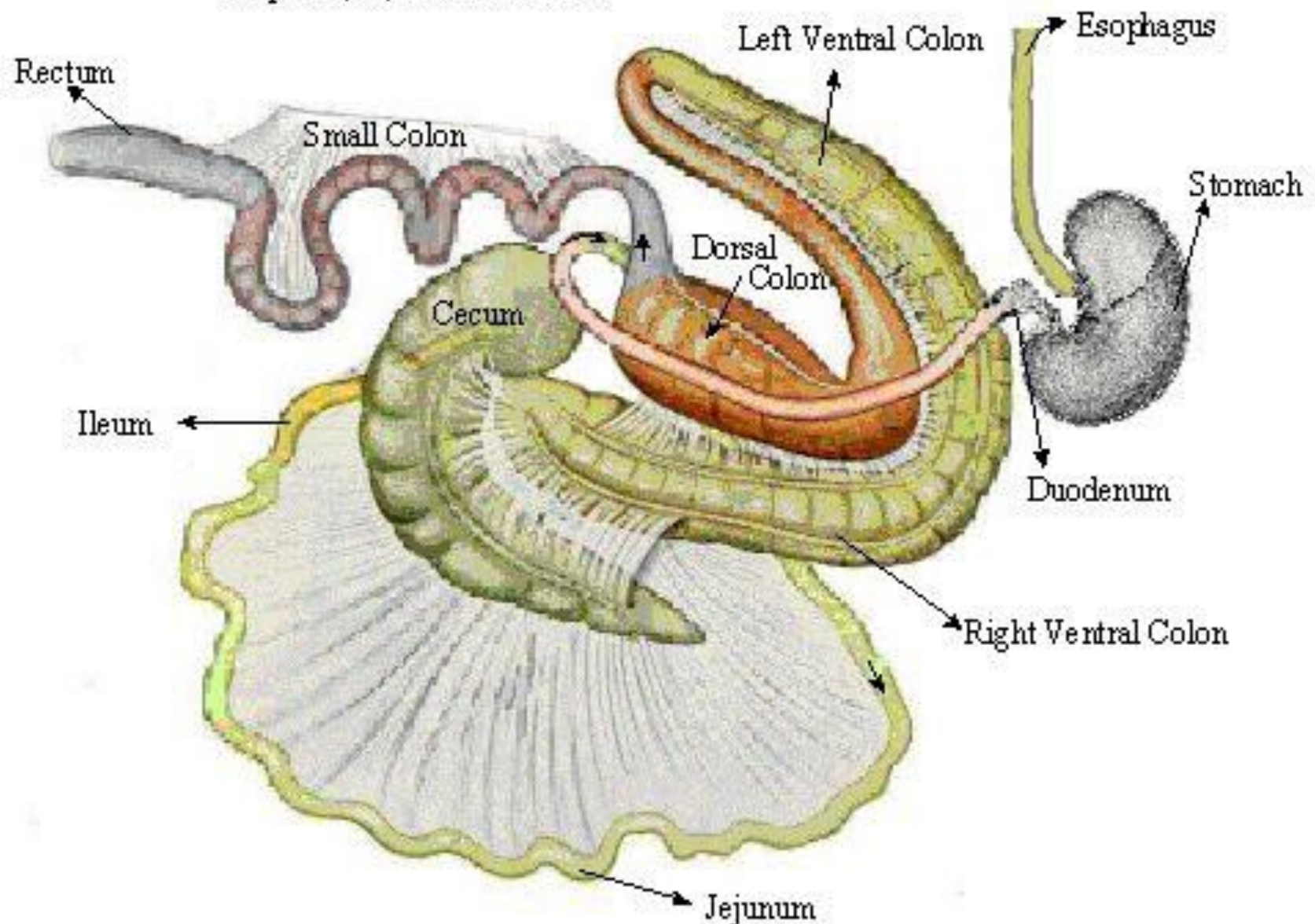
