

Organs of Digestive System Present In Abdomen

UNIT 5 – BY
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Ruminant Stomach

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

- o It has four compartments,
 - o Rumen (*paunch*) – big sac like.
 - o Reticulum (*honeycomb*) – conical .
 - o Omasum -(*many folds, many plies or psalterium*) – ball like and
 - o Abomasum, (*rennet or true stomach*) –fusiform or spindle like. The division is indicated by grooves .
- o The first three compartments comprise the forestomach (proventriculus) and nonglandular

o Capacity

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

o New born (rumen+ reticulum) = Abomasum

o 2 month - (rumen+ reticulum) = Abomasum

o 3 month - (rumen+ reticulum) \times $\frac{1}{2}$ =
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

- o 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.
- o It extends from the lower part of the 7th or 8th inter costal space to the pelvic inlet .

- o It is slightly compressed laterally and presents two surfaces, two borders and two extremities.
- o The *parietal surface* is convex and is related to the diaphragm, the left wall of abdomen and the spleen .

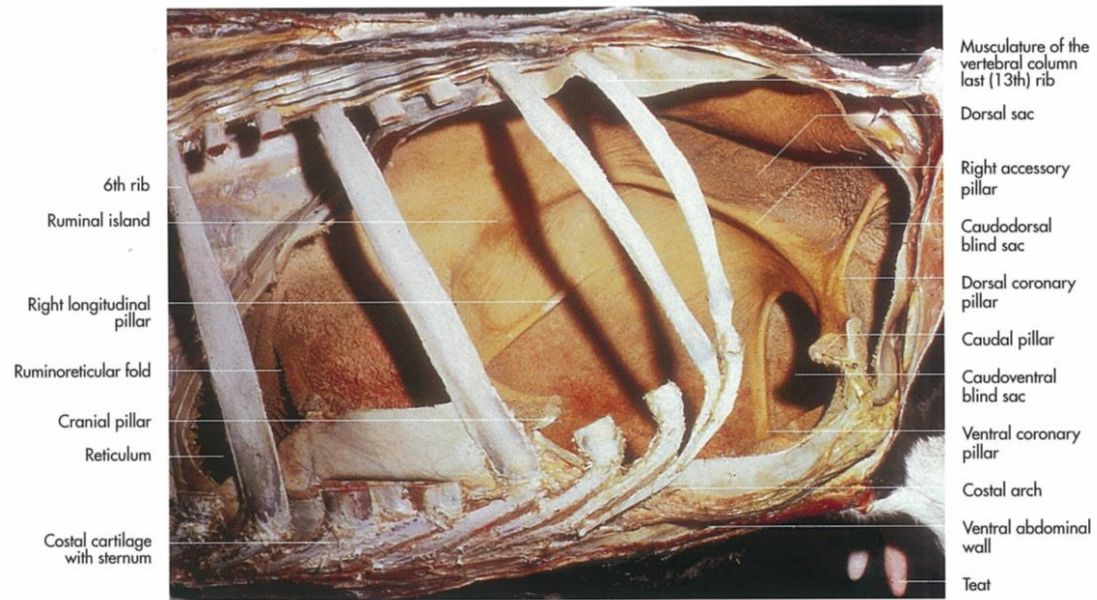


Fig 7-67. Topography of the rumen in an ox. Parts of the lateral body wall, several ribs and the lateral ruminal wall are removed, left lateral aspect (Pavaux, 1983).

o 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 .

- o The two surfaces are marked by right and left longitudinal grooves dividing it into dorsal and ventral sacs
- o 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 .*

