



THAL EQUINE LLC

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Thal Equine Client Handout: Common Diagnostic Tests for Equine Abdominal Diseases

The purpose of this client handout is to describe some of the actions that I take in trying to determine the cause and severity of your horse's abdominal illness. If you have questions about any of the exam components or diagnostics performed, please feel free to ask me.

HISTORY

I usually start with a detailed history of the problem and your prior management of the horse, including any recent changes. Questions involve things like symptoms shown, duration of symptoms, prior symptoms, past preventative health care, feed and management, and whether or not other horses are affected. These pieces of information and others are critical to my understanding of the disease process.

PHYSICAL EXAM

In the physical exam, I evaluate the horse's general systemic health. I look at all major body systems from the outside, including the neurologic system, musculoskeletal system, cardiovascular system, respiratory system, digestive system, and reproductive system, etc... General condition, attitude, coat and weight are noted. Parameters such as temperature, pulse, respiratory rate and character, mucous membrane color, oral exam findings and many others are considered. The specific body systems involved in the disease process are thoroughly examined.

COLIC EXAM

I assess the gastrointestinal tract. Degree and duration of pain is an important factor in determining the best treatment options. Response to pain relievers is part of this evaluation.

PASSAGE OF NASOGASTRIC TUBE

One of the first steps in dealing with a horse in abdominal pain is to pass a naso-gastric or stomach tube. This long, flexible plastic tube is inserted through one of the nostrils, goes through the nasal passages, pharynx, and follows the esophagus into the stomach. In the average adult horse the distance from the nostril to the stomach is 4 to 5

feet. Passing a stomach tube can be tricky, as the veterinarian must be sure that the tube does not end up in the lungs. If fluid is pumped into the lungs, it will likely be fatal to the horse. *Never try this yourself!*

Some horses tolerate this procedure well, while others resent it and require a twitch. Occasionally, a horse will be extremely difficult and will require sedation in order to safely pass a tube. Rarely, a horse will experience a bloody nose following the procedure. This results from abrasion to delicate membranes in the nasal passages by the tube and is usually a minor problem.

Passage of a naso-gastric tube is done for several reasons:

- As a diagnostic tool to assess whether or not there is fluid accumulating in the stomach. In a normal horse, there is little fluid accumulation in the stomach. If there is significant fluid accumulation, it can mean that there is a blockage of the upper part of the intestinal tract, which is causing backup of fluid into the stomach. We call this abnormal accumulation of fluid "reflux." Knowing whether or not there is reflux is important diagnostic information.
- To relieve overfilling of the stomach and intestine with reflux in cases where this is causing pain or contributing to the disease process.
- To administer fluids and other medications into the stomach, when appropriate.

RECTAL EXAM

A lubricated and gloved arm is placed in the horse's rectum in order to feel the anatomy of the back half to two-thirds of the abdomen. The rectum is thin walled and with careful examination and lots of experience, an equine veterinarian can feel and evaluate many of the abdominal organs through it. Structures such as the left kidney, the large colon and other parts of the intestine, the inguinal rings, the bladder and parts of the reproductive system can be evaluated. A specific problem with the intestine or other organ is sometimes diagnosed.

More often, I am able to determine what is going on by feeling gas or fluid distension patterns or a specific segment of intestine in the wrong position in the abdomen. Sometimes the rectal exam findings are completely normal, and this in itself is very helpful information. I may sedate or twitch your horse for this procedure for better relaxation of the horse and rectum. A very rare complication of rectal examination is tearing of the delicate rectal wall. While this is a very uncommon complication, it can be fatal. It is important that you understand that there is a small risk associated with the procedure.

ABDOMINAL ULTRASOUND

In some cases, I may choose to use ultrasound of the abdomen as an additional diagnostic tool. Abdominal ultrasound may be used either trans-rectally (through the

rectum) or through the abdominal wall from the skin. The ultrasound emits sound waves, which pass through tissue at various speeds depending on specific tissue characteristics. The sound waves bounce back to the transducer and a picture is produced by computer analysis of the returning sound waves. Ultrasound can give additional valuable information regarding the position and state of various parts of the intestine. It is also used for evaluation of the tissue characteristics of liver, spleen and other abdominal organs.