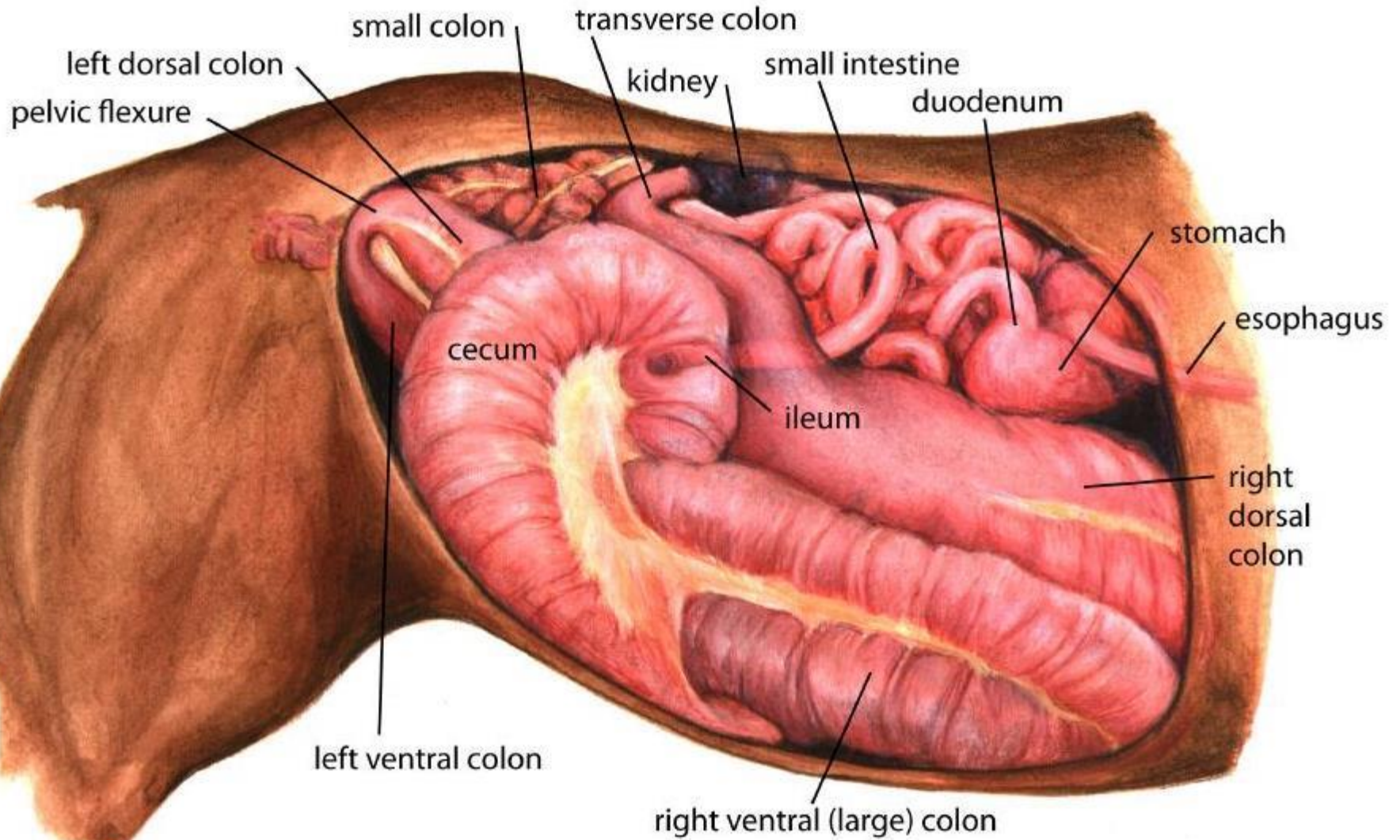


