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SMALL INTESTINAL OBSTRUCTION DUE TO AN INTRALUMINAL BLOOD CLOT IN THE JEJUNUM OF 4 HOLSTEIN CATTLE

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Over the past three years, four cows with small intestinal obstruction due to intraluminal blood clots have presented to the University of Minnesota Veterinary Teaching Hospital. Each of these cases will be discussed with respect to clinical signs, surgical findings, therapy, and necropsy findings as appropriate. All of these cows showed signs of abdominal pain prior to presentation to the UMVTH. Abdominal pain may be the result of afferent input from stretch receptors in the serosal surfaces of intestine. The receptors are also located in the mesenteric attachments of the intestine. Anything that stretches the intestine will induce pain, as will ischemia of intestine.

Signs of abdominal pain are often the primary reason clients seek veterinary service for their animal, and these signs can be varied. Cows may be seen to kick at their abdomen, stretch, repeatedly lie down and stand up, shift their weight, or be reluctant to move. In addition, many of these animals go off feed, and show a dramatic decrease in milk production. On physical examination, they will often be tachycardic, and have shallow, increased respirations.

There are many differential diagnoses for abdominal pain in cows, including abomasal volvulus, intussusception, volvulus of the root of the mesentery, strangulated hernias, foreign bodies (ie hardware), urolithiasis, ulcers, and uterine problems. To try and determine the cause of the abdominal pain, physical examination findings combined with the history and lab results must be taken into account. Occasionally an exploratory surgery is needed to make the diagnosis as was the case with the animals presented.

Abomasal ulcers in cows have been commonly reported and are known to be related to diet, and stress levels of the cow. However, obstructive lesions in the small intestine due to extensive ulceration in cows has not been previously reported. We were unsure as to the cause of these jejunal ulcers, so a variety of tests were performed on these animals. BVD isolation as well as Salmonella isolation was negative. A Johnes test submitted for cow #3 was negative. In addition, there were no consistent abnormalities found on the CBC or Chemistry samples submitted. Coagulation profiles submitted for cases #3 and #4 were also found to be non-pathologic. Therefore we remain uncertain as to the cause of the extensive ulcers in the jejunum. The normal necropsy findings in case #3 lead us to believe that the ulcers are not permanent, and may be induced by stress. A BLV test performed on case #4 was positive. In addition, this cow had profuse diarrhea from which *Clostridia septicum* was cultured.

In any case, regardless of the cause of the ulcers, we have determined that treatment of these obstructive lesions in the jejunum should be by way of an enterotomy to remove the obstructive clot. This is sufficient to allow the animal to recover, and return to milking. The viability of the jejunum should not be determined by visual inspection, because in all cases, the serosa appeared dark purple/black and was judged to be devitalized. Resection and anastomosis of the small intestine in cattle is difficult because of the amount of fat in the mesentery. This makes it extremely difficult to visualize the vessels and maintain adequate hemostasis during the resection. In addition, the mesentery has a short root, making surgical access difficult.

In summary, there does not appear to be one consistent cause of extensive ulceration of the proximal small intestine in these cases. Regardless of the cause of the ulcers, the treatment of choice is via enterotomy to remove the obstructive clot. Hopefully as more information on this disorder is collected, appropriate preventative measures can be recommended.