

## **Left-side displacement of the abomasum...LDA**

Its occur when animals feed high levels of concentrate results in a decrease abomasal motility and increased accumulation of abomasal gas.

### **Epidemiology...**

1-LDA occurs most commonly in large, high-producing adult dairy cows whom feed concentrate diet(mostly housed animals) immediately after parturition.

2-Case fatality may reach 21%

3-Feeding rations high in carbohydrates, inadequate levels of roughage and crude fiber levels below 17% during the last few weeks of pregnancy are probably important dietary risk factors.

4-Unusual activity, including jumping on other cows during estrus, may predispose to LDA

### **Pathogenesis ...**

In general high level grain feeding increases the flow of ruminal ingesta to the abomasum, which causes an increase in the concentration of volatile fatty acids, which can inhibit the motility of the abomasum ,This inhibits the flow of digesta from the abomasum to the duodenum so that ingesta accumulates in the abomasum ,The large volume of methane and carbon dioxide found in the abomasum following grain feeding may become trapped there, causing its distension and displacement(Abomasal atony and gaseous distension are considered to be the primary dysfunctions in LDA)

1- In the non pregnant cow, the abomasum occupies the ventral portion of the abdomen on the midline, with the pylorus extending to the right side caudal to the omasum.

2-As pregnancy progresses, the enlarging uterus occupies an increasing amount of the abdominal cavity. The uterus begins to slide under the caudal aspects of the rumen, reducing rumen volume by one-third at the end of gestation. This also forces the abomasum forward and slightly to the left side of the abdomen, although the pylorus continues to extend across the abdomen to the right side.

3-During LDA, the pyloric end of the abomasum slides completely under the rumen to the left side of the abdomen. The relative lack of rumen .fill and abomasal atony allows the abomasum to distend and move into the left side of the abdomen.

**Note: Decrease in plasma concentration of calcium around the time of parturition may play a role in disposing the disease**

4-A mild metabolic alkalosis with hypochloremia and hypokalemia are common because of continuous secretion of hydrochloric acid

5-Affected cattle usually develop secondary ketosis which, in fat cows may be complicated by the development of the fatty liver syndrome.

6-Perforating abomasal ulceration and acute local peritonitis with fibrinous adhesions also occur in some cases of LDA, The ulcers may perforate acutely and cause rapid death due to acute diffuse peritonitis.

### **Clinical findings ...**

1-Usually within a few days or a week following parturition there will be in appetite, sometimes complete anorexia, a marked drop in milk production and varying degrees of ketosis, based on ketonuria and other clinical findings of ketosis.

2-On inspection of the abdomen, the left lateral abdomen appears '**slab-sided**' because the rumen is smaller than normal and displaced medially.

3-The temperature, heart rate and respirations are usually within normal ranges.

4-The feces are usually reduced in volume and softer than normal but periods of profuse diarrhea may occur.(scant and blackish color is common).

5-Ruminal movements are commonly present but decreased in frequency and intensity However the presence of abdominal ripples or waves indicated LDA.

6- Auscultation of an area below an imaginary line from the center of the left paralumbar fossa to just behind the left elbow reveals the presence of high pitched tinkling sounds, which often have a progressive peristaltic character. These are abomasal sounds and may occur several times per minute or infrequently (as long as 5 min apart) . They are not related in occurrence to ruminal movements.

7- percussion over an area between the upper third of the ninth and 12th ribs of the abdominal wall commonly elicits the high-pitched tympanic sounds (pings) that are characteristic of LDA.

8-In acute cases an obvious bulge caused by the distended abomasum may develop in the anterior part of the upper left paralumbar fossa and this may extend up behind the costal arch almost to the top of the fossa

9- Abdominal pain due to the local peritonitis is characterized by, grunting and arching of the back and fever.

10- On rectal examination a sense of emptiness in the upper right abdomen may be felt. The rumen is usually smaller than expected and only rarely is the distended abomasum palpable to the left of the rumen.

11-Secondary ketosis and fatty liver Cows in fat body condition at parturition commonly have severe ketosis and the fatty liver syndrome secondary to LDA.

### **Treatment ...**

#### **Surgical correction**

**Right paramedian abomasopexy or  
right paralumbar fossa omentopexy**

## **Right-side displacement of the abomasum and (abomasal volvulus)RDA....**

Its occur when animals feed high levels of concentrate results in Abomasal atony is thought to be the precursor of dilatation and displacement, and consequently abomasal volvulus.

### **Epidemiology...**

1- Dilatation, RDA and abomasal volvulus occurs primarily in adult dairy cows, usually within the period 3-6 weeks aftercalving.

2- Abomasal volvulus occurs in young calves from a few weeks of age up to 6 months.

3-The disease recorded in beef and pregnant animals .

