

Abomasum displacement

Muneer S. Al-Badrany



Abomasum Displacement

By

Prof. Dr. Muneer S. Al-Badrany

Msc, PhD Veterinary surgery

Prof. Veterinary Surgery

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The abomasum slides under the rumen and dorsally along the left body wall. The attached omasum and cranial duodenum are pulled after the abomasum as it moves to the left. The results is partial impairment of the abomasal out flow, leading to abomasal gas accumulation, electrolyte pooling with subsequent systemic alterations and depress gastrointestinal motility and appetite .



Anatomy

Abomasum is the most compartment , follows the three compartments of the fore stomach, it is bear shaped sac. The Abomasum looks much like a simple stomach and consequently has been divided into funds, a body and a pyloric part. It has greater curvature facing ventrally and to the left and lesser curvature facing dorsally and to the right. The funds and body lie on the abdominal floor caudal to the reticulum. The longitudinal axis of this portion crosses the midline some what obliquely from left cranial to right caudal . Abomasum capacity next to rumen has capacity 10-20 liters

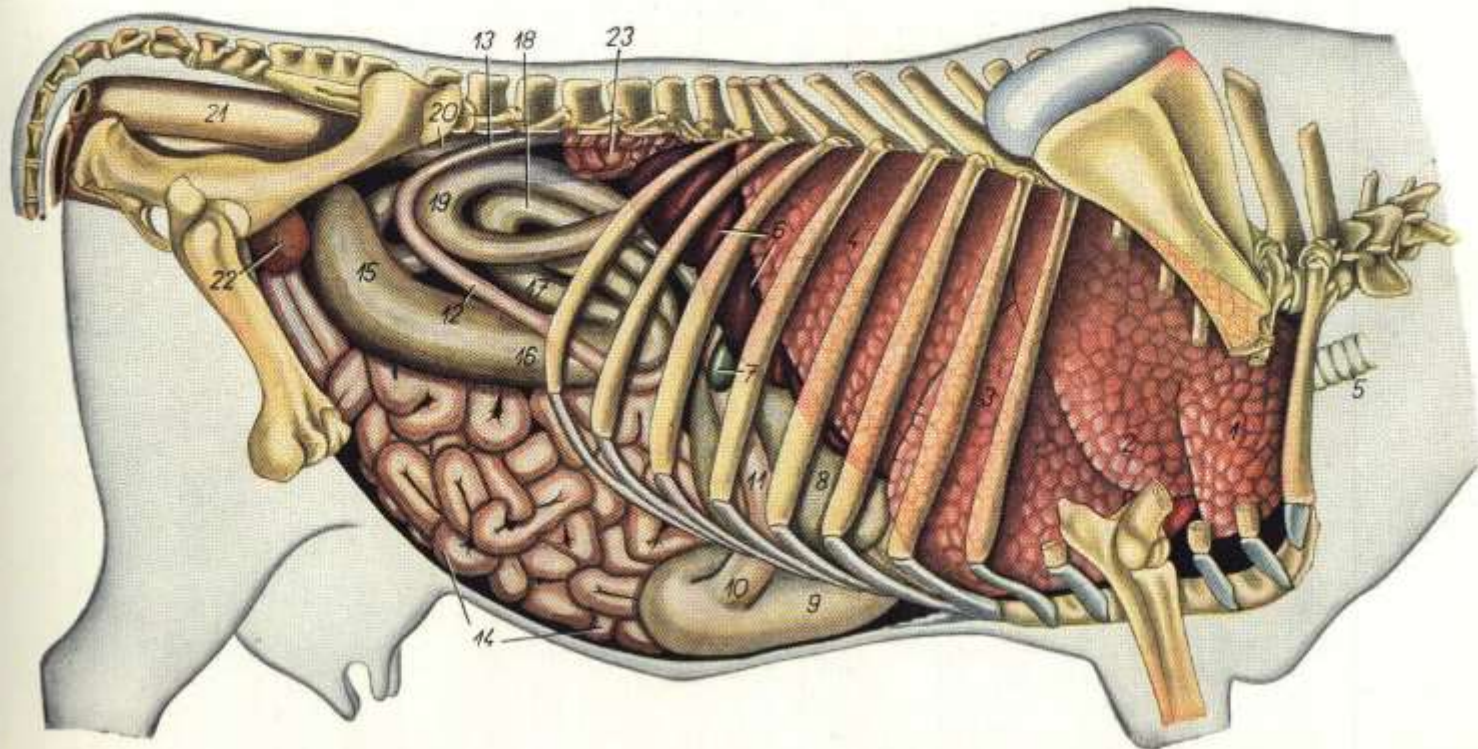
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Bovine. View of the internal organs from the right

Figure 4.



