of mesenteric torsion or abomasum torsion), the exploration must always allow for identification and externalization of the distended organ.

In case of abomasum torsion, the organ should be first emptied out; then the torsion can easily be reduced (Dirksen 1994b; Doll 1989; Doll 1991; Navetat, Floch, Chevalier, Hamm, Legay 1994). If ulcerations are found during inspection, they should be resected.

In case of caecum volvulus around the ileocaecal valve, the procedure should be the same. If necrotic lesions of the wall are seen, partial or total typhlectomy should be done (Steiner, Braun, Waldvogel 1992). The mesenteric torsion can easily be reduced, without any specific precaution. Other viscera must be checked before suturing the incision.

Preventive antibiotic therapy must be planned, as well as the treatment of subsequent dehydration and alkalosis before, during, and after surgery (Dirksen 1985; Navetat, Schelcher 1991). Liquid (fluid) therapy is done with sodium chloride at 0.9% or Ringer's solution (or lactate) at a rate of 10 ml/kg/hr corresponding to a standard posology based on body weight and on a 6% to 8% level of dehydration (ex: 150 kg x 7% dehydration = 10.5 litres). Gastro-intestinal motricity should be restored with gastrokinetics (metoclopramide, 1 mg/kg at 12 hrs interval during 2 days) (Malbert 1991, Malbert 1993, Roussel 1994) and cytoprotection of the gastric mucosal barrier is recommended (smectite, 500 mg/kg/d during 10 days) (Navetat 1985, Navetat, Schelcher, *et al.* 1991). These recommendations usually ensure a favourable post operative recovery; appetite returns to normal after 24-48 hours.

Conclusion

A precise and early diagnosis of these three disorders is required. It allows a surgical treatment with a fair chance to reach a 75% success rate. The differential diagnosis must include all other abdominal disorders which can be seen in calves of this age range (Navetat, Espinasse 1989; Navetat, Schelcher, *et al.* 1991).

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