Affection of simple Stomach (Dog & Equine) (5th Theory Surgery) Lecture 4

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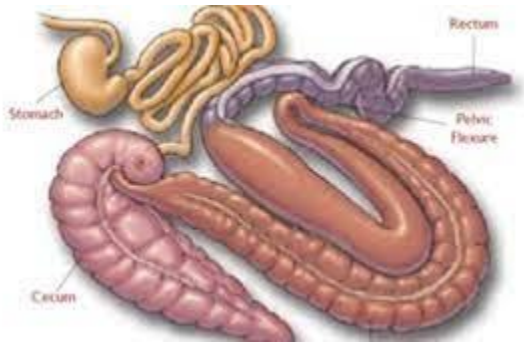
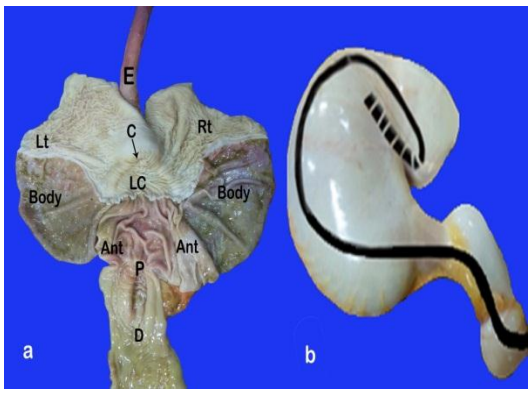
Anatomy of stomach in horses:

The horse and dogs has a monogastric stomach.

The equine stomach is small relative to the body size of the horse, having capacity of approximately 5 to 15 litters even the stomach is filled to capacity; it does not reach the ventral body wall. It located predominatly on the left side of the abdominal under the cover of the ribs, with only the pyloric region of the stomach to the right side of the midline. Its most caudal component is the fundus, which lies adjacent to the 14th and 15th rib spaces. The stomach can be divided into several regions, including the cardia at the opening of the esophagus, the fundus (which forms a blind sac), the body, and the pyloric region.



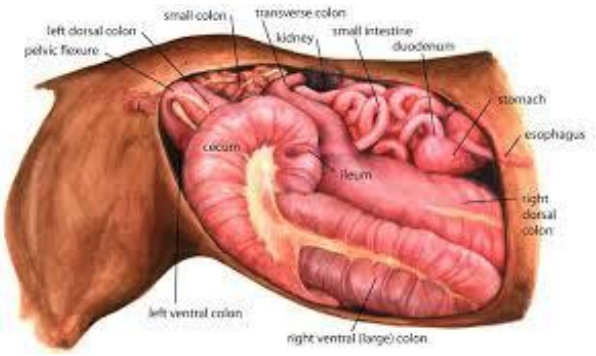


The strong cardiac sphincter allows movement of gas and fluid into the stomach, but not out of it. This prevents the animal from vomiting. Therefore, any disorder that results in fluid movement from the small intestine results in fluid accumulation in the stomach (gastric reflux), dilation and eventually gastric rupture if untreated.

The stomach is located behind the diaphragm & liver mainly to the left of the median plane. The stomach is held in position mainly by the pressure of the surrounding viscera & by the esophagus and duodenum.

The folds that connect the stomach to other viscera:

1. Gastrophrenic ligament.
2. The lesser omentum.
3. The greater omentum.
4. The gastrospleenic ligament that connects the greater curvature of stomach with the hilum of the spleen.
5. Gastropancreatic fold.



Blood supply:

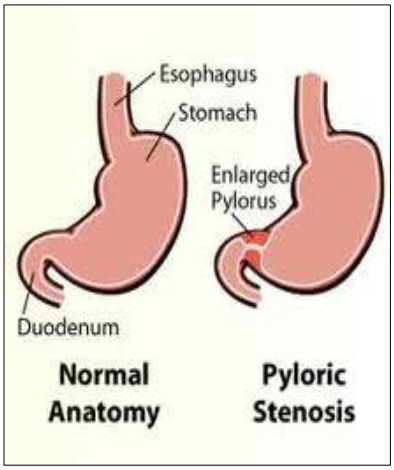
It is from Splenic and left gastric & hepatic branches of the celiac artery. Veins are paired with corresponding arteries.