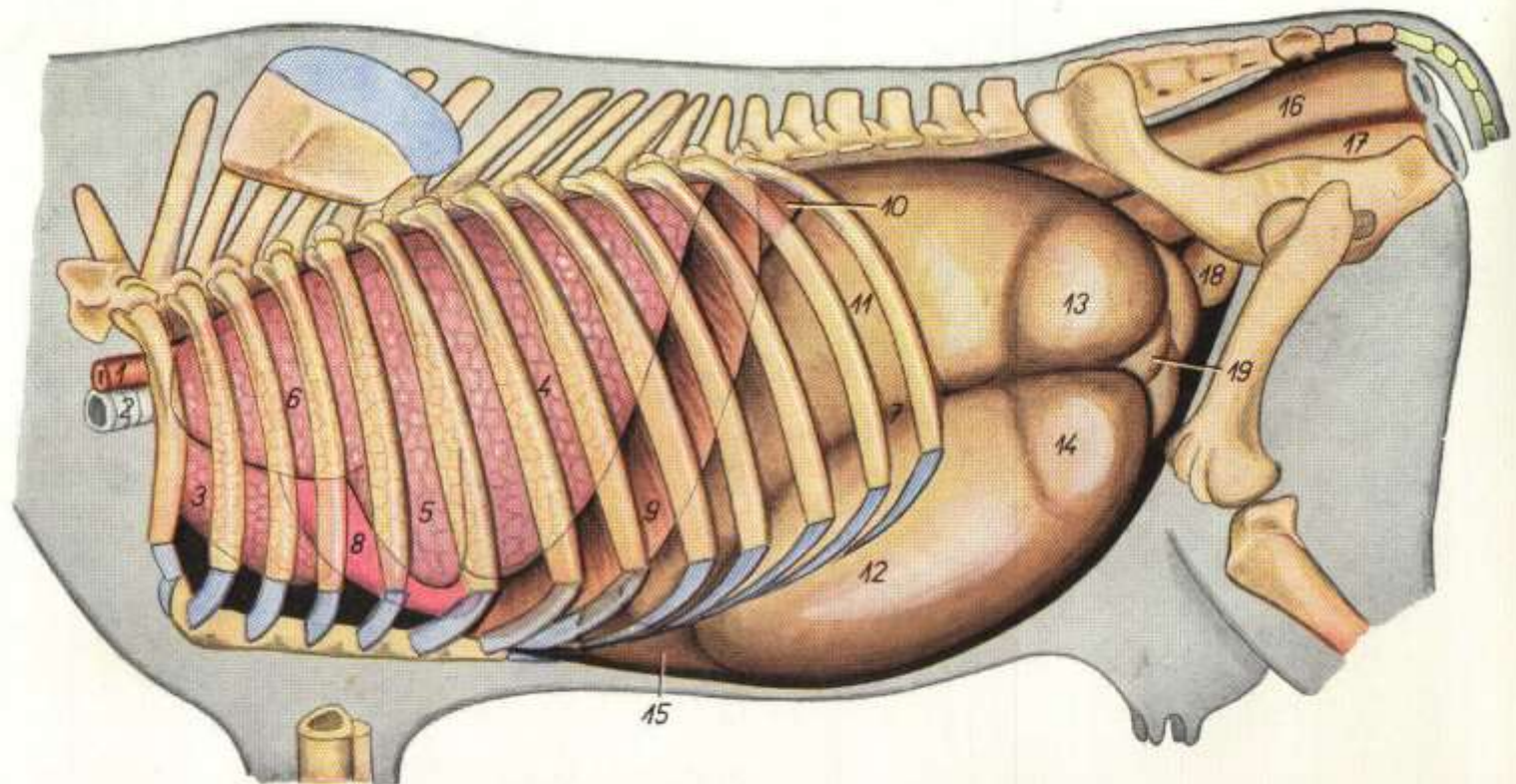
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Bovine. Internal organs, left view. Superficial dissection

Figure 5.



