Clinical Aspects and Surgical Correction in Left Displacement of Abomasum in Holstein Cows.

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Abstract. Development in Romania in the last 15 years, the new dairy farms with high production Holstein cows, usually the cows are exposed to a productive enforcement by feeding them with TMR (total mixed ration) with high ratios concentrates, leads to occurrence of other conditions between them being left displacement of abomasum (LDA). This condition usually occurs as early as 45 days post partum, associated with other intercurrent diseases like: retained placenta, metritis, mastitis, ketosis. The most common clinical signs observed on 11 cows in the study were: sudden decrease in milk production, off feed, udder like sponge consistence, vital functions range in normal limits, dehydration being observed only in last stage. Positive diagnosis was established by simultaneous percussion and auscultation in the left flank, where the “ping” sound appears. Surgical correction can be performed by different surgical procedures, in the present study we performed surgical correction by right pyloroomentopexy.

Key word: abomasum, displacement, left, cows, surgery, clinical

INTRODUCTION

In the last years, in Romania the new style dairy, have been developed with high production Holstein breed, usually the cows are exposed to a productive enforcement by feeding them with TMR (total mixed rations) which are high ratios grain and low ratios fibres. This manner of nutrition leads to various diseases, one of the most important being LDA. The efforts of the veterinarians to prevent LDA, but with reduced productions are the most times refused by the farmers. The veterinarian is the one who provides the surgical treatment of LDA, procedure which cannot be refused by the farmer (5). Epidemiological studies indicate that cows which develop LDA generally are high milk producers, greater percentage of cases in older, heavier cows versus first calf heifers. LDA implies its displacement below the rumen, leftwards, between the abdominal wall and rumen. The incidence of this condition is high after parturiency and in animals with other pathological conditions, the age range between of 3 and 7.

Causes of LDA are multiple and include: favoring factors: calcium deficiency, metritis, histamine release (6), endotoxiemia, alkalosis, hyperinsulemia, increased volatile fatty acids in the abomasal fluid (3); predisposing factors: sex, parturiency, twins pregnancy, breed, large body, genotype, season, low crude fiber or high silage and grain fodders (7). The precise etiology of LDA is unknown, but it is presumed that the primary factor is abomasal hypomotility, atony and gaseous distension. Clinically, the first signs are hard to observe, the animal presenting partial anorexia sometimes anorexic, with different degrees of ketosis and hypogalactia to absent milk production. (140 Vital functions (temperature, puls, respiration) are within normal range, ketotic breath, dehydration being observable only in the latter phase of
the disease. The disease is suspected by the farmer, on the basis of onset in the first 45 to 50 days post-partum in cows with intercurrent diseases like metritis or placental retention (PR) and decrease in milk production. It is finally diagnosed by the veterinarian on the basis of the characteristic “ping” sound usually extend cranially to the tenth rib and ventrally to the level of the condrocostal junction. The area where this sound can be listened dependent with the quantity of gasses in the abomasum (9,13).

The correction of LDA can be performed by multiple non-surgical and surgical methods(4), including the newer right pyloroomentopexy.

**MATERIALS AND METHODS**

In this study the surgical correction we performed by right pyloroomentopexy as a correction method for LDA. The procedure was performed an a group of 11 cows with the following characteristics and associated conditions:

<table>
<thead>
<tr>
<th>No</th>
<th>Id no</th>
<th>Breed</th>
<th>Age (years)</th>
<th>Days in Milk(DIM)</th>
<th>Diagnosis</th>
<th>Associated Diseases</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1852</td>
<td>Holstein</td>
<td>6</td>
<td>25</td>
<td>LDA</td>
<td>-</td>
</tr>
<tr>
<td>2</td>
<td>0550</td>
<td>Holstein</td>
<td>5</td>
<td>44</td>
<td>LDA</td>
<td>Fatty liver sindrom</td>
</tr>
<tr>
<td>3</td>
<td>0642</td>
<td>Holstein</td>
<td>4</td>
<td>26</td>
<td>LDA</td>
<td>-</td>
</tr>
<tr>
<td>4</td>
<td>3412</td>
<td>Holstein</td>
<td>3.5</td>
<td>23</td>
<td>LDA</td>
<td>Retained placenta</td>
</tr>
<tr>
<td>5</td>
<td>0789</td>
<td>Holstein</td>
<td>4</td>
<td>29</td>
<td>LDA</td>
<td>Retained placenta</td>
</tr>
<tr>
<td>6</td>
<td>4481</td>
<td>Holstein</td>
<td>5</td>
<td>41</td>
<td>LDA</td>
<td>Metritis</td>
</tr>
<tr>
<td>7</td>
<td>0148</td>
<td>Holstein</td>
<td>3</td>
<td>35</td>
<td>LDA</td>
<td>Metritis</td>
</tr>
<tr>
<td>8</td>
<td>0298</td>
<td>Holstein</td>
<td>8.5</td>
<td>40</td>
<td>LDA</td>
<td>Retained placenta</td>
</tr>
<tr>
<td>9</td>
<td>0394</td>
<td>Holstein</td>
<td>3</td>
<td>38</td>
<td>LDA</td>
<td>Retained placenta</td>
</tr>
<tr>
<td>10</td>
<td>0368</td>
<td>Holstein</td>
<td>3</td>
<td>48</td>
<td>LDA</td>
<td>Parietal adhesion</td>
</tr>
<tr>
<td>11</td>
<td>0311</td>
<td>Holstein</td>
<td>4</td>
<td>31</td>
<td>LDA</td>
<td>-</td>
</tr>
</tbody>
</table>

