Warby St Vet Hospital Newsletter

and Wangaratta Equine Hospital

SPRING 2012

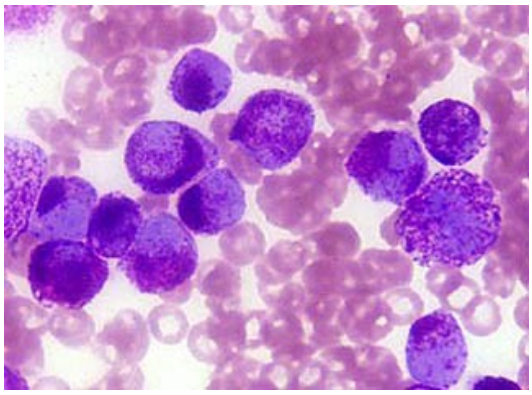
Spring is here! Time to hopefully thaw out after what has been a pretty cold winter. There are already some spring foals and calves on the ground and warmer days are just around the corner.

Mast Cell Tumours in Dogs

Mast Cell Tumours (MCTs) are one of the most common tumours in dogs accounting for up to 21% of skin cancer cases. They are by definition malignant tumours, but they are graded on a scale according to their aggressiveness. Lower grade tumours tend to be solitary and relatively non invasive and carry a much better prognosis with adequate surgical removal. Higher grade lesions are very locally invasive and also tend to spread to other parts of the body (metastasis). As a result the diagnosis of a high grade mast cell tumour carries with it a worse prognosis. They are usually found in middle aged to older dogs, but have been reported in dogs as young as 3 years of age. Certain breeds seem to be particularly susceptible. These include Boxers, Staffordshire Bull Terriers, Labrador and Golden Retrievers, Weimeraners, Ridgebacks, German Short Haired Pointers and Scnauzers. Mast cell tumours are very common in Boxers, however they tend to be low grade and often have a good prognosis with adequate surgical removal.

Typical appearance of a mast cell tumour on the skin of a dog

The most common sites for mast cell tumours are on the trunk (chest/flank/abdomen) and around the perineal area (under the tail). They can however occur in other sites such as on the head, in the mouth or in the internal organs. Unfortunately the appearance of MCTs is very variable making visual diagnosis difficult. They are often firm and well circumscribed, but can also be raised lesions, diffuse lesions, or soft swollen lesions that may be mistaken for fatty lumps. The more high grade tumours are often poorly defined, ulcerated and raised lesions. Diagnosis relies on a needle biopsy and examination under the microscope looking for the characteristic granules that appear in the mast cell cytoplasm.



Microscopic appearance of mast cells with their characteristic purple spotty granules in the cytoplasm of the cell

Higher grade mast cell tumours spread, or metastasise, through the lymphatic and blood vessels. They usually form secondary lesions in the local lymph nodes (glands), spleen and liver. In rare cases they form metastases in the lungs, bone marrow, kidneys, heart or other parts of the skin. Dogs usually have only one primary MCT at any one time, but it is possible for multiple primary lesions to exist in the skin at once.

The treatment of mast cell tumours relies on a wide surgical excision (minimum 3cm margin) to completely remove the primary tumour with a boundary of normal tissue around it. After the mass has been removed it is essential for the lump to be examined by pathologists in order to determine that it has in fact been removed entirely and also to grade the severity of the cancer. The dog should also be carefully examined for any enlargement of the local lymph nodes and ultrasound of the spleen and liver considered especially if the tumour is found to be a higher grade. In lower grade cases wide surgical excision is usually curative with no distant spread and no return of the tumour at the primary site. In higher grade cases the tumour has often already spread at the time of diagnosis. The prognosis in these cases is obviously much worse. Other therapies such as lymph node removal, chemotherapy and radiation therapy may be considered to extend the life expectancy of the patient. Mast Cell tumours can unfortunately look very benign, but in fact be very serious. This highlights the importance of having any new lumps that appear on your dog quickly assessed by a veterinarian.

Inside this issue:

Bezoars in Ruminants

A bezoar is a concreted mass found in the stomachs or intestines of ruminants. The mass undergoes calcification over time and can become very stone-like. There are two usual types, the trichobezoar (of origin from hair) and the phytobezoar (of plant material origin). The word bezoar (pronounced be-zor) is a Persian word meaning 'protection from poison' and comes from the historic belief and use of these masses as universal cures for poisoning. In fact the Harry Potter series of novels includes the use of a bezoar as a magical antidote saving the life of Ron Weasley from poisoned mead! Bezoars are formed as indigestible material aggregates together in the stomachs or intestines forming a smooth stone-like mass. The cause is often ingestion of excessive amounts of hair from overgrooming or otherwise ingesting indigestible plant matter such as onion grass. The risk of bezoars increases as the quality of pasture declines forcing animals to graze more indigestible plants than they usually would.