<u>General Signs of Gastro-Intestinal Disorders can include:</u>

1. Excessive drooling
2. Diarrhea
3. Constipation or reduction in feces
4. Loss of appetite
5. Bleeding
6. Abdominal pain and bloating
7. Shock
8. Dehydration
9. Straining to defecate
10. Poor performance
11. Inability to vomit or regurgitation.

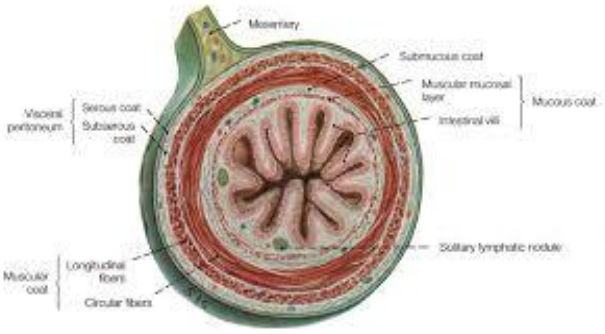
Termination of gastric surgery:

1. **Gastrotomy:** Incision through the stomach wall into the lumen.
2. **Gastrostomy:** Creation of an artificial opening into the gastric lumen.
3. **Partial gastrectomy:** Resection of a portion of the stomach.
4. **Gastropexy:** Fixation of the stomach to the body wall permanently.
5. **Pyloromyotomy:** Incision through the serosa and muscularis layers of the pylorus.
6. **Pyloroplasty:** Full thickness incision and tissue reorientation to increase the diameter of the gastric outflow tract.
7. **Pylorectomy:** Removal of the pylorus.



1. Pyloric stenosis:

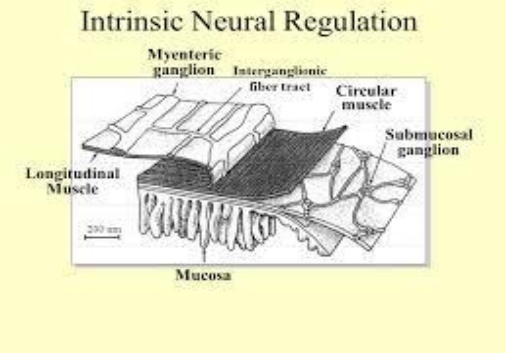
Hypertrophy of the musculature of the pyloric antrum specially its circular fibers leading to reduction in diameter of the pyloric orifice. It is acquired as secondary to chronic gastritis.



Clinical signs:

In small animals:

1. Vomiting.
2. Dehydration & emaciation.
3. Normal appetite (D.D. from gastritis & enteritis) there is no response to gastric sedatives.

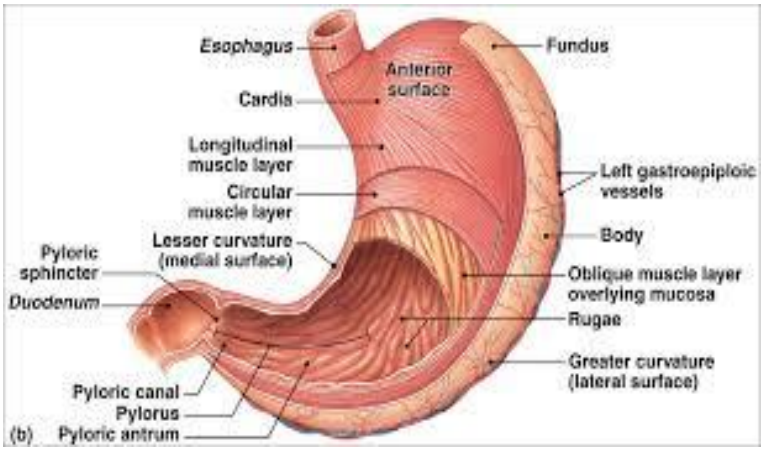


In large animals:

1. Abdominal pain.
2. Salivation.
3. Teeth grinding.
4. Kicking towards the abdomen.

Diagnosis:

1. Endoscopy.
2. X – Ray.
3. MRI.
4. CT scan.
5. Ultrasound.



Treatment:

Pyloromyotomy or pyloroplasty was used to increase the diameter of pyloric lumen.

2. <u>Pylorospasm:</u>

Probably neurogenic in origin, there is a failure of pyloric sphincter to relax in coordination with propulsive peristaltic contraction of pyloric antrum.

