ALIMENTARY SYSTEM INJURIES

1) **The Mouth**
Causes: Foreign Bodies (sticks, needles). Bones and sticks often wedge between the upper molars across the hard palate. Stings and bites, Fractures (RTA's and Falls), Burns (scalds and chemical damage)
Signs: Pain, salivation, pawing. Inappettance and dysphagia. Eventually a foul smell may develop (halitosis). The animal may become hysterical when handled around the head. There may be obvious deformity after fractures, particularly RTA's, and there is likely to be bleeding in these cases.
Treatment: Remove wedged foreign bodies if possible easily, but do not pull out penetrating foreign bodies or fish hooks. In the case of penetrating sticks (run-on injuries) often a general anaesthetic will be necessary to explore the extent of the damage, and make sure there is no embedded stick. To remove fish hooks, because of the barb,it is best to either pull on through in the direction of travel, or cut down to the hook. It will only be possible to do this without sedation or anaesthesia if the hook is very superficial.
2) **The Pharynx**
Causes: Foreign Bodies- Balls, Hooks, Needles, Bones. Stick injuries can be potentially fatal in this area as a lot of tubes and wires run very close to the pharynx (jugular veins, carotid arteries, oesophagus, trachea, laryngeal nerves, vagus nerves etc..), chemical burns and scalds. Dogs will sometimes suffer laryngeal fractures in fights.
Signs: - Gagging, dysphagia, pharyngeal retching, particularly if stimulated by applying light pressure to the throat. A gag reflex can be elicited by firm pressure in normal dogs. Cough, halitosis if long standing.
-Salivation, haemorrhage. Unable to swallow food or water so may be dehydrated, and the owners may report the animal "hanging" over the water bowl. -Noise (usually inspiratory dyspnoea if a pharyngeal foreign body is interfering with the airway. If the larynx is swollen internally, then inspiratory and expiratory dyspnoea can occur). Kennel cough is often mistaken for a pharyngeal foreign body.
Treatment: Heimlich manoeuvre for a definite foreign body. Apply sharp inward pulling thrust (NOT a thump!) using a fist to the midline ventral abdominal wall just behind the ribs. Works better if the patient can be suspended upside down. BEWARE of pulling threads, they may be attached to something far away in the intestines, eaten long ago. It is also less than wise to rummage around in the throat of a distressed animal in the hope of extracting a suspected foreign body. Owners will sometimes be convinced that they have felt a foreign body at the back of the throat. This is usually the epiglottis, which is made of cartilage and therefore stiff to the touch, although one of the owner's fingers may rapidly become the lodged foreign body. Prep for a tracheotomy if the degree of respiratory distress warrants it. Remember that any degree of oxygen supplementation is useful to a dyspnoeic animal - masks, cages, nasal catheters.

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3) **The Oesophagus**

Causes Foreign bodies- particularly bones in Bull Terriers! Fish hooks (particularly in Swans and other aquatic birds). Corrosive poisons- Acids, Phenols (Jeyes fluid, Dettol, TCP), Caustic soda, Bleach, Antifreeze (Ethylene glycol).

Signs: Pain if chemical damage, also dysphagia, retching, haematemesis if severely damaged. Foreign bodies stop at one of 3 sites, at which there is a natural anatomical restriction:- a) Thoracic inlet, b) Heart base, c) Oesophageal hiatus of the diaphragm / cardiac sphincter of the stomach. Foreign bodies in the oesophagus cause regurgitation, NOT vomiting. Regurgitation is easily distinguished from vomiting by asking the owner a few questions and/or by observation. Vomiting involves distress and abdominal effort. It is a complex series of muscle contractions organised by the vomiting centre in the brain. Regurgitation is effortless and simply involves decanting the accumulated food out of the oesophagus again. Often the regurgitated material is sausage-shaped like the lumen of the oesophagus. If the oesophagus is penetrated, then infections of the mediastinum may develop.

Treatment Give 2% bicarbonate of soda for acids, vinegar for alkalis, Activated charcoal can be used if the poison is unknown. Foreign bodies have to be retrieved under anaesthesia, or pushed on into the stomach so that they can be retrieved from there. It is, of course necessary to identify what the foreign body is. If the nature of the injury is unknown, withhold all substances by mouth, and start an intravenous fluid drip.

4) **The Stomach**

Most things which can affect the oesophagus can also cause stomach problems. Injuries can arise from INTERNAL and EXTERNAL causes.

a) Internal Causes i) Poisons and damaging substances. This category includes both ingested poisonous substances such as bleach, weedkiller etc., also rotten food containing bacterial toxins (scavengers!), and circulating toxins which arise as a result of kidney failure and liver failure. Some vomiting is the result of both local stomach damage and pain, and direct action by circulating chemicals on the vomiting centre in the brain.