In many cases the finding of a bezoar at post mortem is an incidental event and the mass was causing the animal little or no harm. In some cases however the bezoar lodges in a crucial location of the gastrointestinal tract (GIT) and makes it difficult for the animal to ingest enough food to maintain its body function and condition. Animals with a bezoar obstruction such as this tend to lose weight over a long period of time. They become emaciated and in the case of dairy cattle greatly reduce their production of milk. Given enough time the lack of nutrition leads to the animal's death. In this case the bezoar will be found obstructing the GIT at post mortem. If a bezoar is suspected due to loss of weight in an animal it is possible to anaesthetise a cow or sheep and surgically remove the bezoar to return the animal's GIT to normal function.

A very smooth trichobezoar showing little calcification.

A more calcified bezoar from a steer.

Newsletter Mailing List

We produce a 4 page newsletter every season to keep our clients informed about the goings on at Warby St Veterinary Hospital and the Wangaratta Equine Hospital. We send the newsletter out with our statements each time it is printed, but also deliver it electronically by email. If you would like to receive the newsletter in your email inbox you can either email me your address at tim@warbyvet.com.au or fill out the slip below and return it to Warby St Vet Hospital or Wangaratta

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Case report - impaction colic

Pepper is a 5 year old stock horse cross mare that developed signs of colic on a Tuesday night. She was off her food, doing the occasional roll, but preferring to sit on her chest or lie flat out. Her heart rate was 44 beats per minute, mucous membrane (gum colour) and capillary refill was good, but she had reduced gastrointestinal sounds, particularly on the left hand side.

Pepper showed little response after receiving the pain relief/anti-inflammatory drug Flunixil, and required some mild sedation (Xylazine) to make her feel more comfortable. Given her history of a recent change of diet from pasture to hay, an impaction colic was suspected. A faecal softening agent was administered via stomach tube.

In the morning, Pepper's vital signs remained unchanged, but she had not passed any faeces overnight and preferred to lay down. It is considered abnormal if a horse does not pass any faeces in a 12 hour period. A rectal examination was performed, and a large football sized impaction was palpable in the area of the pelvic flexure. The pelvic flexure is on the left hand side of the abdomen, and is the part of the large intestine between the left ventral colon and left dorsal colon, where it does a nearly 180 degree turn at the pelvis. The large intestine narrows considerably at this point, and is a common area for impactions to develop.

Impaction colics can be treated either medically or surgically, taking into consideration the condition of the horse, pain level, heart rate and cost. Due to financial constraints, Pepper's owner elected to try the medical approach. The medical treatment involves large volumes of fluid administered via stomach tube with the aim to break down and move the impaction. Pepper remained stable throughout the day, and her pain level was able to be managed.

After 24hrs, loose faeces were beginning to be passed, and the impaction was no longer able to be palpated on a rectal examination. Pepper's condition however deteriorated at this stage. Her heart rate elevated to 85 beats per minute, and her mucous membranes became quite pink with a tinge of purple above the teeth. A blood lactate level was measured, which showed her to be in lactic acidosis. Blood lactate is a very useful measurement in horses with colic, as it can be used as an indicator for intravenous fluid therapy, need for surgery, and give an idea of prognosis.

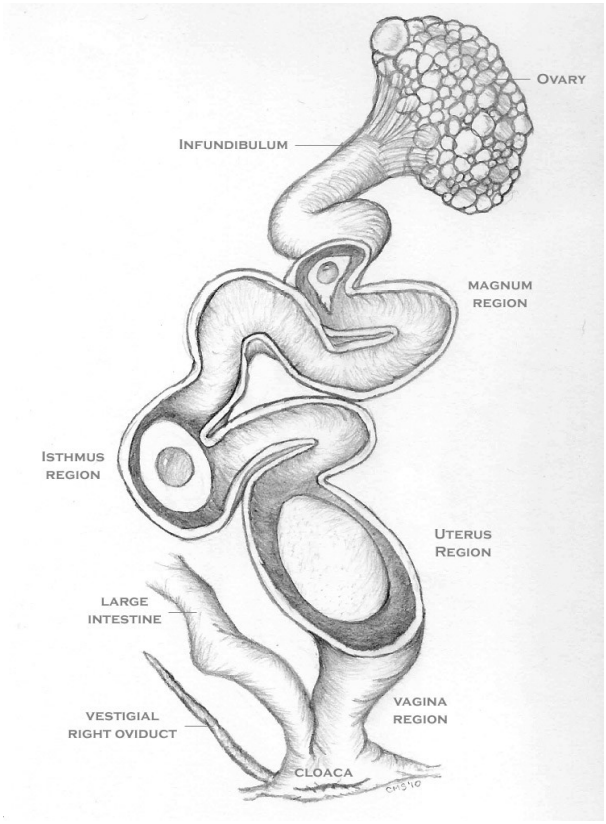
Pepper was placed on intravenous fluids to support her cardiovascular system and improve oxygen delivery to her tissues. After 4 hours of aggressive IV fluids, her blood lactate had decreased by 30%. This is considered to be a good prognostic indicator. She was kept on IV fluids for a further 36 hours, which were discontinued when her blood lactate came back into the normal range. In this time she began to eat a little, and continued to pass very loose faeces.