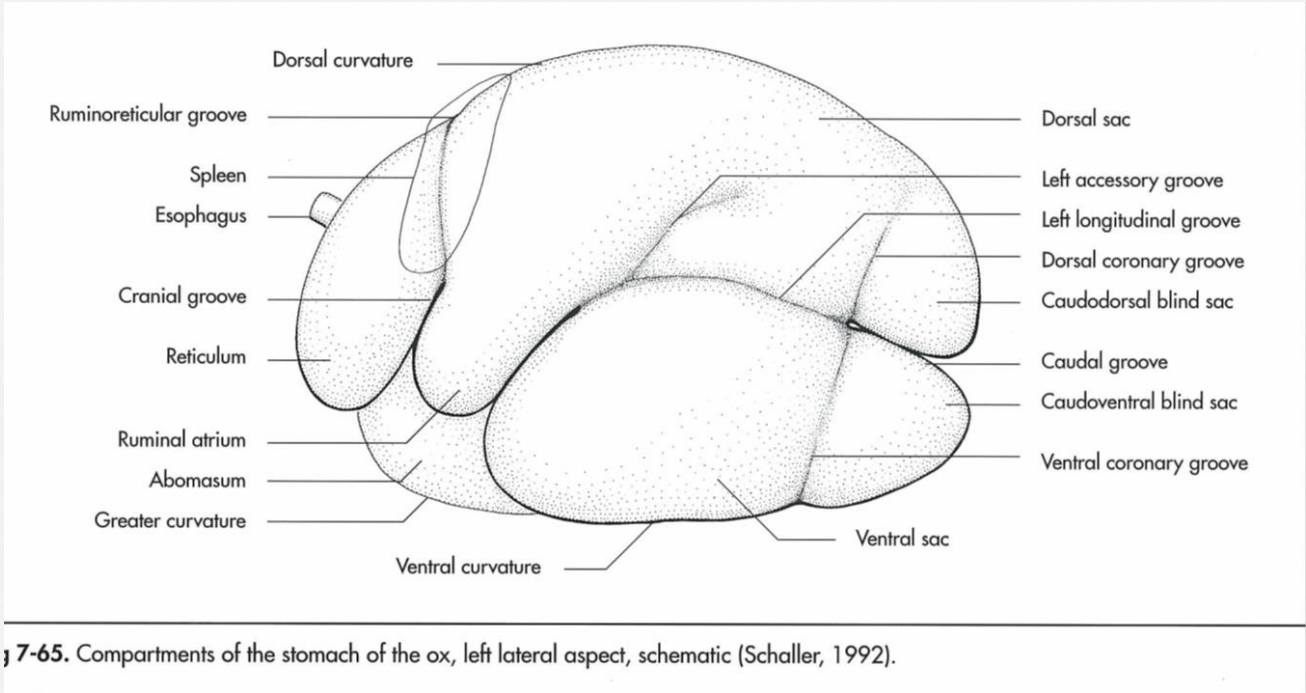
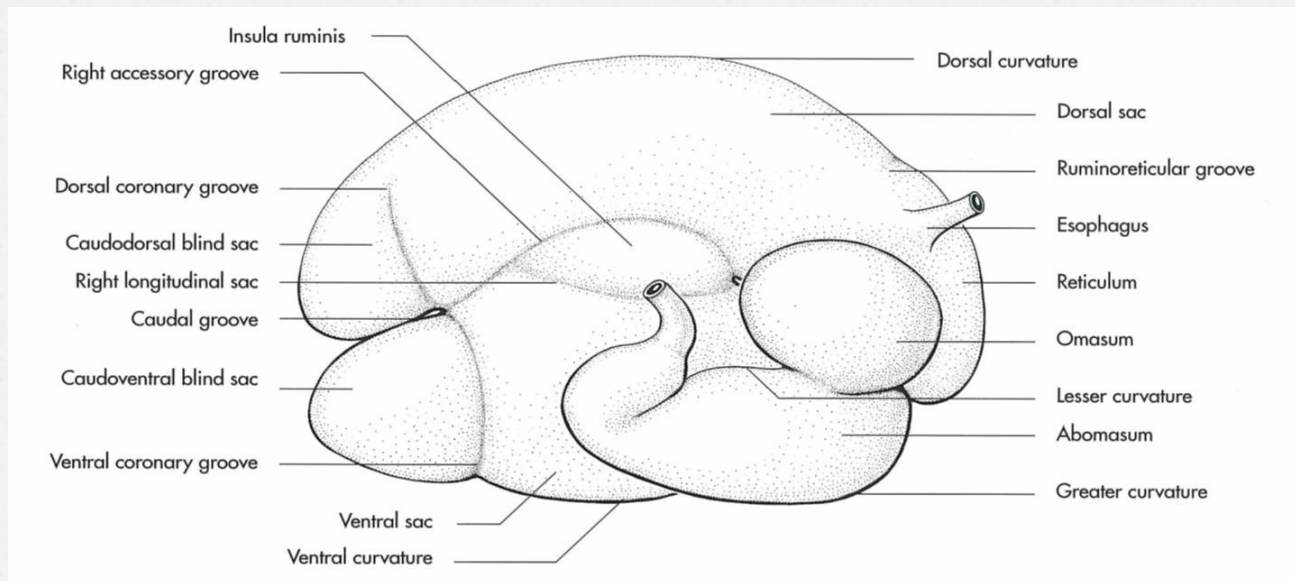


Fig. 7-65. Compartments of the stomach of the ox, left lateral aspect, schematic (Schaller, 1992).

o 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).

- o The *caudal extremity of the rumen* extends to the pubis and is related to the intestine and urinary bladder .
- o It is divided by the deep caudal transverse groove into dorsal and ventral sacs both of which are blind .
- o All the grooves on the external surface of the rumen are lodged by vessels and nerves of the rumen .