Signs: Abdominal pain, inappettance, vomiting (true vomiting not regurgitation, these animals feel sick). Vomiting continues on an empty stomach due to an inflamed stomach wall. Bile may appear in the vomit (green / yellow) due to reflux from the duodenum. Most vomiting on an empty stomach produces sticky white froth which is a mixture of gastric secretion and excess saliva. Owners may feel compelled to give milk or alcohol. Milk is a food, so not to be advised, and alcohol is a direct gastric irritant. A small amount of fresh haemorrhage in the vomit is not of concern, and usually arises due to the strain of attempting to vomit. Large amounts, or brownish "coffee grounds" material (digested blood) indicates serious or prolonged bleeding.

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Treatment: If the dog is not particularly unwell then advise to starve for 24 hours, allowing water little and often. Owners often know if their dog is a scavenger; equally many owners will insist that their dog could not possibly eat anything unpleasant - take these claims with a pinch of salt. BUT monitor the situation carefully; vomit is water plus acids and ions, so vomiting causes dehydration and acid / base / ionic balance disturbance. This can be corrected for by the kidneys for a while, but remember that dehydration may compromise kidney function. If the animal deteriorates, then give intravenous fluid sooner rather than later. Ringers is the fluid of choice for vomiters, but Hartmanns is a good second choice. Anti vomiting drugs such as METOCLOPRAMIDE (emequell) may be prescribed.

ii) Foreign Bodies The stomach is a very large organ, so can accommodate fair sized foreign bodies. In general, FB's cause problems due to partial or intermittent occlusion of the exit (pyloric sphincter), or due to perforation of the stomach wall.

Signs: Vomiting intermittently, always brings up food. Poor appetite, particularly seen in fur balls in cats. Rabbits also get fur balls, but rabbits and other domestic rodents are unable to vomit, so these animals just become dull and inappetant. Treatment: Conservative treatment of starvation and light diet does not usually work in these cases, as although the animal remains bright, vomiting keeps recurring. Diagnosis is usually made on further investigation (X-rays, endoscopy, etc.).

b) External Causes Penetrating or blunt / crushing abdominal trauma. The majority of blunt traumas have bruising of the outer surface of the stomach only, which may cause haematomas to form. There is a risk of stomach rupture if it is very full at the time of injury. Penetrating sharp injury will always require surgery.

Signs: Abdominal pain. If the stomach is ruptured, peritonitis and shock develop very quickly (less than an hour). MONITOR CAREFULLY FOR DETERIORATION.

Treatment: Pain relief . Institute fluids and appropriate treatment if shock is developing. Prep for surgery if necessary.

5) THE INTESTINES

Injuries: Foreign bodies, Intussusceptions, Penetrating injury, blunt trauma, poisons, Infections, Torsions and herniation.

General Signs: Pain, Vomiting, abdominal guarding, sometimes abdominal swelling. Shock. As always, the signs depend on the particular disease.

a/ Foreign bodies (FB's) The severity of the problem depends on the location and type of the FB. Sharp FB's such as chop bones may cause perforation and hence much more severe pain and disease than smooth FB's, e.g. stones and pebbles. Vomiting is the main sign of a foreign body, due to blockage. If the obstruction is very high in the intestines then vomiting of food a little while after eating can be expected. If the FB is lower in the tract then the food may be partly digested, and may have been the subject of bacterial fermentation. In such cases faecal vomit can

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result, when the animal brings up what appear to be faeces. These are usually reported by the owners. Normal digestive processes require vast quantities of fluid to be discharged into the proximal small intestine (from the pancreas and duodenum) and reabsorbed in the lower small intestine and large intestine. Foreign Bodies situated in just the right area - below the level of secretion but above the level of reabsorption- can cause very rapid dehydration and shock. Even smooth FB's will eventually damage the intestinal wall. FB's occasionally cause diarrhoea, but usually the lower bowel just empties out, giving a dry rectum. Treatment: Fluid therapy, Ringer's (or Hartmann's) to aid replacement of lost ions. Nil by mouth.

b/ Intussusception A segment of bowel is progressively drawn into an adjacent segment in a telescoping action. The effect is that of a foreign body, but because the blood supply is pinched off where one segment of bowel encloses the other, the inner bowel can die off and slough away. Occurs in animals with motility disturbances, so often young animals (change of food) or animals with bowel damage or disease (bowel wall cancer). Often seen at the ileo-caeco-colic junction when small bowel intussuscepts into the large bowel. Diarrhoea is often seen, either as a precursor, or as a consequence of the problem. Treatment: Will need surgery so treatment is symptomatic. Intravenous fluids. Withhold food.

c/ Infections Gastroenteritis. Some infections can cause permanent damage to the intestinal wall, e.g. parvovirus infection causes loss of villi which never regrow. Diarrhoea and vomiting are the usual signs, with vomiting usually preceding the onset of diarrhoea. Treatment: Fluids, per os or i.v. or both, depending on severity. Electrolyte replacer solutions are helpful. Withhold food.