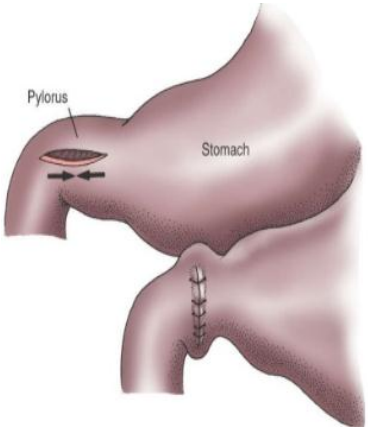
<u>Pyloromyotomy:</u>

Is a surgical procedure in which an incision is made in the longitudinal and circular muscles of the pylorus. It is used to treat hypertrophic pyloric stenosis. Hypertrophied muscle is cut along the whole length, till mucosa bulges out.

Procedure:

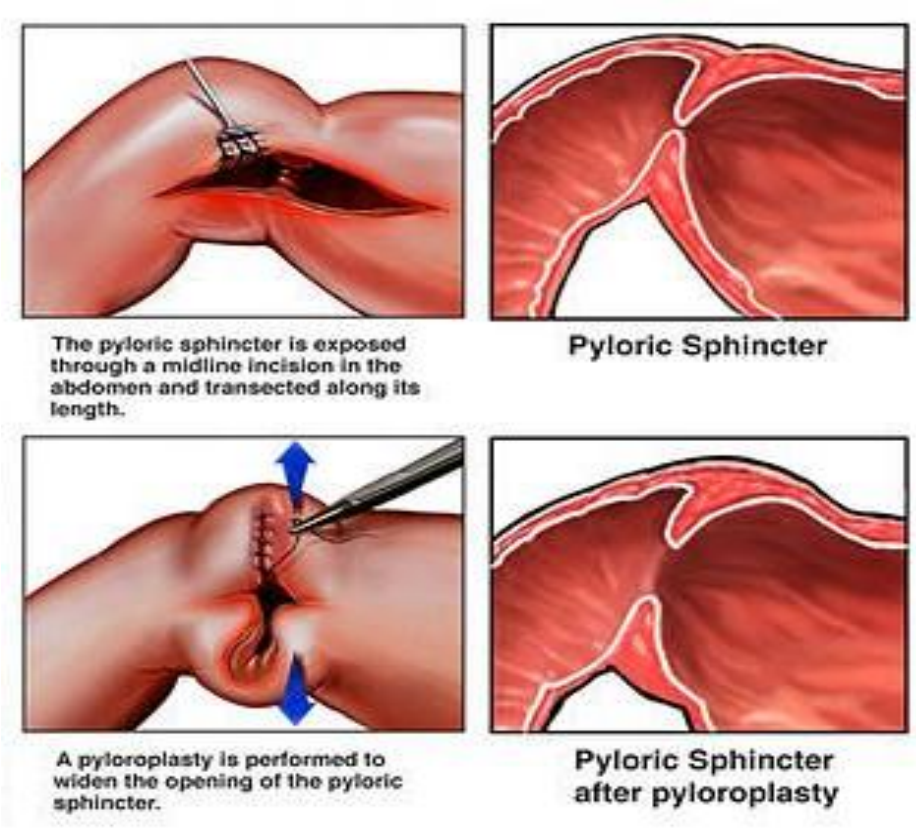
1. Under general anesthesia, make a midline incision in between xiphoid cartilage & umbilicus.
2. The hepatodoudenal ligament is severed the pylorus can be splanchnies elevated by Babcock forceps to the abdominal incision.
3. An incision approximately (4 cm) long was made into the least vascular area of pyloric canal, pylorus & proximal duodenum. The pylorus is the midpoint of incision. The incision extends through tunica serosa & muscle layer (cut & separate by sharp & blunt scissor) care taken not to cut through the mucosa.
4. Closure of peritoneum & abdominal muscles by simple continuous suture with absorbable suture & skin by simple interrupted pattern used silk.

Pyloroplasty:



Is a surgical procedure in which the pylorus valve at the lower portion of the stomach is cut and re-sutured, relaxing and widening its muscular opening (pyloric sphincter).

1. After exposure of pyloric region similar as above, temporary stay suture is placed in least vascular portion of ventral stomach & proximal duodenum.
2. Stab incision was made into lumen & extended with scissor to a distance of (1 - 2 cm) on each side of pylorus.
3. Longitudinal incision was closed transversely with simple interrupted suture used absorbable suture material.
4. Closed abdominal wall as similar to above.



