Organs of Digestive System Present In Abdomen

UNIT 5 – BY MANOJ KUMAR SINGH
Ruminant Stomach

- The **stomach** of the **ox** is very large and occupies nearly three-fourth of the **abdominal cavity**
- It completely fills up the left of the **abdomen** except for a space intended for the spleen and extends considerably into the right half
It has four compartments,

- **Rumen** (*paunch*) – big sac like.
- **Reticulum** (*honeycomb*) – conical.
- **Omasum** -(many folds, many plies or *psalterium*) – ball like and
- **Abomasum**, (*rennet or true stomach*) – fusiform or spindle like. The division is indicated by grooves.

The first three compartments comprise the forestomach (*proventriculus*) and nonglandular
Capacity

Average capacity of the stomach is 100 to 200 litres although it varies according to the age, size and breed etc.

New born (rumen + reticulum) = Abomasum

2 month - (rumen + reticulum) = Abomasum

3 month - (rumen + reticulum) x 1/2 = Abomasum
In adult condition the rumen, reticulum, omasum and abomasum constitute 80%, 5%, 8%, and 7 to 8% of the total volume respectively.
At this age the four parts reach to their definitive size, shape, and capacity.
Rumen

- The rumen occupies most of the left half of the abdomen and extends considerably over the median plane to the right side of the abdominal cavity.
- It extends from the lower part of the 7th or 8th intercostal space to the pelvic inlet.
It is slightly compressed laterally and presents two surfaces, two borders and two extremities.

The *parietal surface* is convex and is related to the diaphragm, the left wall of *abdomen* and the spleen.
Fig 7-67. Topography of the rumen in an ox. Parts of the lateral body wall, several ribs and the lateral ruminal wall are removed, left lateral aspect (Pavaux, 1983).
The visceral surface is irregular and is related to the **omasum**, **abomasum**, **intestine**, **liver**, **pancreas**, **left kidney**, adrenal, aorta and caudal vena cava
O The *dorsal border (curvature)* is convex and is in contact with the dorsal wall of the abdomen through *peritoneum* and connective tissue as far back as to the level of fourth lumbar vertebra.

O The *ventral border (curvature)* is also convex and is related to the floor of the abdomen.
The two surfaces are marked by right and left longitudinal grooves dividing it into dorsal and ventral sacs.

The cranial extremity is divided ventrally by a transverse groove into two sacs. Dorsal sac is known as atrium ruminis and it is continuous with the reticulum. It curves over the ventral sac, which is rounded and blind.
7-65. Compartments of the stomach of the ox, left lateral aspect, schematic (Schaller, 1992).
The junction of the dorsal sac and *reticulum* is marked by a groove, which is called the *rumino reticular groove* and just above it is a dome shaped structure where the oesophagus enters. This dome is known as atrium *ventriculi*. 
g 7-66. Compartments of the stomach of the ox, right lateral aspect, schematic (Schaller, 1992).
The caudal extremity of the rumen extends to the pubis and is related to the intestine and urinary bladder.

It is divided by the deep caudal transverse groove into dorsal and ventral sacs both of which are blind.

All the grooves on the external surface of the rumen are lodged by vessels and nerves of the rumen.
Fig 7-68. Interior of the rumen of the ox, left aspect, schematic (Schaller, 1992).
RETICULUM

- The reticulum is the most cranial and smallest of the four compartments.
- It extends from the 6th to the 8th ribs.
- The greater part of it is to the left of the median line. It is compressed from before backwards.
The parietal surface faces forwards, convex and lies against the diaphragm and liver.

The visceral surface faces backwards, is flattened and ends dorsally by joining the rumen, the concave line of junction corresponding to the ridge in the interior, forms the lower margin of the rumino- reticular orifice.
The lesser curvature of rumen faces to the right and dorsally and is connected with the omasum. The greater curvature faces to the left and is ventral.

The right extremity forms a rounded blind sac (fundus reticuli), which is in contact with the liver, omasum and abomasum and lies opposite to the sixth intercostal space.
OMASUM

- The **omasum** is ellipsoidal in form and is somewhat compressed between the two surfaces.
- It is very clearly marked off from the other compartments and lies to the right of median line from the 7th to the 11th rib.
- The **parietal surface** faces to the right and forwards and is related to the diaphragm and **liver**.
O The visceral surface faces to the left end backwards and is in contact with right face of rumen, reticulum and abomasum.
O The greater curvature (dorsal) faces backwards and to the right. The lesser curvature (base) is very short and faces forward and to the left.
O It is connected at its upper part with the *reticulum*. Below it joins the *abomasum*.
The abomasum is an elongated sac, which lies on the abdominal floor from the xiphoid cartilage backwards.

The cranial blind end, the fundus, is at the xiphoid region in relation with the reticulum.

The body extends back between the ventral sac of rumen and the omasum and turns to the right behind the omasum.
O It is constricted about the middle forming an cranial larger part and a caudal pear shaped smaller part

O The pyloric part inclines dorsally and joins the duodenum at the ventral part of the 10th rib

O The parietal surface is in contact with the abdominal floor. The visceral surface is related to the rumen and omasum
The greater curvature gives attachment to the superficial part of the greater omentum.

The lesser curvature is related to the greater curvature of the omasum.
Fig 7-77. Topography of the abdominal and pelvic organs of the ox, right lateral aspect, abdominal wall and greater omentum removed, schematic.
THANKS