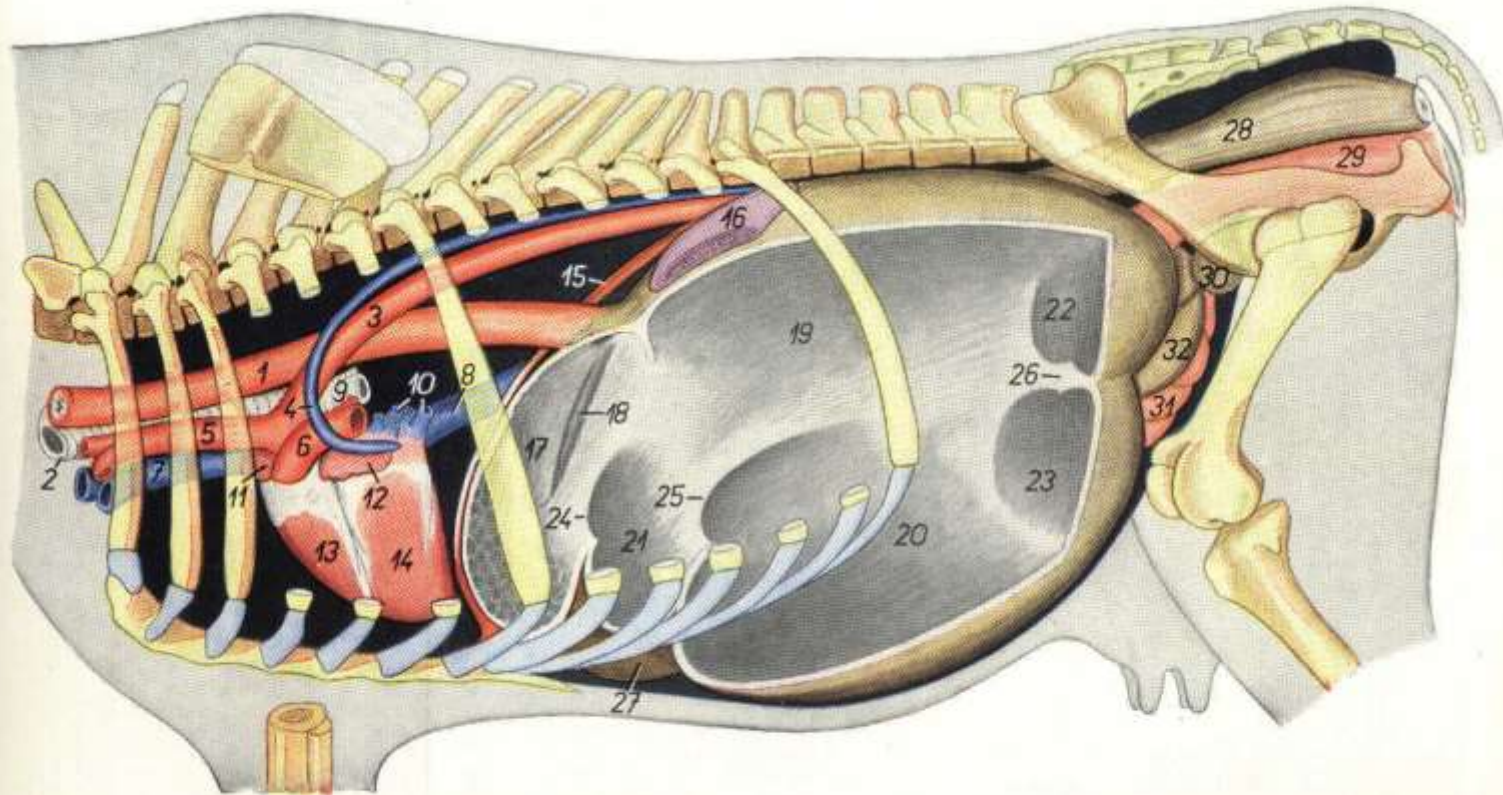
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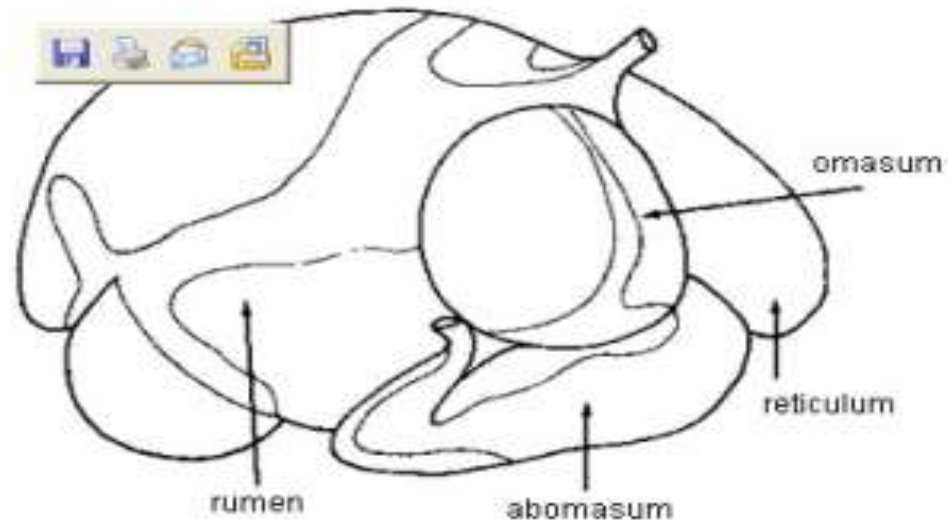
Bovine. Internal organs, left view. Deep dissection

Figure 6.



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Normale Lage der Baucheingeweide
von rechts





Etiology

A: Internal factors:



1. Sex : Female , male

2. Breed : Holstein Friesian high incidence compare with other breed

3. Lactation : high production cows are more susceptible to LDA < 2

4- Age: < 3 years

5. Anatomy : large abdomen more susceptible 6. Contain and size of uterus

7. Genetic factors

8. other diseases :

Hypocalcemia, milk fever, ketosis endometritis

Mastitis

B: External Factors:

1. Neutrinos: high concentrated ration , with little amount of rough or low include fiber.

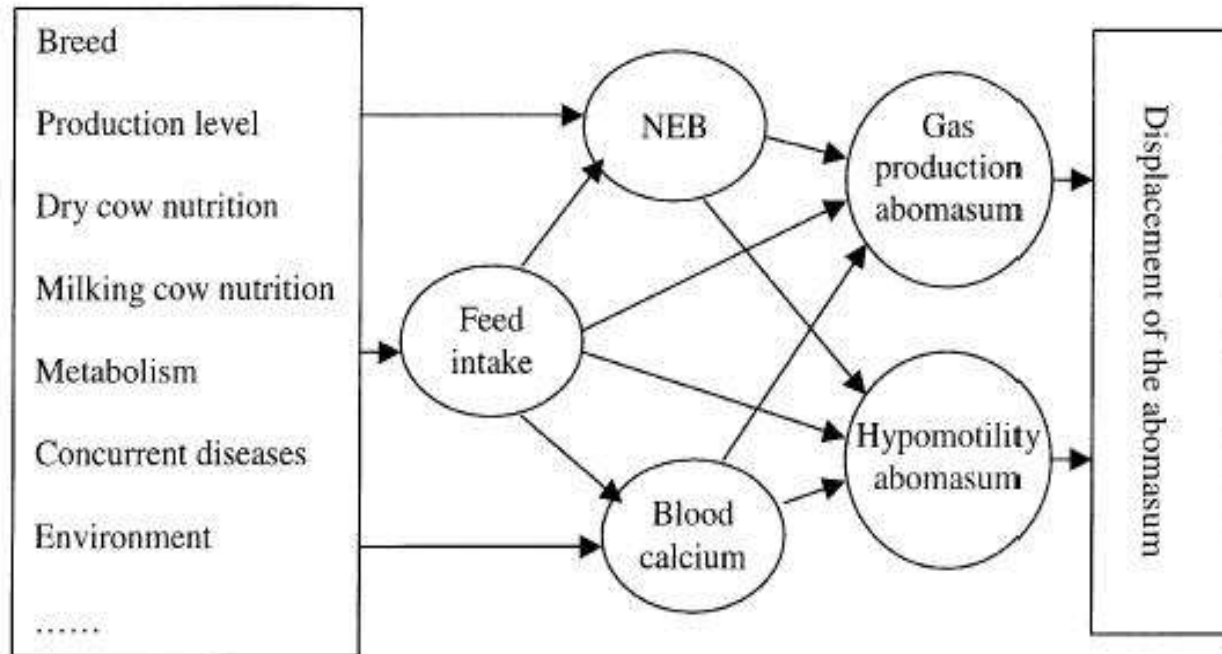
2. Rumen content:

3. Time: Winter more than summer.

4. Stress: Transport

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symptoms:

*** sever decrease appetite (complete anorexia)**

*** sharp decrease milk production**

*** Scanty feces some times diarrhea**

if there is diarrhea usually feces greenish

*** Temperature 90% of cases normal in few cases there is increase in temp**

*** ketosis with dehydration**

*** HR are normal but some times elevated**



symptoms:

- * left paralumber fossa dissented**
- * Auscultation and percussion of at tympanic area in the left thorax centered on the 9 13 th rib and along or above a line drawn from the left tube coxae to the elbow.**

In auscultation can revels high-pitched- tinkling sound (metallic sound) .

- * percussion over 11, 12, 13 intercostal space give Splashing sound of steel band effect.**

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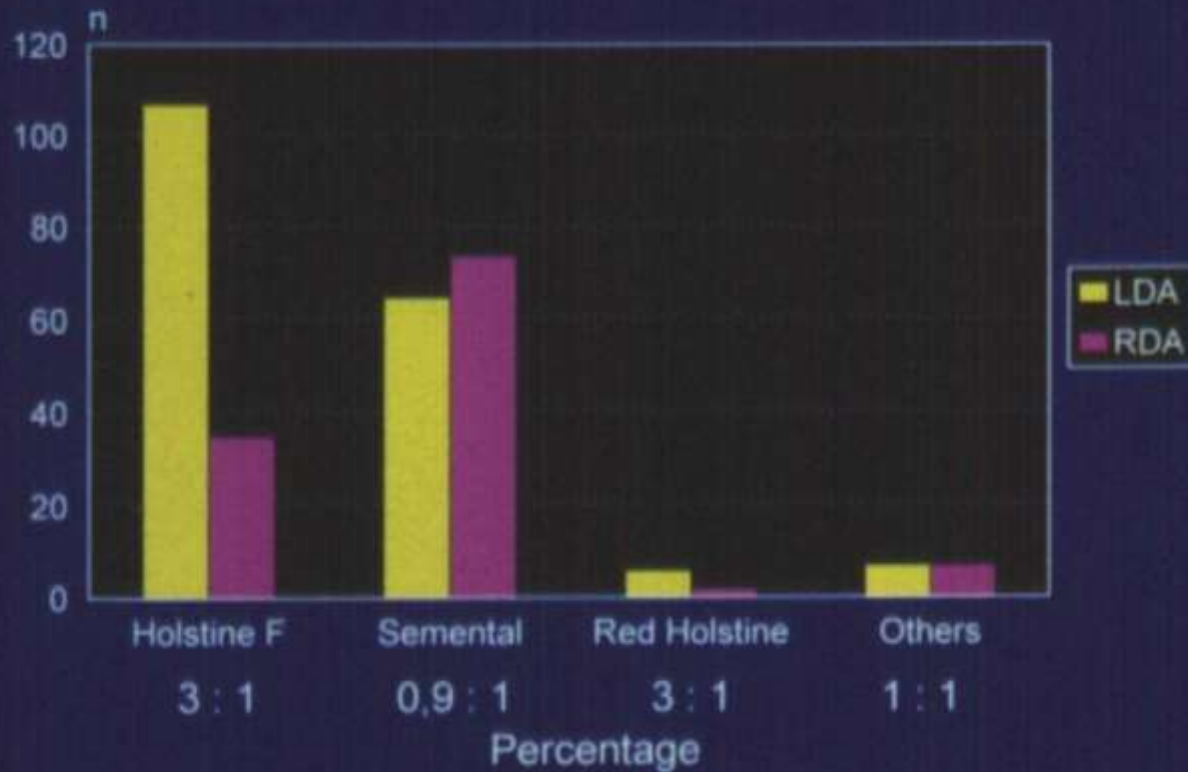


Diagnosis:

1. Symptoms
2. Auscultation and percussion as describe above.
3. presence of characteristic serum electrolyte alteration(hypochloremic, metabolic alkalosis with variable degree of hypokalemia and hyponatemia)