Pepper's appetite improved during the day and she went home. She has gone on to make a full recovery.

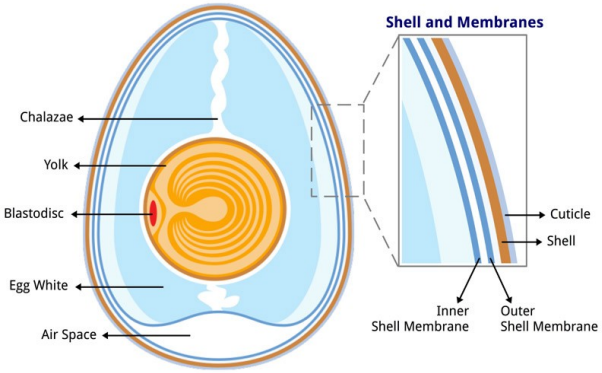
How a chicken egg is formed

Most of us eat chicken eggs fairly regularly, but have you ever wondered how they form inside the chicken. Maybe you don't really want to know, but if you do to then read on.

The chicken egg takes about 25 hours to fully form from the time the ovum (yolk) is released from the ovary to the time it is laid. As the yolk passes down the oviduct additional layers surround it finishing with the hard calcified shell. Interestingly the chicken has only one functional ovary. During ovulation the left ovary releases the ovum which is caught by the funnel shaped infundibulum allowing it to enter the reproductive tract (oviduct). If the hen has been with a Rooster the egg is fertilised in the infundibulum. Sperm can remain viable in this area for up to 14 days allowing chickens to lay fertilised eggs for some time after mating. The ovum spends only about 15 minutes in the infundibulum before it moves on into the magnum. This section of the oviduct produces the majority of the albumen, or white, of the egg over a period of 2-3 hours. Following this the forming egg passes into the isthmus that produces the inner and outer egg membranes over about a one hour period. At this stage the egg is shell-less and moves into the uterus (shell gland) where salt and water are added before the calcified shell is produced to surround the egg contents. This process takes about 20 hours. In the last 5 hours of this period pigments are secreted that colour the egg. The colour of the shell is determined by the breed of the hen not its diet, with white hens producing white eggs and red hens producing brown eggs. The diet however does effect the colour of the yolk, which can be manipulated by adding natural or artificial pigments to the chicken's diet. After the shell has been fully formed the egg is laid via the vagina and cloaca. The vagina coats the egg in an oily substance called "bloom" that helps lubricate the egg's progress and prevent invasion of the shell by bacteria as it passes through the cloaca (which is the common opening of the chicken's reproductive and intestinal tracts). After laying the eggs are collected for us to eat or in the case of fertilised eggs the chicken incubates them until they hatch 21 days later. After the egg is laid the ovary usually releases another ovum within 30 minutes and the whole process begins again, with chickens often producing over 300 eggs a year.



The chicken reproductive tract showing the egg forming as it passes down towards the outside world.



The components of a fully formed chicken egg. The chalazae are protein ropes that secure the yolk within the white of the egg. The blastodisc is the area from which an embryo can develop if fertilised. The purpose of the yolk is to provide energy for the growing embryo as after the egg is laid there is no external support available.

Obviously the above story is how things are meant to work. However, like in most biological systems things can go wrong or produce anomalies. Double yoked eggs form when 2 ova are released at once from the ovary. They are perfectly edible, but unfortunately twin chicks cannot grow adequately within the one egg shell. Young hens can produce an egg without a yolk after part of the upper oviduct breaks off from the lining and stimulates the production of albumen and shell without a yolk being present. Blood spots are usually associated with the yolk and are due to small hemmorhages during ovulation (the follicle surrounding the yolk in the ovary contains many many small blood vessels). Commercial eggs are "candled" looking for any blood spots so they should be rare or absebt from commercial eggs. Eggs with blood spots are again perfectly edible but are not sold because of aesthetic reasons. In rare cases there can be hemmorhage in the magnum leading to a larger amount of blood in the white part of the egg. The magnum can also lose small portions of its lining that become incorporated in the white of the egg as "meat spots". These eggs are still safe to eat, but don't look as appetising as a perfectly formed egg.