d/ Poisons Numerous poisons damage the intestines physically, including Arsenic , Lead and heavy metal poisons, Also slug bait (metaldehyde), disinfectants etc. Treatment: Specific for the poison or general supportive treatment. If the poison is still present in the gastrointestinal tract then activated charcoal, or kaolin or BCK granules can be given as adsorbents.

e/ Torsions and Hernias Torsions occur when a segment of bowel rotates around its attachment to the body. The intestines lie suspended in the mesentery, a thin membrane attached to the dorsal abdomen. The blood vessels supplying the intestines pass from the aorta (under the spine) along the mesentery to the intestines. Occasionally a part or even all of the small intestine can rotate around this attachment, leading to pinching off of the blood supply to that area of bowel. Small torsions produce discomfort, inappettance, and eventually shock. Large Torsions are grave emergencies which rapidly produce shock due to loss of blood volume into the torsion, and bacterial toxins passing through a hypoxic bowel wall. Hernias / ruptures allow intestines to pass through the abdominal wall. Hernias occur through natural areas of weakness (umbilicus, inguinal, perineal) whereas ruptures are traumatic openings, often following on from RTA's. Narrow openings into a hernia or rupture can pinch off the blood supply to any contained intestines, but it is more usual for problems to arise if the piece of intestine rotates within the hernia and

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twists off the blood vessels (a strangulated hernia). Treatment: Surgical. Treat any shock with fluids.
f/ Penetrating injury Release of intestinal contents into the abdomen usually produces a rapidly progressing shock and peritonitis. In the dog, small intestinal punctures can occasionally be sealed by the mesentery which quickly envelops sites of inflammation. An abscess often results from this. Treatment: Surgical. Treat for shock.
g/ Blunt trauma Produces bruising of the outer (serosal) surface of the intestines, although is occasionally severe enough to cause a rupture. Bleeding is usually self- contained, but these patients require hospitalisation and regular monitoring.

6) THE RECTUM
Injuries: RTA causing pelvic fractures, Perineal hernia, Foreign bodies, Prolapse.
a/ RTA Pelvic fractures can cause short and long term complications. In the short term, they can caused lacerations and penetrations of the rectum and terminal large intestine as it runs through the pelvis. This is usually seen as blood at the anus or on the thermometer when taking the patient's temperature. The risk in these cases is of peritonitis. As these fractures heal, the pelvis, which may already have been compressed onto the bowel, forms a callus of bone which can press on the bowel even more. The end result can be an effective block to the passage of normal faeces (obstipation).
b/ Perineal hernia A perineal hernia develops in response to chronic straining to defaecate, due to either diarrhoea or an enlarged prostate. The so-called " pelvic diaphragm" (which is really just a collection of muscles) tears and allows the rectum to move sideways into the pouch which forms to one side of the anus under the tail. This is inconvenient to the patient, as faeces build up in this diverticulum. It can be a serious emergency also as the bladder can flip back on itself into the hernia. This closes off the urethra, causing a urethral obstruction.
Treatment: In the long term, surgical repair of the hernia is usually necessary. If the hernia is small and/or the patient is old and unsuitable for surgery, it may be possible to manage these cases with enemas and faecal modifiers - liquid paraffin, fibre preps such as peridale.
c/ Prolapse The rectum is everted through the anus. Minor prolapses consist of a small amount of mucous membrane which may self-cure. Major prolapses are like intussusceptions with the full bowel thickness being everted as a tube out of the anus. Often related to bouts of diarrhoea and colitis. Signs are straining and dyschezia, and examination quickly reveals the protruding bowel.
Treatment: If early and/or small, the prolapse may be reducible into the anus. Use plentiful lubricant and gentle pressure. If impossible, then keep the area moist and prevent self-trauma by the patient, using an Elizabethan collar. Surgery may be necessary if the prolapse is gangrenous or excessively damaged. This is quite a common problem in young small rodents such as hamsters, often very difficult to treat in these small patients.

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7) THE ANUS Injuries: Anal gland abscesses, Last stop for foreign bodies, Trauma. (Furunculosis in German Shepherds).
Signs: Hind quarter distress, scooting, frenzied licking, tenesmus (may be reported as constipation).
a/ Anal gland abscesses The anal glands are located at 5- and 7-o'clock to the anal sphincter, just under the skin, and should empty automatically each time the animal defaecates. Failure to empty for whatever reason (diarrhoea, anatomy, blockage) causes a build up of gland contents. This leads to characteristic scooting behaviour (rarely associated with worms despite popular belief). If infection gets into the glands, an abscess ensues. Treatment: Empty the glands (++ painful!). Antibiotics may be needed. The glands can be removed surgically.
b/ Foreign bodies May "lock" at the anal sphincter. The only First Aid possible is to try gentle removal with lots of lubrication.
c/ Anal furunculosis Is seen mainly in GSD's, and is a potentially severe infection of the skin of the perineum, possibly arising from an immune system problem or severe infection. Unobservant owners may present this as an acute emergency, but the appearance of raw ulcerated skin tracts around the anus is characteristic. This is not a case for first aid!

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