BLOOD WORK/TESTS

A complete blood count (CBC) includes a count of red blood cells and several populations of white blood cells. A complete blood count gives me valuable information about the health of the horse, its hydration status and characteristics of the disease process. A white blood cell count is especially helpful in supporting a diagnosis of bacterial infection. I usually perform the complete blood count in our hospital.

The serum chemistry is a battery of individual blood tests for levels of about 15 enzymes and molecules within the blood. Serum enzyme level increases can indicate damage to specific organs. An example of one of these enzymes is LDH (lactate dehydrogenase). This enzyme is found only in liver and muscle cells. Large elevations in this enzyme can mean that either liver or muscle cells have been damaged and their enzymes released into the blood. I use the rest of the exam and other blood work findings to interpret the significance of individual tests like this. Examples of other levels measured are glucose (blood sugar), creatinine (an indicator of kidney function), and many others.

I-STAT TESTING

I-STAT test is a complement to serum chemistry, which allows us to measure a group of other critical blood parameters like blood oxygen, carbon dioxide, electrolytes and others. In certain cases, the ability to measure these quickly and accurately in our hospital can be the difference between life and death of a very sick horse.

Serum chemistry and I-Stat tests are performed using sophisticated and expensive equipment in our laboratory. We have chosen to purchase this equipment so that we may offer you the very best care for your horse. Having this capability gives us the ability to make decisions quickly, rather than having to send samples away and wait for days for a result. Sometimes we do choose to send blood away to a reference laboratory to have the testing done there. This is usually because the lab may offer other specific tests which we cannot perform in our hospital, or there is less urgency in a specific case and so a longer turnaround time is acceptable.

ABDOMINOCENTESIS a/k/a BELLY TAP

An important and common diagnostic test used in cases of abdominal illness in horses is abdominocentesis or belly tap. This involves collection of a sample of fluid from the abdominal cavity. This fluid bathes the outside of the intestine and abdominal

organs. Changes in this fluid, both visible and laboratory results, give critical information regarding the health of these organs. Certain changes suggest presence of or severity of damage to intestine and so can help determine the need for colic surgery or intensive care.

The procedure involves clipping a specific site on the lower belly. This site is then carefully disinfected. A needle is introduced carefully into the abdomen, using special care not to puncture intestine or other organs. The needle is maneuvered until fluid is encountered, and a small sample of this is caught in 2 types of tubes. In our hospital, we are successful at obtaining fluid in about 70% of cases by using this technique. In cases in which we are unsuccessful, we resort to using a larger tube and different, more complicated procedure. Occasionally, we are forced to use the ultrasound to help us locate small pockets of fluid within the abdomen. Unfortunately, there are cases in which it is just not possible to collect abdominal fluid. This is usually because there is very little fluid in the abdomen. In other cases, clots of inflammatory material can block the needle or tube.

Once a sample is collected, it is analyzed in our lab for certain cell and fluid parameters. Total protein is commonly measured. Total protein is very low in normal abdominal fluid. As intestine is damaged, the intestinal vessels become leaky and allow protein to escape from blood and enter the fluid. We then see an increase in total protein in the fluid, which is useful in determining progression of the disease. Properly done, the risk of abdominocentesis is minimal. However, this risk is somewhat greater in foals.

As I gather all of the information from the diagnostics above, I begin to determine what is wrong with your horse, and begin to develop a treatment protocol. In exigent circumstances, I work quickly to gather this information and present it to you for discussion. If you have any questions, please do not hesitate to ask. Sometimes it can be a confusing and complex process and I want to ensure that you fully understand what is going on with your horse and the treatment options so that you can make the right choice for your horse.

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