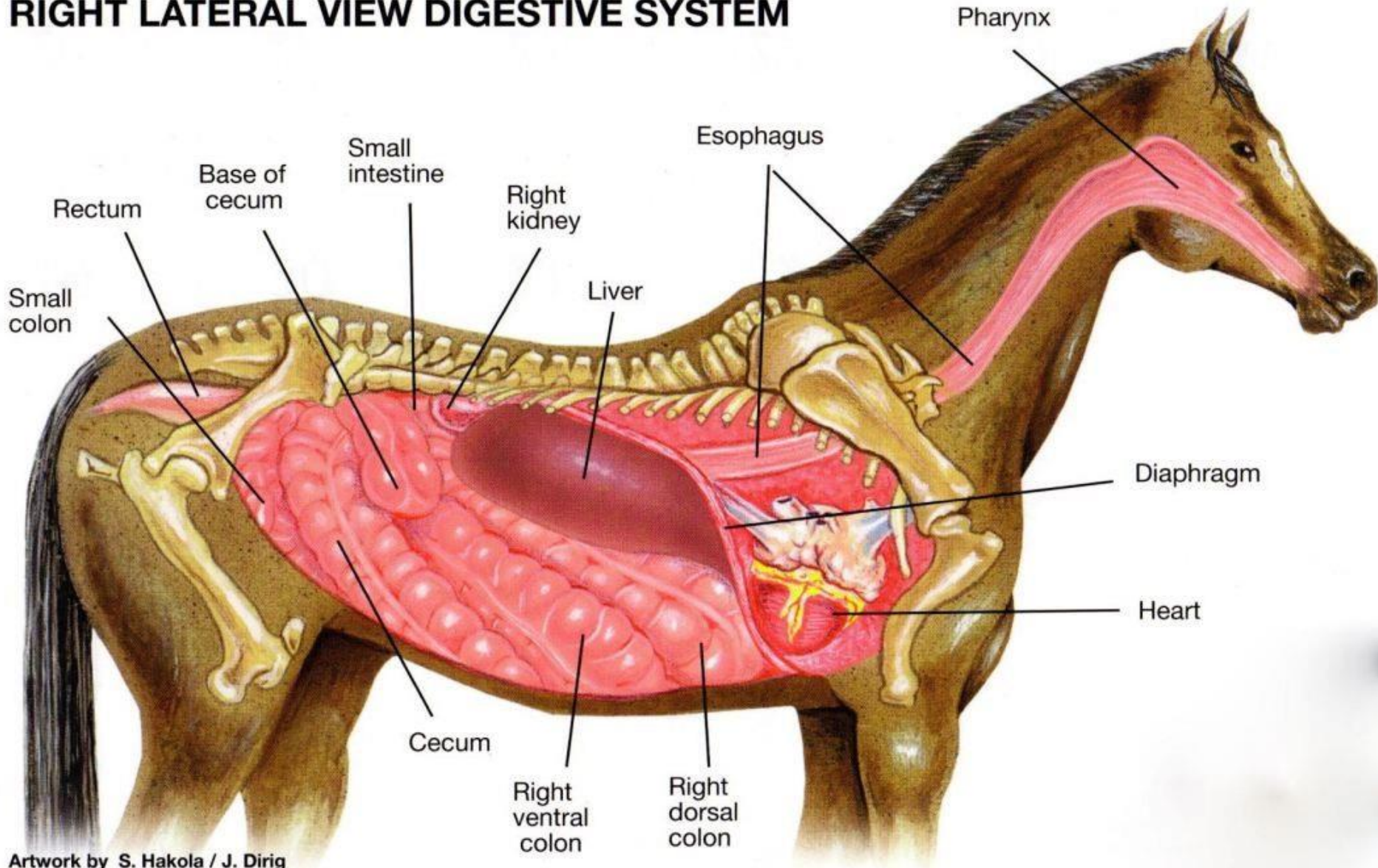
Equine Digestive Tract

Reference: Adapted from Atlas of Topographical Anatomy of the Domestic Animals, Popesko, P., W. B. Saunders

