ABDOMINAL DISTENSION
An overview

By
Ahmed A. Aamer
Prof. of Internal Medicine and Clinical Laboratory Diagnosis
Faculty of Veterinary Medicine, Assiut University, Assiut, Egypt.

Abdominal cavity contains vital organs as the stomach(s), intestine, liver, spleen, pancreas, kidneys and urinary bladder. It contains also numerous blood vessels and lymph nodes. It lined with a thin specialized membrane (the peritoneum) that contains the contents within a sterile environment.

Topographic anatomy of cattle (left side)
Topographic anatomy of cattle (right side)

Topographic anatomy of horse (left side)
Topographic anatomy of horse (right side)

*Causes of abdominal distention:*

The term usually reversed for abdominal enlargement due to causes other than simple obesity.

**A-Blood:**
- from trauma or rupture of liver or spleen
- erosion of blood vessels.
- failure to form blood clot normally.
- tumors causing organs to rupture.

**B-Urine:**
- rupture of urinary tract as a result of trauma or persistence urinary calculi (pelvis of kidney, ureters, or neck of the urinary bladder)
C-Exudates:
- result from infection within of the abdominal cavity in the following cases:
  - inflammatory bacterial diseases of abdominal cavity or organs
  - bacterial infection as result of patent tear of gastrointestinal tract from a foreign body.
  - may accompany cancers of the abdomen (neoplastic effusion).
  - accompany obstruction of lymph drainage (chylous effusion).

D-Transudates:
It is a secondary sign rather than a primary cause and result from:
  - pressure blocking normal blood flow.
  - decrease in blood protein (albumin), this appears in the following cases right sided heart failure, congenital heart diseases, heart muscle diseases, arrhythmia, diseases of pericardium, cirrhosis or fibrosis of liver, loss of albumin through the kidneys or gastrointestinal tract commonly associated with approaching parturition.

E-Organ enlargement:
- enlargement of liver, kidney, or spleen due to:
  - obstruction of fluid flow (blood or urine).
  - infiltration with cells (cancer, leukaemic cells or inflammatory blood cells).
F-Overdistension of stomach (rumen):
-either with gas as in case of tympany or food as in case of impaction or even pregnancy with live foetus (foeti), or presence of dead foetus (foeti).

G-Tumours within the abdomen:
-which may involve many abdominal organs, this tumor is either malignant massive cancer or benign.

H-Loss of the abdominal muscle tone with or without significant weight gain.

A cow suffered from vagus indigestion showed distended upper left flank and lower right abdomen (L-shaped abdomen)

A cow suffered from severe tympany showed bilateral distension of the abdomen
A buffalo cow suffered from mild tympany showed unilateral distension (left flank)

A weaned lamb suffered from severe tympany showed bilateral distension
A calf suffered from tympany showed distended left flank

**Diagnosis:**

- **Diagnosis of abdominal distension includes the followings:**

  1. Complete medical history and physical examination.
     - Rectal examination to determine any obvious enlargement (large animals) is also helpful.
     - Observation of the abdominal symmetry all over the abdomen.
       So if there is distension, it may be unilateral or bilateral.

  2. Contrast abdominal radiography x rays.
     It is helpful in diagnosis of:
     - Distended segment of intestinal tract.
     - Fluid in peritoneal cavity.
     - Composition of ingesta in G.I.T (sand, meconium)

  3. Abdominal sonography.
     It can be of value in diagnosis of certain conditions as:
     - Fluid distended small or large intestine.
     - Ascarid impaction.
     - Intussusception.
• Colonic impaction.
• Abnormalities of umbilical vessels, urachus and character of peritoneal fluid.

4-Abdominocentesis.

5-Blood tests as biochemical analysis, blood count, haemtocrite value and total proteins.

6-Additional diagnostic tests may be needed to determine and / or diagnose the case or understand the overall abdominal impact of abdominal distension: these includes:

a)-bile acid measurements: elevation suggest liver diseases or abnormal circulation of the liver.
b)-urine protein qualification (24 hours sample or one time sample), urinary protein loss can lead to abdominal fluid accumulation
c)-biopsies of the intestines obtained either at the surgery or by endoscopy.
d)-echocardiography of the heart, waves, valves, entrance of caudal vena cava.
e)-bacterial culture of any abdominal fluid to which helpful in diagnosis of abdominal distension and in choice of best antibiotic to treat infection.
f)-dye excretion test to evaluate kidney function.

**Treatment:**

- Exact treatment require establishment of correct diagnosis and the degree of compromise to the cardiovascular and pulmonary systems should be assessed.
-Sometimes it is needed to perform symptomatic treatment.

-Abdominocentesis: it means removal of abdominal fluid through placement of a needle (under complete aseptic conditions). It relieves pressure from excess fluid accumulation.

-Diuretic administration in some cases of abdominal fluid accumulation (not always beneficial).

-Surgical interference in cases of ruptured or twisted abdominal organs or food engorgement.

-Stomach tube intubation or trocarization could relieve excess gases in rumen.

*Follow up:

-administration of medicament as prescribed is necessary.

-monitor the animal.

-note the changes in appetite, thirst, elimination behavior (frequency of urination).

-note changes in altitude (increased or decreased activity levels).
References

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