

Johne's Disease as a Probable Cause for Higher Culling Rate in Cows with Left Displaced Abomasum and Diarrhea in a Dairy Herd in Iran

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Introduction

According to a few previous reports, cows with left displaced abomasum (LDA) presenting with diarrhea respond less favorably to surgery and appear to be at a greater risk of removal from the herd compared to cows presenting with normal feces. However, there is a paucity of information in the literature about the probable relationship of Johne's disease (JD) to the higher culling rate.

Materials and Methods

Over a period of approximately 43 months (from April 1999 to November 2002), a total of 43 cases of LDA were confirmed surgically in a large Holstein dairy herd with an average of 1150 dairy cows (an intra-herd lactational incidence of approximately 1% for LDA). Clinical diagnoses were substantially based on hearing the musical pings following simultaneous auscultation and percussion from the lower third of the abdomen in the eighth intercostal space to the paralumbar fossa, and confirmation was made through laparotomy. Confirmation of JD was made through histopathologic examination, based on demonstration of epithelioid cells containing acid-fast bacilli in smears and sections of mucosa.

Results

Of these 43 confirmed cases surgically, five cows had a history of diarrhea at the time of diagnosis of LDA and 38 cows did not have diarrhea, with post-surgical culling rates of 100% (5 of 5) and 28.9% (11 of 38), respectively, indicating an overall post-surgical culling rate of 37.2% (16 of 43). There was a statistically significant association between the presence of diarrhea at the time of diagnosis of LDA and removal from the herd after surgical correction of displaced abomasum during the lactation when the diagnosis of LDA was made ($P=0.0045$, based on the Fisher's exact test). Four cows showing

diarrhea were removed from the herd within 3 months after diagnosis or surgical treatment of LDA because of intractable watery diarrhea, progressive weight loss and decreased milk production. In the group without diarrhea, the main causes of removal from the herd were peritonitis, severe hepatic lipidosis, deterioration of physical condition, vagal indigestion, prolonged recumbency, ruminal impaction and torsion of the intestinal mass around the mesenteric root.

On one occasion, a thickened and edematous duodenum was found while trying to surgically correct a left displaced abomasum in a 5-year old diarrheic cow with 16 days in milk. Microscopic examination of Ziehl-Neelsen stained fecal smears, and mucosal scrapings collected from the rectum showed clumps of an acid fast bacterium. Because the prognosis was poor, the cow was slaughtered after three weeks. At necropsy the small intestines were found to be thickened and edematous with permanent corrugations typical of JD. JD was confirmed on histopathologic examination. A 4-year old cow with 14 days in milk was later presented for clinical examination following a sudden drop in the milk yield. Clinical findings included watery diarrhea, ruminal atony and auscultable pings over the 10th to 12th ribs on the left side, suggestive of LDA. Prior to recommending surgical correction, a fecal sample was obtained. Ziehl-Neelsen stained smears were examined microscopically. Based on the positive result, JD was highly likely, therefore the farmer elected to cull the cow from the herd.

Significance

Johne's Disease might be a cause of the higher culling rate of cows with LDA and diarrhea compared to the cows with LDA and normal feces in this herd. It is recommended that practical JD diagnostic tests be carried out prior to the surgical correction of LDA in cows with diarrhea. Positive results would spare the farm practitioner the inconvenience of an unnecessary surgery as well as time and monetary losses.