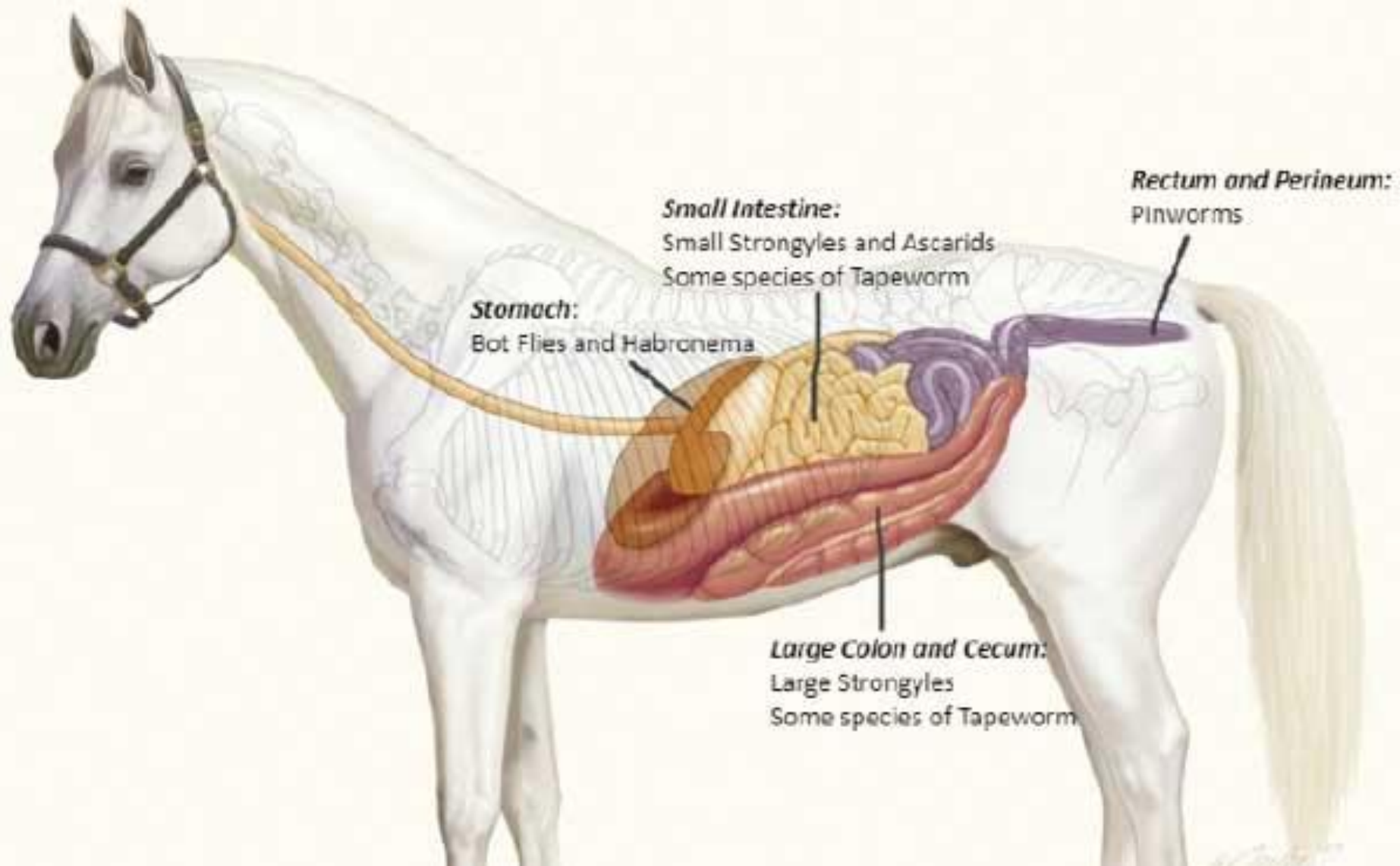




RIGHT LATERAL VIEW DIGESTIVE SYSTEM



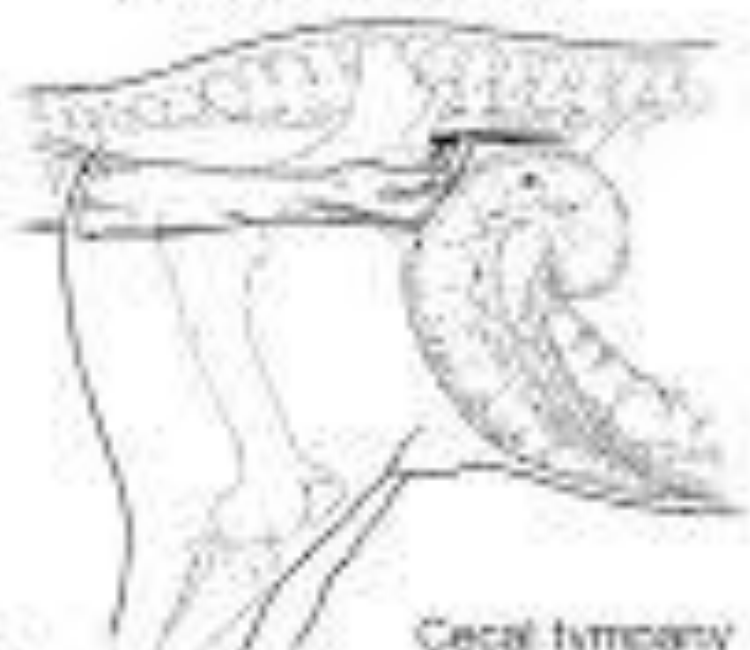
Artwork by S. Hakola / J. Dirig



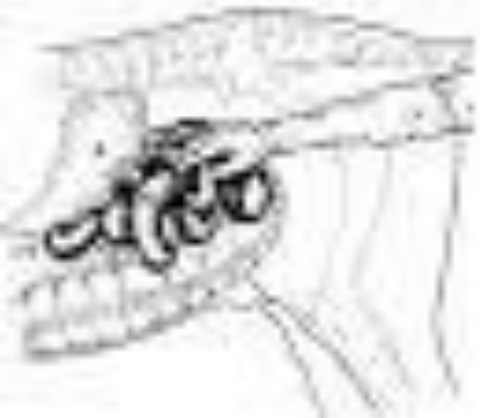
Rectal Palpation

L side: spleen, pelvic flexure, mesenteric root, L kidney

R side: Aorta, cecum



SI strangulation



Large colon impaction



Cecal tympany



INTESTINAL TYMPANY IN HORSES

Distension of the intestine with gases accompanied by abdominal pain, change in the abdominal circumference (Dist. of large int.) and sometimes by the passage of much flatus.

Etiology:

1- Occur secondary to obstruction of the intestinal lumen. (Intestinal tympany occurs secondary to obstructive diseases that prevent aboral passage of ingesta and gas).

2- Tympany of small intestine: are caused by:

a) Acute intestinal obstruction.

b) Constricting adhesions from perforated gastric ulcer or ilio-caecal valve impaction.

3- Tympany of large intestine:

Primary causes: ingestion of large quantities of highly fermentable green pasture, spoiled or mouldy food or atony of the bowel.

Secondary causes: are caused by acute intestinal obstruction or stenosis (Verminous aneurysm-fibrous tissue formation).

4- Idiopathic intestinal tympany of unknown cause, although the ingestion of highly fermentable green feed is considered to be a risk factor.

Feeding of rations rich in grains is associated with changes in colonic contents that might predispose to tympany.

Pathogenesis:

Causes



Stasis or stagnation, Excessive production of gas or its retention in a segment of bowel which leads to distension and acute abdominal pain.



Intestinal distension reduces intestinal motility and may contribute to the course of the disease.



Severe tympany may interfere with normal respiration and cardiovascular function.