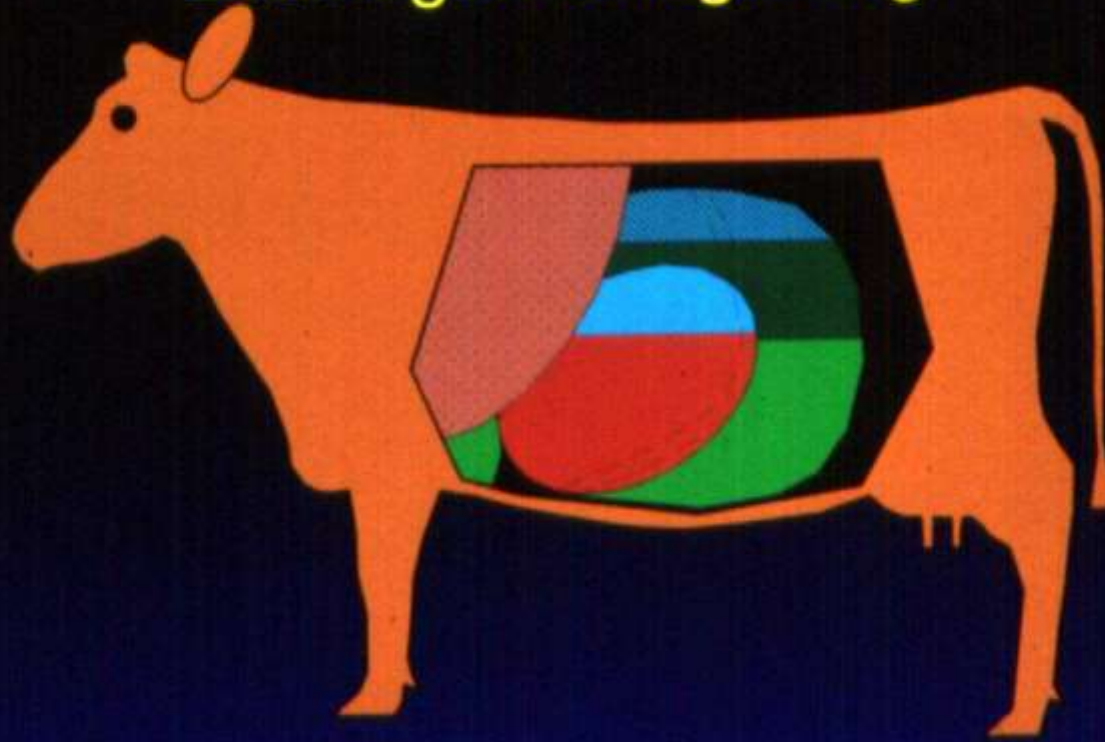


Ratio Left to Right Abomasum Displacement in Different Breed.
From 1996 -1998





Mittelgradige Form der linksseitigen Labmagenverlagerung



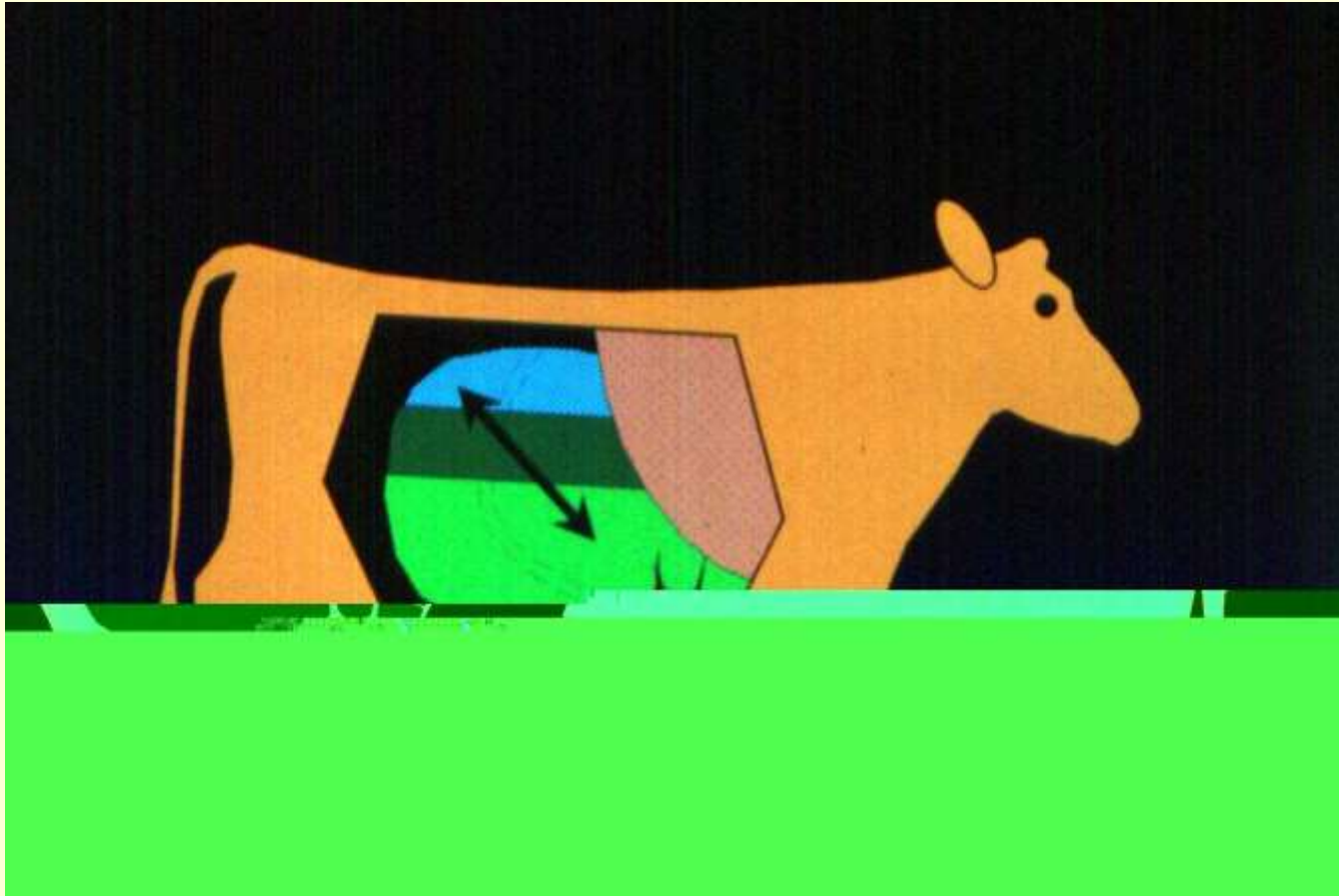


Differential diagnosis

left sided ping include:

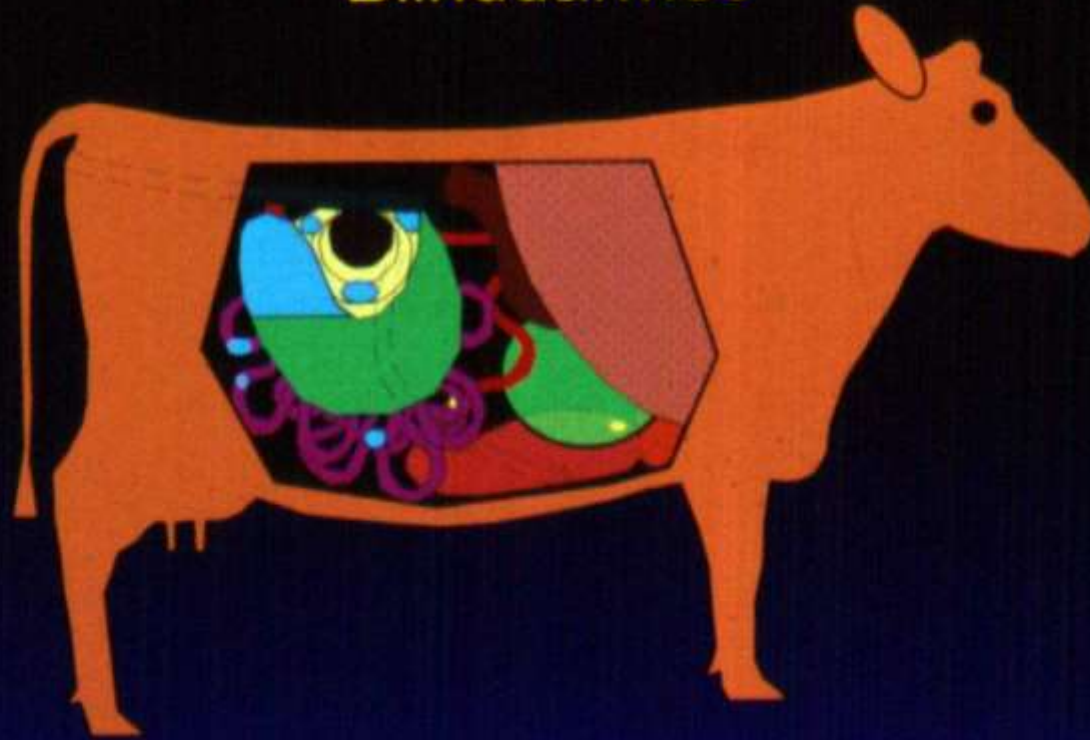
penumo- pertoneum and ruminal tempany. Different location can generally be made based on the location and character of the ping both ruminal and pneumoperitoneal pings generally extended more dorsally and caudally along the dorsal paralumber fossa and generally have lower pitched and less Sistine ping. If differentiation between location of gas in the rumen or abomasum remains a stomach tube may be passed into the rumen to allow gas relief resulting in decrease in the size of ruminal but not abomasal ping).

Collection sampling of fluid from the source of ping used of trocher and flexible tubing placed through the left paralumber fossa provides a method of differentiating rumen from abomasum based on pH of the liquid.





Erweiterung und Verlagerung des Blinddarmes





Gas in der freien Bauchhöhle





Flüssigkeit und Gas im Dünndarm





Treatment

Principle treatment of LDA include

1-correction of the displacement

Correction of the displacement may achieved by surgical or non surgical method

2- stabilization of the abomasum in a function position

3-promotion of normal abomasal motility,

4-correction of systemic electrolyte and metabolic alterations.

. Supportive care includes correction of systemic fluid and electrolyte imbalance, fluid therapy for cows with LDA should be base on the severity of dehydration present and expected electrolyte and acid-base disturbance. If dehydration is present balanced or non-alkalinizing saline or ringer's solution administrated in a volume sufficient to meet the estimated deficient ($\% \text{ dehydration} \times \text{body weight kg}$). Calcium supplementation (0.5 L to 1 L of 50% calcium solution I.v. or sc incase there is hypocalcemia).

Right Dilation of Abomasum

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RIGHT Dilation of the Abomasum

Right dilation of the abomasum is used in the context to refer to gaseous distention of the abomasum without vascular or complete luminal compromise.

The pathogenesis of an RDA is not as well documented as the LDA. The abomasum may present a sac of gas pooling when ever overall gastrointestinal motility is impaired. Many of the predisposing factors suggested for LDA such as those that act by altering motility or promoting gas build up, have been suggested as causative for RDA as well as . Physiological effect of an RDA without volvulus are similar in nature and magnitude to those seen with an LDA

Diagnosis of RDA is base on identification of a tympanic area (ping) on the right side centered over th 10 th to 13 th rib along a line from the tubercosxae to the elbow, if the area of tympany is stable in location and stable or increasing in size or if the cow's clinical presentation is consistent with abomasl outflow obstruction, either dilation or volvuls may be present and rapid surgical intervention is indicated. Principles of treatment are similar to those of LDA



Right Volvulus of the Abomasum

Torsion of the abomasum traditionally marked displacement of the abomasum that result in vascular compromise or luminal outflow obstruction have been referred to as torsion omental attachments of the abomasum prevent true torsion around a long axis through the supporting lesser omentum. Therefore a more accurate term for the syndrome is abomasum volvulus, rather than torsion.