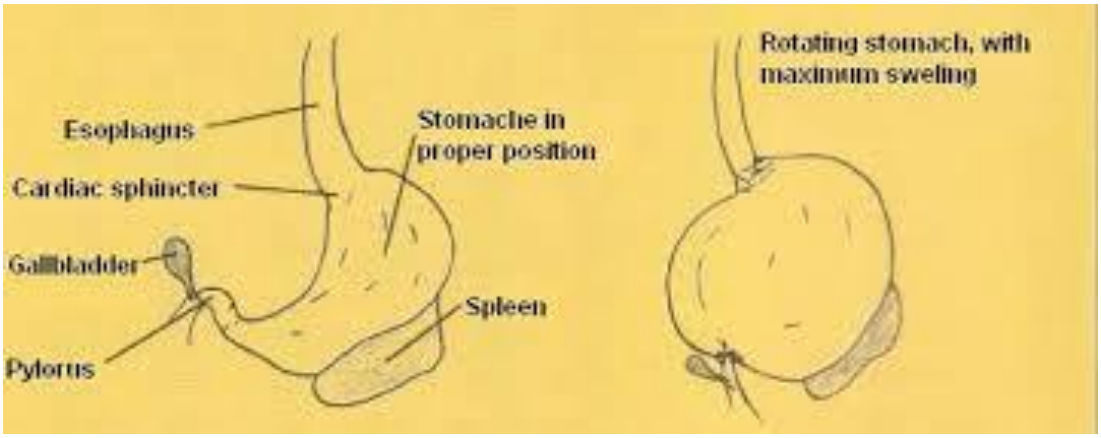
Postoperative care:

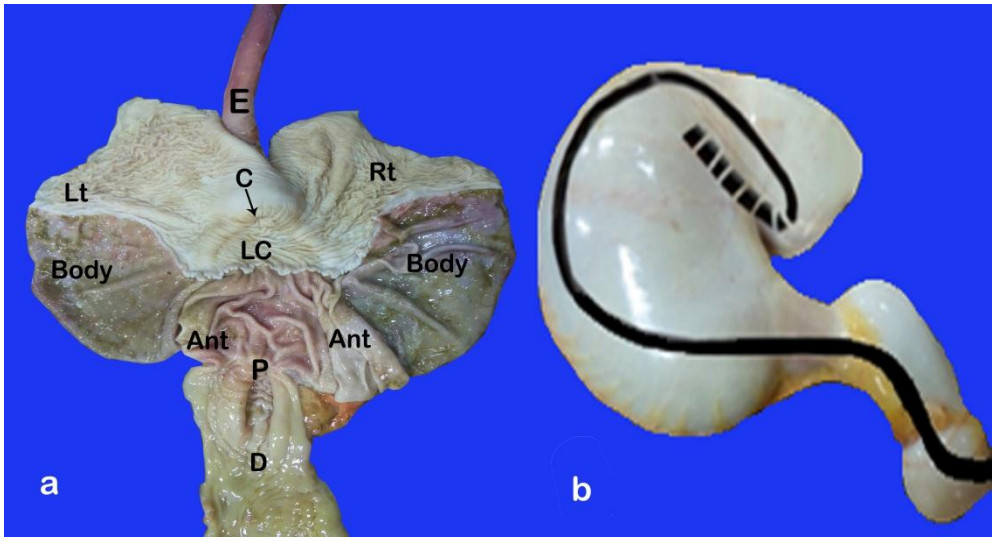
1. No food, water or oral medication should be given for (24 hours).
2. I.V. fluid therapy.
3. Antibiotic.
4. A soft diet consisting of small amount of body food (especially in small animals but in large animals' soft diet).

3. Gastric dilation:

Etiology:

1. Physical obstruction or functional disturbance.
2. Obstruction further down the intestinal tract.
3. Over ingestion of grain. Large amount of dietary starch are not natural in the diet of horses. Gastric fluid is observed by the grain mass & swelling occurs. Shock & metabolic acidosis develop rapidly.
4. Consumption of a large quantity of cold water by an animal soon after exertion may result in pyloric spasm & accompanying gastric dilation.
5. Pyloric stenosis.
6. A crib - biting horse may swallow a considerable quantity of air & this cause a chronic gastric dilation.
7. Impaction of stomach with dry feed.
8. General anesthesia, abdominal surgery, traumatic injury of spinal cord, ingestion of foreign body.
9. Stress, aggressive behavior, once daily feeding, dry food, rapid consumption of food, previous splenic disease, and increased gastric ligament laxity.