Clinical findings:

1- Abdominal pain:

- Small intestinal tympany: continuous and severe colic
- Large intestinal tympany: intermittent and moderate colic

Pain is manifested by pawing violently and the horse lies down very carefully.

2- Abdominal distension and change in the abdominal circumference incase of large intestinal tympany especially in thin animals.

3- Peristaltic sounds are increased in early stages then, reduced but fluid may be heard moving in gas-filled intestinal loops, producing a tinkling, metallic sound.

4- Pinging sounds consistent with tightly distended viscus may be heard on simultaneous flicking and auscultation of the abdomen.

5- On rectal examination, gas-filled loops of intestine fill the abdominal cavity and make proper examination of its contents impossible.

7- Normal rectal temperature, and the pulse rate increased and may reach 120/min, and when the gases are relieved it returns to the normal level.

8- In primary tympany much flatus is passed.

Diagnosis:

1- Primary tympany is always difficult to differentiate from secondary tympany. But the presence of feces, flatus and the history of engorgement on lush pasture may differentiate the two.

2- Primary tympany involves nearly the whole of the tract.

3- Tympany due to obstruction terminates fatally in a short time.

Treatment:

1- The principles of treatment are:

- The relief of pain and distension,**
- Maintenance of hydration and**
- Reduction of gas production.**

2- In secondary tympany the primary disease should be identified and treated.

3- Pain should be relieved by administration of xylazine, or detomidine or similar agents.

4- Normal hydration should be restored by intravenous administration of polyionic fluids.

5- Intestinal gas production should be minimized by the administration of mineral oil or a similar laxative

6- External abdominal massage, also through the rectum may stimulate the peristalsis. Soft soap enema has the same action.

7- In primary tympany the administration of carminatives and intestinal stimulants are useful. It is given in the form of an oral mixture of ammonium carbonate & charcoal in equal quantities dissolved in water.

8- Intestinal Antiferment suppresses the formation of gas as follow:

Carbolic acid (Sol 2%) 200.00 or formaline solution (10-20 ml) dissolved in 2 liters water to be given orally.

IMPACTION OF THE LARGE INTESTINE:

Impaction of the large intestine causes commonly in horses moderate abdominal pain, constipation, general depression and anorexia.

Etiology:

1-Debility is a predisposing cause and the diminished intestinal muscle tone is incapable to move the ingesta.

2- Feeding on low-grade indigestible roughage, particularly old hay or sorghum.

3- Bad teeth (improper mastication).