Clinical diagnosis is difficult to establish, is based on the history, because the early sings were subtle. Usually some poor appetite or anorexia was present, cows refuse grain but continue to eat hay, and after that loss weight. Milk productions gradually decrease and udder had consistence like a sponge. Feces consistence varied from more firm than normal to diarrhea, but some cows were normal feces. Vital functions were usually normal. An abnormal temperature, pulse and respiratory rate we met usually in response to other condition such as metritis, mastitis which is common. Dehydration occurred only late in the course of LDA. Auscultation of the left abdominal wall for several minutes revealed at some cows spontaneous tinkling and gurgling sound. The primary positive clinical diagnosis is possible to establish just by simultaneous percussion over the 9th to 12th ribs and auscultation over the upper left side in the region of last rib and paralumbar left fosse area where “ping” sound appear (14).

Surgical correction: Right pyloroomentopexy as a surgical procedure for LDA correction is performed with the animal in quadrupe d position. General anesthesia is acquired by neuroleptanalgesia (NLA) with 0,5 ml of Xylazine (Narcoxyl 2%) and 1,0 ml of Butorphanol (Torbugesic), once, completed with regional paralumbar anesthesia and local anesthesia on the incision line with Lidocaine 1% . (1,8,11).

Celiotomy is performed in the right flank, at 15 cm from the last rib, with a 10-15 cm incision, parallel with the last rib, through all anatomical plans with consequent haemostasis.
Incision of peritoneum is followed by exploration of abdominal cavity with left hand and identification of the displaced abomasum. The abomasum is found between the rumen and left abdominal wall. Identification is followed by centesis of abomasum and evacuation of gasses with a 18 G needle adapted to a flexible tube for deflation. Repositioning of abomasum is performed by introducing the right hand on the right side and performing a traction on the small omentum in order to bring the pylorus to the incision line. Pyloropexy was done by “U” suture in 2-3 separate sites at the cranial side of the surgical wound with synthetic absorbable material (Polysorb nr.2, Vicryl nr.2). Omentopexy was realized by continuous suture pattern of the small omentum to the suture of the first muscular layer (peritoneum and transversus muscle) with no 2 synthetic absorbable material. Muscular layers were sutured continuously with absorbable suture, and skin was sutured with braided silk by interrupted suture pattern, and suture removal after 10-14 days (2,12).

RESULTS AND DISCUSSIONS

The goal in surgical correction of LDA is to return the abomasum to its normal position so that normal digestive function can resume. As soon as this is accomplished, the quicker the cow will return to normal milk production and regain energy balance. Analyzing the temperature, pulse and respiration, there were no significant correlations with LDA, abnormal values was correlated with concurrent disease like metritis. Milk production decreased for all cows with LDA. Some cows with LDA had normal feces. The area of resonant “ping” was vary size, range from a small size 10-15cm to large size 30-40 cm diameter. The location of the “ping” varied depending on the ingest within the rumen, the position of the abomasum, and the amount of gas trapped within the abomasum. The areas where we identified “ping” sound extended cranially to the tenth rib and ventrally to the level of the condrocostal junction and upper to the paralumbar left fossa area. Clinical signs vary because of the variety of other that can occur with LDA. Postoperatively, the general state of the animals was improved immediately, with gradual return of milk production, which remains lower with 1-3 litters than the initial one. Surgical problems which occurred, were in cow number 0642, were we found omentoparietal paralumbar left fossa area adherences, which were dilacerated. Cow number 1852 was presenting exaggerated hepatomegaly and increased volume of the gall bladder which disturbed pyloropexy because the right hepatic lobe was extending to the abdominal wall incision.

Postoperative evolution of the studied group was favorable, excepting the forementioned cows. There were no postoperative infections, wound dehiscence or reoccurrence of LDA.

LDA incidence within the herd was 5,5%, data comparable with literature (10).

From the 11 cases, two (cows number 0642 and 1852) were slaughtered from reasons of profitability, representing 18,18% from the cows from this study. Survival rate was 81,82%, a satisfactory percent for livestock surgery (15).

CONCLUSIONS

1. LDA is a plurifactorial disease which occurs in herds fed with unique ration with low fiber percent, but without the possibility to incriminate this factor.
2. Positive clinical diagnosis is possible to establish just by simultaneous percussion and auscultation of the paralumbar left area where “ping” sound appear.
3. Celiotomy for RPO give a good access to right side of abdomen.
4. Right pyloroomentopexy for correction of LDA in Holstein cows is reasonable for the following reasons:
   a) Economic – performed in quadruped position, the veterinarian needing a single assistant or no assistant required
   b) Anesthesia - NLA combination, avoiding complications of decumbency (bloat, regurgitation, aspiration pneumonia).
   c) Surgical – double pexy of pylorus and omentum is definitive and permanently which reduced at the minimum the risk of suture dehiscence and recidivism.

5. Surgery applied in this study is an accessible techniques, proper to use in the field with proper surgery knowledge, which can be used successfully by veterinarians.

REFERENCES

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