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1 **Guest Editorial**

2 **A novel twist to uterine torsion and abomasal displacement in dairy cows**

3 Every bovine practitioner is acutely aware of the increased risk of the occurrence of
4 ‘transition cow disease’ in dairy cows during their transition from late pregnancy to early
5 lactation. Changes in management during this time can result in a multitude of problems
6 including those associated with metabolic and energy imbalances, as well as infection of the
7 uterus and mammary gland (Mulligan et al., 2006; LeBlanc, 2008). The periparturient period
8 can thus be quite a precarious phase in terms of the health of these ‘high performance
9 athletes’ that are constantly balancing on a tightrope between health and disease.

10

11 In an article by Dr. Richard Laven and colleagues from the Institute of Veterinary
12 Animal and Biomedical Sciences, Massey University, New Zealand (Lawrence et al., 2012),
13 published in this edition of *The Veterinary Journal*, it is exactly during this period in a dairy
14 cow’s production cycle that the authors report an increased incidence in uterine torsion and
15 abomasal displacement. The time periods that are compared are those before and after the
16 foot-and-mouth disease (FMD) outbreak in the UK in 2001. This epidemic had a massively
17 disruptive impact on the farming industry and on the UK as a whole, both in economic and
18 sociologic terms, and the period has left an indelible mark on the consciousness of farming
19 communities, veterinarians and the wider public. Radical changes to cattle farming both at
20 the level of individual farming enterprises as well as to the industry as a whole resulted from
21 the outbreak. Many herds that were traditionally pasture-based morphed into herds that were
22 predominantly housed, a change that had particular implications for the nutritional
23 management of the animals involved. Another upshot was the restocking of depopulated

24 farms with new cows of different genetic background and infection status which required
25 alterations to husbandry and biosecurity.

26

27 The increased incidence in both abomasal displacement and uterine torsion in dairy
28 cows in the UK in the aftermath of the FMD outbreak reported by Lawrence et al. (2012) is a
29 fascinating finding and begs the question ‘why ?’. In terms of pathogenesis both diseases
30 have similarities: both affected organs have mesenteric attachments within the peritoneal
31 cavity that leaves a lot of ‘room for manoeuvre’ so that they can fairly readily become
32 displaced from their normal position. In the case of uterine torsion, increased frequency of
33 movement of the calf in utero, together with the increased frequency with which the cow
34 lies/stands, seem to be important in the twisting of the entire organ around the ‘fixed’
35 positions of the mesovarium and cervix/vagina (Drost, 2007). In the case of the abomasum,
36 periparturient changes to dietary constituents or intake can lead to increased production of
37 intra-luminal gas which, when combined with the associated atony of the organ, can lead, not
38 only to its distension, but also to its increased mobility within the abdomen. Given such
39 mechanisms are at play, changes in the abdominal size/shape of cows are likely to contribute
40 to both diseases.

41

42 Previously in *The Veterinary Journal*, Doll et al. (2009) detailed risk factors
43 associated with abomasal displacement and concluded that the tall stature and increased body
44 depth of Holstein-Friesians predisposes these animals to displacement. It is well established
45 that the Holstein-Friesian population has changed in size and shape over the last number of
46 decades (Wittek et al., 2007). This change, in combination with the reconfigurations in organ
47 topography within the bovine abdomen occurring from the last trimester of pregnancy

48 through to the first months of lactation leaves these animals more predisposed to both uterine
49 torsions (before) and abomasal displacement (after) parturition (Wittek et al., 2007). There is
50 also evidence that the genetic background of an animal is an important risk factor for both
51 abomasal displacement (Zwald et al., 2004) and uterine torsion (Frazer et al., 1996). The
52 Brown Swiss and Holstein-Friesian breeds have the greatest and lowest predispositions to
53 developing uterine torsion, respectively (Frazer et al., 1996). Increasing calf size also
54 amplifies the risk of uterine torsion and this parameter is directly related to the genetic
55 composition of both sire and dam (Hansen et al., 2004).

56

57 The article by Lawrence et al. (2012) describes an interesting and perhaps somewhat
58 unexpected legacy of this FMD outbreak whereas heretofore the focus has been on the spread
59 of endemic infectious diseases such as bovine tuberculosis that resulted from large-scale post-
60 outbreak farm restocking (Johnston et al., 2011). It is important we bear such unexpected
61 consequences in mind when normal dairy production resumes in the months and years
62 following a major disease incident.

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References

74 Doll, K., Sickinger, M., Seeger, T., 2009. New aspects in the pathogenesis of abomasal
75 displacement. *The Veterinary Journal* 181, 90-96.

76

77 Drost, M., 2007. Complications during gestation in the cow. *Theriogenology* 68, 487-491.

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Marijke Beltman
School of Veterinary Medicine,
University College Dublin,
Belfield,
Dublin 4,
Ireland

E-mail address: Marijke.Beltman@ucd.ie

79 Frazer, G.S., Perkins, N.R., Constable, P.D., 1996. Bovine uterine torsion: 164 hospital
80 referral cases. *Theriogenology* 46, 739-758.
81

82 Hansen, M., Lund, M.S., Pedersen, J., Christensen, L.G., 2004. Gestation length in Danish
83 Holsteins has weak genetic associations with stillbirth, calving difficulty, and calf size.
84 *Livestock Production Science* 91, 23-33.
85

86 Johnston, W.T., Vial, F., Gettinby, G., Bourne, F.J., Clifton-Hadley, R.S., Cox, D.R., Crea,
87 P., Donnelly, C.A., McInerney, J.P., Mitchell, A.P., Morrison, W.I., Woodroffe, R., 2011.
88 Herd-level risk factors of bovine tuberculosis in England and Wales after the 2001 foot-and-
89 mouth disease epidemic. *International Journal of Infectious Diseases* 15, 833-840.
90

91 Lawrence, K., Tulley, W., Laven, R., 2012. Observations on the incidence and seasonality of
92 uterine torsion and left displaced abomasum following the 2001 outbreak of foot-and-mouth
93 disease in the UK doi.org/10.1016/j.tvjl.2012.10.034
94

95 LeBlanc, S.J., 2008. Postpartum uterine disease and dairy herd reproductive performance: A
96 review. *The Veterinary Journal* 176, 102-114.
97

98 Mulligan, F.J., O'Grady, L., Rice, D.A., Doherty, M.L., 2006. A herd health approach to
99 dairy cow nutrition and production diseases of the transition cow. *Animal reproduction*
100 *science* 96, 331-353.
101

102 Wittek, T., Sen, I., Constable, P.D., 2007. Changes in abdominal dimensions during late
103 gestation and early lactation in Holstein-Friesian heifers and cows and their relationship to
104 left displaced abomasum. *Veterinary Record* 161, 155-161.
105

106 Zwald, N.R., Weigel, K.A., Chang, Y.M., Welper, R.D., Clay, J.S., 2004. Genetic selection
107 for health traits using producer-recorded data. II. Genetic correlations, disease probabilities,
108 and relationships with existing traits. *Journal of Dairy Science* 87, 4295-4302.
109
110
111