Clinical signs:

1. Colic.
2. Dyspnea & stand with the fourth leg spread apart.
3. Hypovolemic shock may develop with dilation.
4. Abdominal & thoracic legs are distended & amount of Saliva drip from the mouth.
5. The mouth open & gum are pale (Dog).
6. Attempt to vomit with little or no success (Dog).

Diagnosis:

1. Case history.
2. Clinical signs.
3. Radiography affords the best means of or confirmation of gastric dilation as a large volume of gas being trapping in the stomach could be visualized.
4. Stomach tube lead to reflex of fluid & gas in typical of primary dilation except grain engorgement.

Treatment:

1. Decompression by stomach tube.
2. Medical treatment in all cases of grain engorgement, this includes decompression when possible, Mineral oil, analgesia & maintenance of systemic circulation.
3. Surgical relief of gastric impaction. In this case the stomach could be emptied using a tube inserted through a stab incision & lavage or gastrotomy.

4. Gastric rupture:

Rupture usually occurs along the greater curvature in the fundic area, an area where the wall was considered relatively in elastic. Sudden cessation of signs of pain followed by progressive systemic deterioration is the usual sign of gastric rupture.

Etiology:

1. Over load occurs particularly if the animal should overeat on grain.
2. Weakening of the wall by of habronema megastoma.
3. Chronic pyloric obstruction.
4. Neoplasia.
5. Obstruction of the duodenum .

Clinical signs:

1. Acute colic.
2. Kicking tend to be toward the epigastrium (Equine).
3. When animal looks back it tends to be toward the observation area as well.

4. Greenish nasal discharge is a sign of severe stomach distension

Diagnosis:

1. Abdominocentesis.
2. Auscultation of the abdomen.
3. Negative rectal examination.
4. Sudden cessation of pain.

Abdominocentesis is the process of inserting a small gauge needle into the abdomen to evaluate if fluid is present and obtain a sample for further testing.

Treatment: Immediate Euthanasia. Surgery may be attempted if tear occurs during laparotomy, or in foals.

Prognosis: grave.

5. Gastric foreign body:

In dog bones are the most frequently ingested foreign body. Small quantity can pass through the intestine without causing harm. A variety of metallic objects, stones, rubber balls, bottle, toys & small articles of cloth are common foreign body. Sharp objects such as needles occasionally reach the stomach but they usually become lodged in the pharynx or oesophagus. Ingestion of foreign body becomes a significant problem when gastro- intestinal obstruction or perforation occurs or when toxicity results from partial digestion of the foreign body.

Clinical signs:

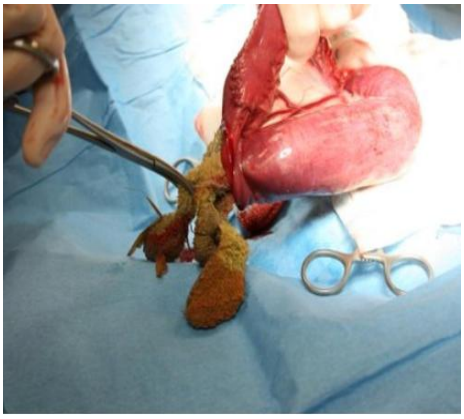
1. Emesis.
2. Abdominal tenderness.
3. Altered appetite & debility.
4. Foreign body obstruct of pylorus resulting in continue vomiting, dehydration & shock.

Diagnosis:

1. X – Ray.
2. Clinical signs.
3. Gastroscopy.

Gastrotomy:

1. Under general anesthesia (especially in dog) made incision from xiphoid cartilage caudally.
2. Exposure of stomach & hold by Babcock forceps, make incision in a less vascular area on ventral aspect of stomach between the lesser & greater curvature (removal foreign body).
3. Close incision in a two layers such as Cushing & Lambert.
4. Omentum may be placed over the incision.



Indication:

1. Foreign body.
2. Neoplasm.
3. Hypertrophy.

4. Biopsy.
5. Ulcer.

Postoperative care:

1. Liquid & soft food the second days post operatively.
2. Antibiotic for (4 days).
3. Skin suture was removed after (10 days).