Technically, any degree of rotation could be considered a volvulus, and weather 90, 180

Abomasal dilation is generally considered to be a potential precursor of abomasal volvulus, although some volvulus occur without dilation. The condition that lead to change from dilation to volvulus are unknown. Both RDA and RVA typically result in hypochloremic, hypokalemic metabolic alkalosis and frequently associated with hypocalcemia



Treatment principle include surgical correction of volvulus, stabilization of abomasum in functional position, correction of systemic fluid , electrolyte acid –base balance and metabolic disturbance



Treatment



1-Rolling (non surgical technique):

2. Surgical treatment of LDA, RDA,RVA Surgical approach



A. Standing approaches

1-Right paralumber fossa

2-Left paralumberfossa

Recumbent approaches

1.Right paramedian A

2. Left paramedian A

3.Right paracosta. A



Factors determine Surgical approach:

1. Surgeon must select approach that allows adequate access to the abomasum for examination
2. It should be select an approach that does not aggravate coexisting, respiratory, cardiovascular
3. Must select approach can be treated all problems.



Standing approach:

Advantage:

Minimum stress of animal

Minimum restraint required

More familiar orientation of viscera during expletory

Cows with musculoskeletal problems

Cow with ruminal distention or in last 2 month of gestation

Disadvantage:

It is contraindicated in cows that already recumbent or likely to become recumbent during surgery

Situation that require access to areas of abomasum not possible.



Methods for treatment

1-Rolling (non surgical technique):

2- Omentopexy:

3-Abomasopexy:



1-Rolling (non surgical technique):

It is reasonably effective method for initial relief of uncomplicated LDA when surgery is not possible or practical. Rolling require that the cow be placed in dorsal recumbence and that the contraindication for recumbent approaches should be considered. Rolling is inexpensive, can achieved by one or more assistant and can be repeated.

Correction of an LDA by rolling utilize this tendency by placing the cow in dorsal recumbence and allowing the abomasum to rise to it is normal position relative to ventral body wall.

Rolling is performed by casting the cow in to right lateral and than in dorsal recumbence, where the cow is maintained for short period of time (10-15 min) to allows the abomasum to reposition and gas to clear. Movement can be promoted by gently by rocking the cow 20 to 30 to either sides. Rolling is not indicated for right dilatation or right volvulus because lack of documented efficacy and the risk of creating or increasing the severity of twist. Rolling may have some value in cow that require only temporary correction of LDA until more effective surgery is possible

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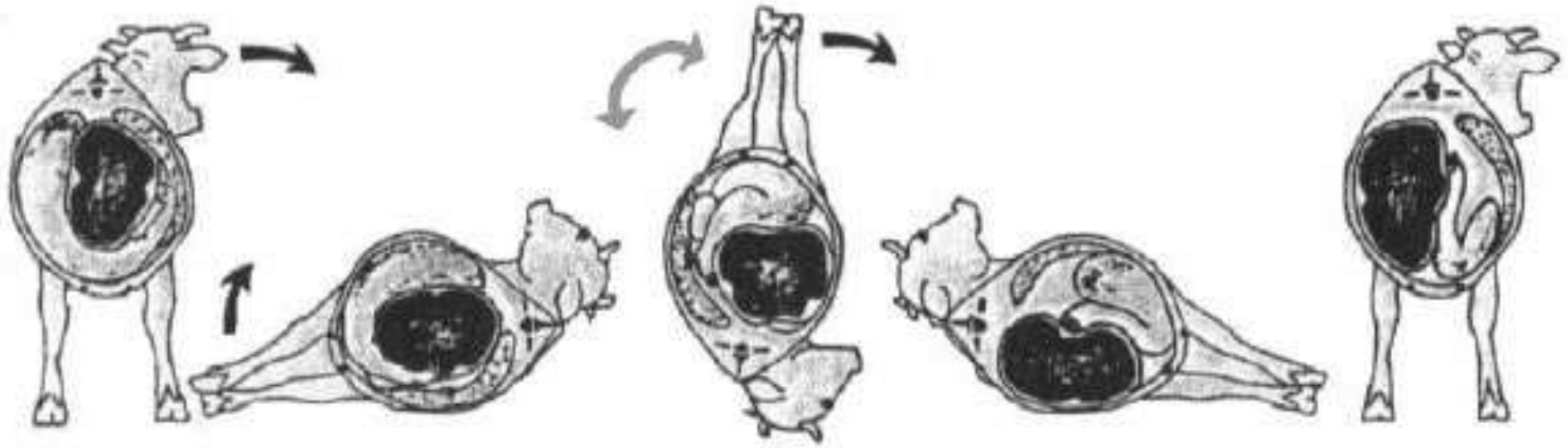


Figure show method of Rolling



Muneer S. Al-Badrany

Department of Surgery & Obstetrics, College of Veterinary Medicine
University of Mosul



Muneer S. Al-Badrany

Department of Surgery & Obstetrics, College of Veterinary Medicine
University of Mosul



Muneer S. Al-Badrany

Department of Surgery & Obstetrics, College of Veterinary Medicine
University of Mosul



Muneer S. Al-Badrany

Department of Surgery & Obstetrics, College of Veterinary Medicine
University of Mosul