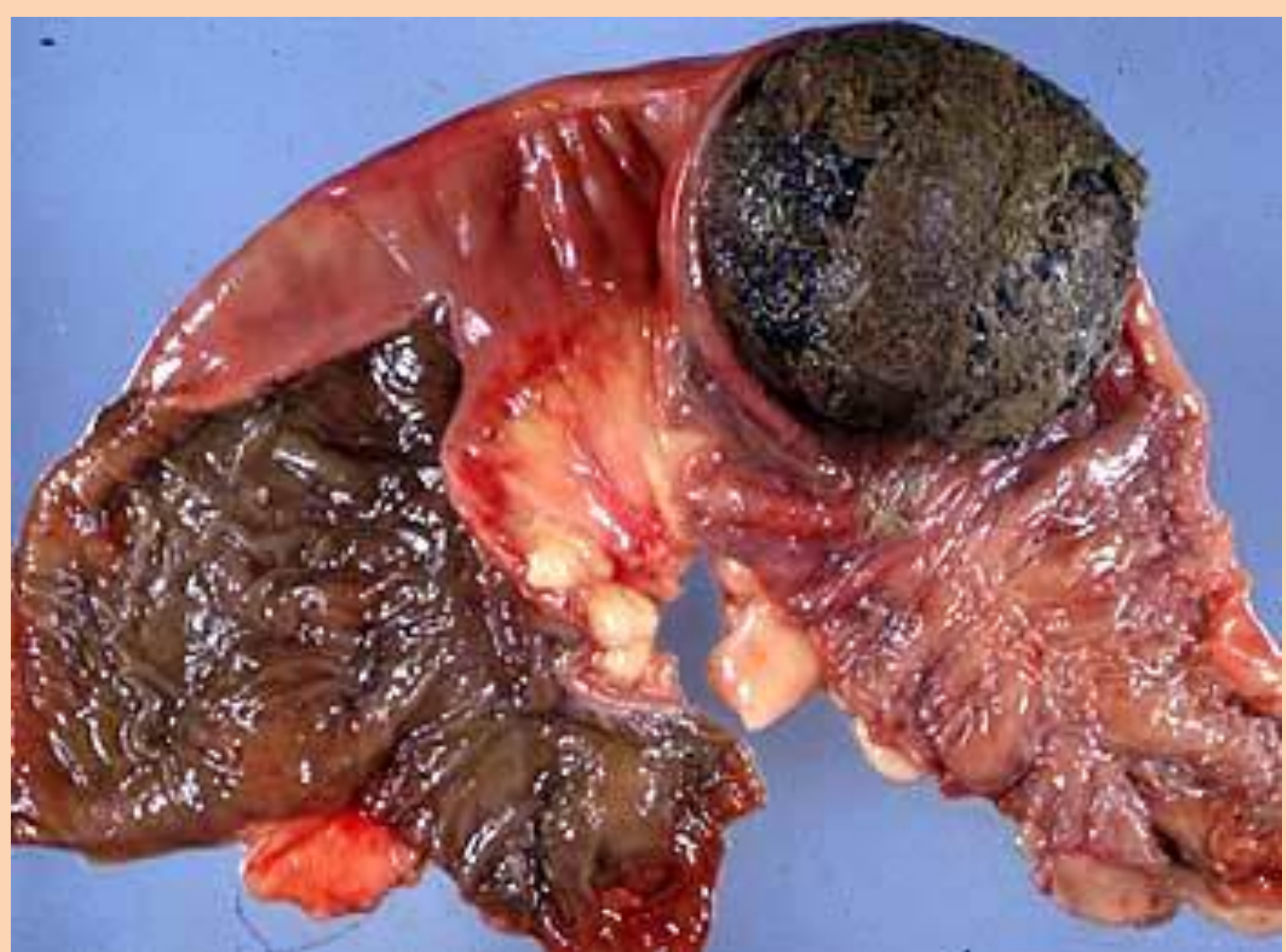
4- Over-fed, fat horses are more susceptible.

5- Interference with the blood supply to the intestine as in Verminous mesenteric arteritis may interfere with the muscle tone.

6- Presence of fiber-walls & enterolith (phytobezoars, tricobezoars).

7-Sand colic





Clinical findings:

- 1- Moderate abdominal pain is the typical sign in affected horses, and is continuous for 3- 4 days and sometimes for 2 weeks, and in the latter case it is accompanied with caecal impaction. Fits of pain occur at intervals of up to $\frac{1}{2}$ hours.**
- 2- Anorexia & constipation. Feces are passed in small amounts, hard and covered with thick sticky mucous.**
- 3- Intestinal sounds are reduced or absent and much decreased in intensity.**

4- Rectal palpation reveals the following:

- a) Impaction of the pelvic flexure of the large colon is the commonest site. Solid-loops of the intestine could be palpated at the pelvic rim or to the right of the midline.**
- b) Impaction of the caecum can be palpated in the right flank extending from high up and passing downwards and anteriorly.**
- c) Impaction of the small colon may be felt dorsally to the right of the midline.**

- 5- Pulse rate is moderately increased (50/min).**
- 6- Animal does not eat but may drink small quantities of water.**
- 7- When death occurs this may be due to rupture of the intestine or from exhaustion after a large course in debilitated horses.**
- 8- In foals retention of the meconium causes continuous straining with elevation of the tail and walking backwards. Hard fecal balls can be palpated with the finger in the rectum.**

Diagnosis:

1- Other causes of constipation as in peritonitis and dehydration should be considered. In peritonitis there may be toxemia as a complication.