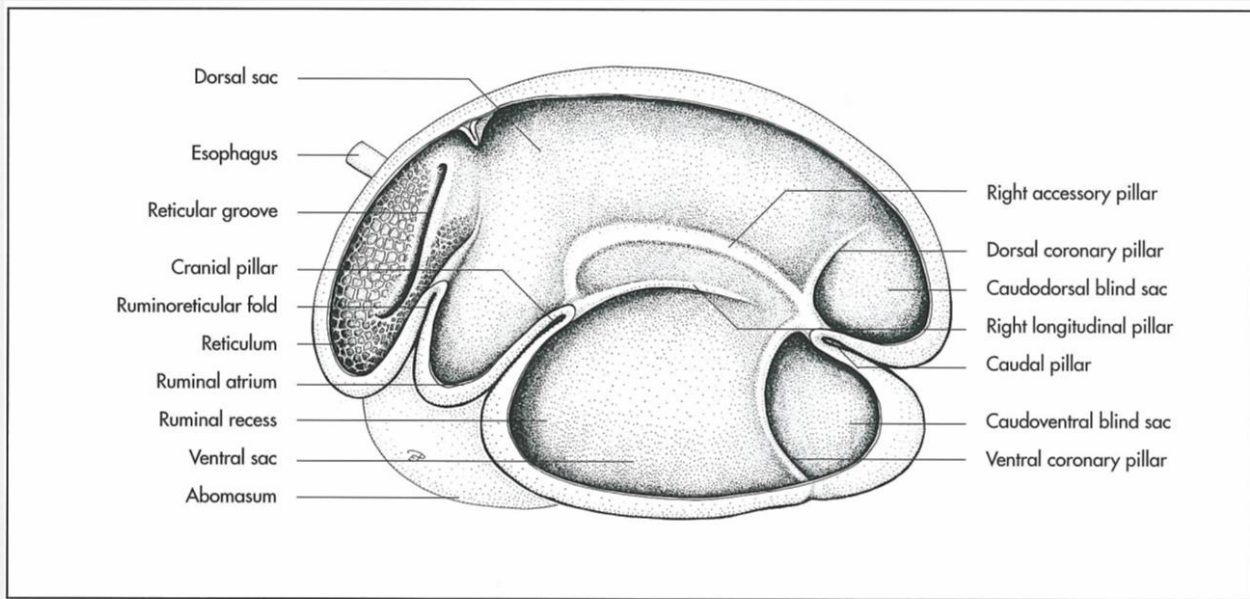


Fig 7-68. Interior of the rumen of the ox, left aspect, schematic (Schaller, 1992).

RETICULUM

- o The reticulum is the most cranial and smallest of the four compartments
- o It extends from the 6th to the 8th ribs
- o The greater part of it is to the left of the median line. It is compressed from before backwards

- o The *parietal surface* faces forwards, convex and lies against the diaphragm and liver
- o 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 .

- o 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.
- o 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

- o The omasum is ellipsoidal in form and is somewhat compressed between the two surfaces
- o 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
- o 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 .

ABOMASUM

- o The abomasum is an elongated sac, which lies on the abdominal floor from the xiphoid cartilage backwards
- o The *cranial blind end, the fundus*, is at the xiphoid region in relation with the reticulum
- o 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

- o The greater curvature gives attachment to the superficial part of the greater omentum
- o The lesser curvature is related to the greater curvature of the omasum .

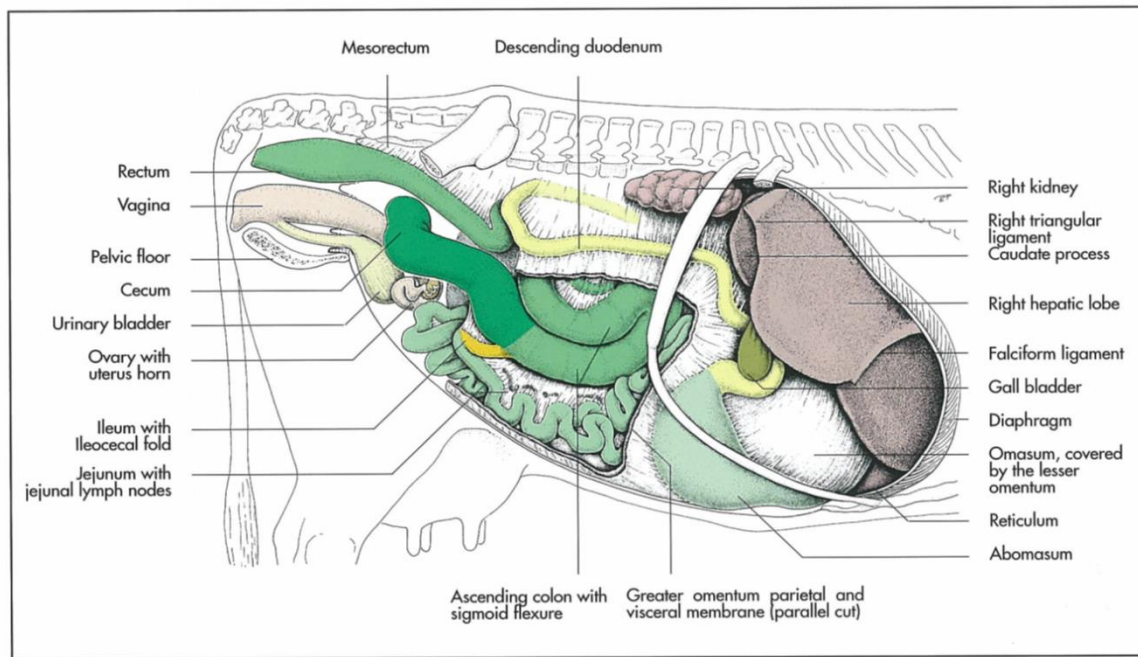


Fig 7-77. Topography of the abdominal and pelvic organs of the ox, right lateral aspect, abdominal wall and greater omentum removed, schematic.



THANKS