Changes in the coagulation profile of cattle with left abomasal displacement

P. Sobiech, J. Radwińska, W. Krystkiewicz, A. Snarska, A. Stopyra

Department of Internal Medicine, Faculty of Veterinary Medicine
University of Warmia and Mazury in Olsztyn, Oczapowskiego 14, 10-957 Olsztyn, Poland

Abstract

The purpose of this study was to determine changes in coagulation profile parameters in cattle with left abomasal displacement (LAD). The study was performed on 20 Holstein-Friesian (H-F) cows divided into two groups: group I – 10 cows with diagnosed left abomasal displacement and group II – 10 clinically healthy cows. Coagulation tests, including TT (thrombin time), PT (prothrombin time) and APTT (activated partial thromboplastin time), were conducted, and fibrinogen content, D-dimer content, AT III (antithrombin III) activity and platelet (PLT) count were determined in all the animals. Prolonged TT, PT and APTT, a higher fibrinogen and D-dimer content, a drop in AT III activity and thrombocyte count were observed in the cattle with LAD. The above abnormal coagulation profiles were most predominant in three cows which died after surgical repositioning of the abomasum. The results of the study indicate that in cattle with abomasal displacement, the disseminated intravascular coagulation (DIC) syndrome was the most significant risk factor for mortality.

Key words: left abomasal displacement, cattle, coagulation profile, DIC

Introduction

Abomasal displacement (AD) was described for the first time in 1950 (Begg 1950) and since then, it has continued to pose a growing problem for the breeders of high-producing dairy cows. AD is most often diagnosed in the first weeks after calving (Breukink 1991, Hund and Nelson 1995). While left abomasal displacement (LDA), in which the abomasum is trapped between the rumen and the left abdominal wall, occurs more frequently, right abomasal displacement (RDA) is usually accompanied by the simultaneous omasal displacement and rotation of the abomasum. Therefore it is more difficult to diagnose and poses a more serious problem (Wallace 1989). The causation and pathogenesis of the disease have not been fully elucidated despite a vast number of scientific theories attempting to explain the phenomenon. The most popular theory argues that abomasal displacement is caused by two coinciding factors: increased gas production in the abomasum and hyperactivity of this forestomach (Van Winden and Kuiper 2003). Many papers have addressed the issue of blood biochemical and haematological changes that accompany abomasal displacement (Yamahato 1982, Muylle et al. 1990), but there are few reports evaluating the coagulation profiles in cattle with AD (Irmak and Turgut 2005).

The disseminated intravascular coagulation (DIC) syndrome is the most acute haemostatic system disorder which is characterised by coagulation in the microcirculation with a secondary deficit of platelets.