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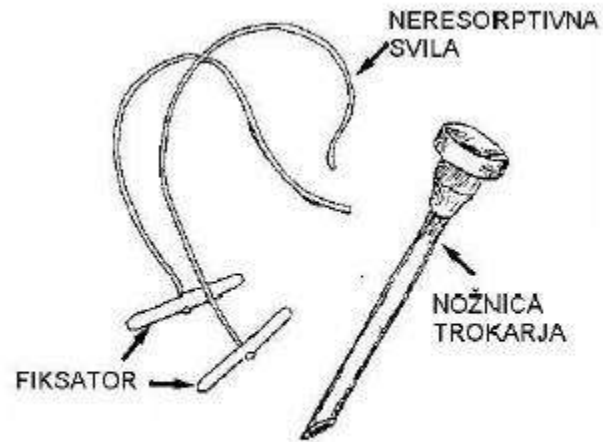
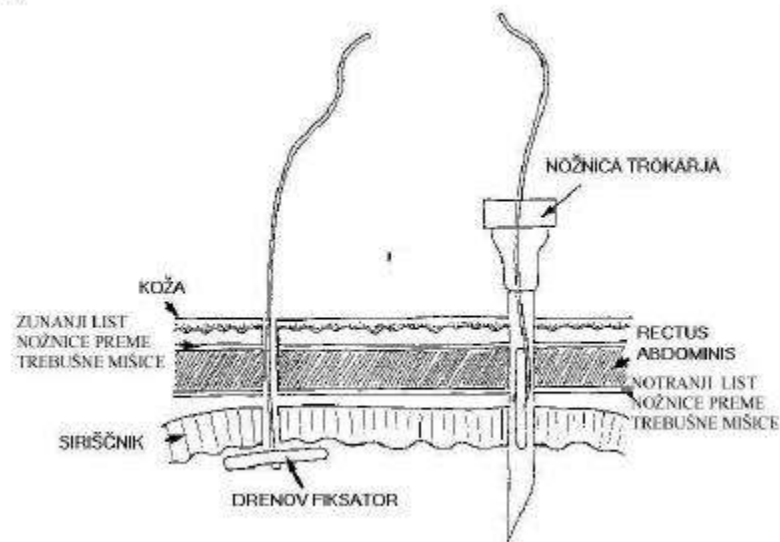


Figure 2: Trochar and bar suture: cornel-wood fixators with silk thread (Mulville and Curran; 7)



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2- Omentopexy:

greater omentum. adjacent to the pylorus or greater curvature and through some portion of body wall. Since suture are not placed into the abomasum, the risk of fistulation and suture sinus are negligible. Failure of an omentopexy is largely attributed to poor suture placement, either to far caudally or dorsally , increasing the amount of movement possible.

Right paralumber fossa approach:

It can be used to correct and stabilization both LDA, RDA with standing position as well as can be performed with one surgeon
disadvantage of this method continued partial mobility of abomasum and stretching adhesion, loss of stability with friable omentum. Questionable stability of omentopexy in late pregnancy, physical limitation for abomasal reposition by surgeon with short arms. Failure to perform this procedure in the presence of omental or abomasal adhesion., it need good experience to achieve appropriate reposition and stabilization in treatment.



1-Preparation site of operation , right paralumber fossa, under local infiltration anesthesia

2-a 15-20 cm long vertical incision is made, incision should carried through the skin , muscles and peritoneum., correction of displacement may be achieved by directly pushing the abomasum down and under the rumen, by placing traction on the omentum attached to the pylorus and duodenum from the right side,

in either cases gas decompression of abomasum before reposition is indicated to improve the ease of movement of abomasum under the rumen by needle connected with long tube, the needle must be carried around the back of omental sling injected oblique into the dorsal aspect of abomasum.. Once the return of abomasum and associated structure to their position has been confirmed stabilization procedure must be performed by placement of sutures 4 to 6 cm caudal to pylorus (in this part of omentumi



structure known as Sow's ear) using stint or mesh for suture placement to increase surface area across which the suture tension applied.

The suture than passed through the selected site in omentum from cranial to caudal and back from caudal to cranial to create a wide matters pattern than continuing back from the peritoneal surface through all three muscles layer to exit subcutaneously 3 to 4 cm proximal to original site.

Tension is applied to the suture ends to draw the omentum enough to the body wall and suture is tied. The suture should be pulled tightly enough to avoid a sag between the omentum and body wall which could entrap intestine.

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◦ **Abomasopexy:**

use to Correct Left abomasum displacement only

Approach Left paralumber fossal

Oblique skin Inscion should be made(normal lapratomy

you found abomasum directly in front you

gas should decompression of abomasum before reposition is indicated to improve site for manipulation

make 5-6 simple continuos suturing on the wall of abomasum (not penetrate mucosa) using long thread (silk) and straight needles than push needle after protection with finger down to abdominal wall Assistant make small inscion in skin , so needle penetrate from this opening



Conclusion:

1-Abomasum displacement one of serious affection of abomasum, Condition has no exact causes, but it occur in high producing cattle

2-Left abomaum displacemnet more commonly occur compare right abomasum displacemnt

3-Diagnosis of the condition depended on auscultation (steel band sound) which is characteristic sound for this condition

4-The condition occur sporadically in our country, and less common from other part of world due to:

a-high amount of rough food given to animal

b-unable for diagnosis

but it present in both cow and buffalo



- 5-Correction of the electrolyte and fluid therapy is one of the most important line of treatment**
- 6-Rolling (non surgical technique) can not considered As method for treatment, only can be done in left abomsum displacement when the surgery can not be performed**
- 7-Omentopexy (Right side opening) very efficient treatment however, it needed experience.**

Abomasopexy in Buffalo

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