### **Pathogenesis....**

#### **Dilatation phase...**

abomasal atony occurs initially, resulting in the accumulation of fluid and gas in the viscus leading to gradual distension and displacement in a caudal direction on the right side .

a-During the dilatation phase, which commonly extends over several days, there is continuous secretion of hydrochloric acid, sodium chloride and potassium into the abomasum, which becomes gradually distended and does not evacuate its contents into the duodenum. This leads to dehydration and metabolic alkalosis .

b-Up to 35 L of fluid may accumulate in the dilated abomasum resulting in dehydration and mild electrolytes imbalance.

#### **Distension phase ....**

The abomasal luminal pressure.

a-Increased luminal pressure could cause mucosal injury by local vascular occlusion and affect the prognosis.

b-As luminal gas pressure increases, abomasal perfusion decreases, resulting in varying degrees of ischemia to the abomasal mucosa, followed by ulcers and perforations.

#### **Displacement phase ....**

#### **Volvulus phase....**

a-Following the dilatation and displacement phase, the distended abomasum may twist in a clockwise or anticlockwise.

b-The volvulus will usually be of the order of 180-270° and causes a syndrome of acute obstruction with local circulatory impairment and ischemic necrosis of the abomasum.

c-In some cases the abomasum and omasum are greatly distended and form a loop with the cranial part of the duodenum. This loop may twist up to 360 in a counterclockwise direction as viewed from the rear or from the right side of the cow.

d-Abomasal volvulus with involvement of the omasum and reticulum were recorded result in . Pressure and tension damage of the ventral vagal nerve trunk and to the blood vessels are in part responsible for the poor prognosis.

e-It have been thought that violent exercise and transportation may be contributory factors in the pathogenesis of acute abomasal volvulus.

#### **Clinical findings....**

##### **Dilatation and displacement phase...manifested by**

1-There were a history of calving within the last few weeks with inappetence and decreased milk production, the feces are reduced in amount and are abnormal

2-There is usually depression, dehydration, increased thirst(Affected cows will commonly sip water continuously) and sometimes muscular weakness.

3-The temperature is usually normal, the heart rate will vary from normal to 100/min, and the respirations are usually within the normal range.

4-The mucous membranes are usually pale and dry.

5-The reticulorumen is atonic and the rumen contents feel excessively doughy.

6-The distended abomasum may be detectable as a tense viscus on palpation immediately behind and below the right costal arch.

7-Ballottement of the middle third of the right lateral abdomen immediately behind the right costal arch along with simultaneous auscultation will reveal fluid- splashing sounds suggesting a fluid-filled viscus and also a characteristic high pitched ping.

8-After 3-4 days the abdomen is visibly distended on the right side and the abomasum can be palpated on rectal examination

##### **Volvulus phase...**

1-Abomasal volvulus usually develops several days after the onset of dilatation of the abomasum.

2-The abdomen is visibly distended, depression and weakness are marked, dehydration is obvious, the heart rate is 100-120/min and respirations are increased.

3-Recumbency with a grossly distended abdomen and grunting may occur and represents a poor prognosis.

4- On rectal examination distended abomasum may be palpable with the tips of the fingers in the right lower part of the abdomen.

5-The feces are usually scant, soft and dark in color.

6-Death usually occurs in 48-96 hours from shock and dehydration However Rupture of the abomasum may occur and cause sudden death.

### **Acute abomasal volvulus(adult cattle)...manifested by**

1-there is a sudden onset of abdominal pain with kicking at the abdomen, depression of the back and crouching انحناء.

2-The heart rate is usually increased to 100-120/min, the temperature is subnormal and there is peripheral Circulatory failure. The animal feels cool and the mucous membranes are pale, dry and cool.

3-The abdomen is grossly distended on the right side and auscultation and percussion reveal the tympanitic sounds of a gas-filled viscus. Fluids splashing sounds are audible on percussion.Paracentesis of the distended abomasum will usually reveal large quantities of blood-tinged fluid with a pH of 2-4.

4-The feces are scant, soft and dark in color and become blood-stained or melenic. In some cases there is profuse watery diarrhea.

### **Acute abomasal volvulus (calves).... It manifested by**

1-In calves with acute abomasal volvulus, there is a sudden onset of anorexia, acute abdominal pain with kicking at the belly, depression, bellowing and straining.

2- The heart rate is usually 120-160/min

3-The abdomen is distended and tense, and auscultation and percussion over the right abdomen reveal distinct high -pitched pings. Palpation behind the right costal arch reveals a tense viscus that is painful on even moderate palpation.

### **Clinical pathology....**

1-There are varying degrees of hemoconcentration (increased PCV and total serum proteins),

2-Metabolic alkalosis, hypochloremia and hypokalemia.

Treatment ...

1- fluid and electrolytes

2- surgical correction

### **Dietary abomasal impaction in cattle...**

#### **Abomasal phytobezoars and trichobezoars**

#### **Abomasal ulcers of cattle**

#### **Abomasal bloat**

#### **Intestinal obstruction i n cattle**