2- In other forms of pain as gastric dilatation, acute intestinal obstruction and spasmodic colic the pains is more severe, and have much shorter course.

Treatment:

1- Administration of 1/2 - 1 gallon of mineral oil with 15-30 gram chloral hydrate in 1 - 1.5 liters of water by nasal tube.

Repeat the treatment if the impaction is not relieved in 12 hrs. In this case you can inject s/c, in addition parasympathetic stimulant. Do not use parasympathetic stimulant without prior administration of mineral oil otherwise rupture of intestine occurs.

Linseed oil can be also used.

2- Detergents combined with mineral oil could also be used.

3- Purgatives are also used.

4- Enema with soft soap and worm water may be used but have doubtful effect.

5- Retention of the meconium in foals could be treated with the injection of mineral oil (90 ml) or glycerin (30 ml) into the rectum by the use of a rubber tube. The enemas are repeated until soft feces appear and the animal is comfortable. Oral doses of 120-250 ml of mineral oil are also indicated; small doses of parasympathetic stimulants could also be injected ($1/8$ or $1/16$ of the adult dose).

6- Pain is relieved with parenteral administration of an ataractic drugs.

ENTEROLITHS AND FECALITHS:

Enteroliths: are rock -like concretions, which are either spherical or tetrahedral, that form in the large colon of horses, usually around a foreign body.

Most enteroliths in the large colon of horses are of two major types: magnesium phosphates and magnesium vivianite ([hydrated iron phosphate mineral](#)).

Fecaliths: are aggregations of indigestible material, such as fencing, plastic or rope, that often have an irregular shape.

The mechanism underlying enterolith formation is not known,

Enteroliths are formed in the large colon and, rarely, the cecum.

They are clinically inapparent, even if quite large, until they cause obstruction of aboral passage of ingesta, usually by occluding the right dorsal or transverse colon.

SAND COLIC

Sand colic is a disease of horses grazing sandy fields with short pasture, fed on sandy ground or provided with feed contaminated with sand. It is often associated with underfeeding.

Horses of all ages are affected, including foals, which acquire the sand while eating dirt.

Clinical signs

- 1- Mild to moderate, chronic colic with diarrhea and anorexia.
- 2- The colic is often very mild unless there is colon torsion or volvulus, in which case the signs are typical of that disease.
- 3-The diarrhea is watery but not profuse or malodorous.
- 4-Auscultation over the cranial ventral abdomen just caudal to the xiphoid reveals sounds similar to those made when a paper bag is partially filled with sand and rotated. This sound is diagnostic of sand accumulation in the ventral colon.
- 5- Rectal palpation may reveal sand impaction in the ventral colon, but more frequently colon distension with gas is present.

- Radiography will demonstrate sand in the ventral and dorsal colons and can be used to monitor the efficacy of treatment.
- Ultrasonography used for detection of sand in the ventral colon.
- Sand will settle out when feces is mixed with water in a clear plastic rectal sleeve and hung for 30 minutes.

Treatment consists of pain relief, correction of fluid and electrolyte abnormalities, prevention of continued ingestion of sand and removal of the sand.

-In horses with acute obstruction of the right dorsal or transverse colon by sand, surgical removal is indicated. Medical treatment to effect sand removal is indicated in less acute cases.

-Mineral oil (1 mL/kg) or MgSO₄ (1 g/kg) orally may hasten sand removal.

-A widely used medical treatment is administration of **psyllium mucilloid** (one type of bulk laxatives) (0.5-1 g/kg orally every 12 h for 4-8 weeks) administered via a nasogastric tube or as a dressing on feed.



рахмат
danke

謝謝

ngiyabonga

tesekkür ederim

tapadh leat

thank you

gracias

спасибо

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dhanyavad
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