INVESTIGATION OF THE THIN HORSE
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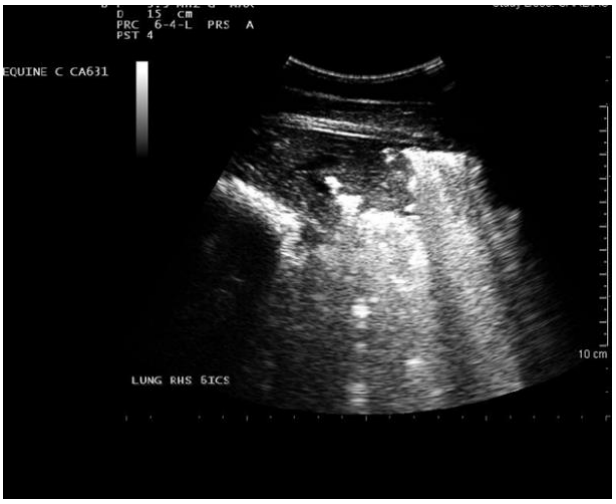
I developed an interest in the evaluation of horses with weight loss while completing my internship at UC Davis. Dr. Brad Smith was the first mentor to stimulate my interest in the topic. While completing a residency and practicing ambulatory medicine with Doug Byars, he and I wrote a 4 part series on evaluation of chronic weight loss in horses. It was interesting or maybe scary for me to go back and read those 1978 articles in The Georgia Veterinarian and see how much equine practice has changed (in this case for the best)!.

The investigation of a thin horse should begin with a thorough history and a visual assessment of the farm management to help determine if the horse's thin body condition is due to a medical problem or a management problem. If several horses on the farm are thin, the problem is likely a management problem. A complete history along with body scores of other horses on the farm, evaluation of feeds and feeding methods along with other routine management practices will often provide information to suggest if the horse has a medical problem. It is important to rule out parasitism in horses with incomplete de-worming history on the farm, especially in horses with Cushing's disease.

The next step would be to perform a Complete Physical Examination trying to determine which body system is abnormal and most likely responsible for the weight loss. If possible, an ultrasound examination of the chest and abdomen should be performed routinely on thin horses with suspected medical problems. If these do not offer a clue as to the cause of ill thrift, laboratory testing is next indicated. The following cases are intended to serve as interesting (I think) examples on the clinical evaluation of horses with medical conditions causing weight loss.

CASE PRESENTATION- A1

A 10-year-old Thoroughbred gelding used as a pleasure horse is examined because of a 4-week history of weight loss and occasional cough with bilateral fetid, nasal discharge. No fever was reported by the owners who believed the horse had equine asthma. Upon examination the horse was bright and alert and all vital signs were normal. Auscultation of the chest revealed a few crackles and wheezes on the right ventral area.



Discussion-

CASE PRESENTATION A2

A 15-year-old American Warmblood gelding is examined because of decreased performance (show hunter), increased respiratory rate (36-44 bpm) and progressive weight loss over 4 months. One year earlier the horse had an episode of fever and increased respiratory rate and appeared to have a good clinical response to doxycycline treatment.

Clinical Examination: Thin body condition, tachypneic (48 bpm) at rest, asymmetric lung sounds (quieter on the right), fever 102.6 F, mild tachycardia (52 bpm).

Ultrasound finding on the mid right thoracic area.

Abnormal laboratory findings were: HCT=29%, fibrinogen = 800 mg/dl Plasma Protein 8.8 g/dl and lymphopenia 600/μl.

Discussion-

CASE PRESENTATION A3

A 3-year-old Thoroughbred colt is examined for weight loss and two episodes of fever noted by the owner. On two occasions, the horse was treated with antibiotics and the body temperature had returned to normal each time. The horse has a good appetite, normal manure and no examination or historical information to suggest which body system(s) might be involved. On examination, the patient was bright, alert and responsive. His vital parameters were within normal limits and, notably, he was afebrile. Auscultation of the thorax and abdomen were deemed normal and no abnormalities were found except for the thin body condition (score of 4/9 with 1 being emaciated and 9 being obese). A complete blood count revealed a leukocytosis, mainly characterized by a mature neutrophilia with no left shift and a mild monocytosis as well as a hyperfibrinogenemia 700 mg/dl (normal 200 or less). The colt's total solids were 8.2 g/dl (normal 5.5- 6.5) Serum amyloid A was above the highest detectable amount (>2500 μg/mL).

<u>Looking for an Abscess?</u>:

Found something in the spleen!

Summary: When horse has weight loss and high total protein but no additional abnormalities on a thorough clinical examination: Look for an abscess!

High total solids and mild anemia suggest chronic infection or a chronic immunologic disease. Serum amyloid A would be elevated if the disease is acute or subacute. Fibrinogen may be a better marker if the disease is chronic.

CASE PRESENTATION B1

A 13-year-old Thoroughbred gelding has lost 200 pounds in the past 3 months. The manure had always remained normal and the horse has had a great appetite. His teeth were recently floated and the horse has no trouble eating. He has had several episodes of mild colic and was dewormed with ivermectin/praziquantal) 6 weeks prior to examination and a double dose of ivermectin, and fenbendazole) within the past week. All other horses on the property are in good body condition and the feeding program seems excellent. Clinical examination did not reveal any abnormalities other than the poor body condition.

Assessment- Dramatic weight loss in a horse housed on a well- managed farm could be due to organ failure But most organ failures would cause a decrease in appetite. CBC was normal, total solids 5.0 g/dl (low), albumin 1.8 g/dl (low), total calcium 8.2 mg/dl (low), fecal – no eggs seen on fecal examination.

Thoughts?

CASE PRESENTATION B2

A 6-month-old Thoroughbred filly presented with weight loss of about 150 pounds in ten days, intermittent diarrhea and colic have been observed. The only exceptional finding on clinical examination was the unthrifty appearance and mild pitting non-painful edema of her ventral abdomen and distal limbs.

Thickened loops of small intestine were seen on ultrasound as well as mild pleural roughening. No free fluid was seen and the large intestine, cecum, spleen, liver, and kidney all appeared normal.

What is our net step?

<u>Summary for Cases B1 and B2</u>: A low total solids would be supportive of a protein losing enteropathy or less commonly glomerulonephritis. If a reason for the weight loss cannot be found following complete examination and basic laboratory testing (PCV, total solids and possibly SAA, occult organ failure should be considered.

CASE PRESENTATION C1

A 31-year-old Quarter Horse gelding, presented for inappetence, weight loss, and mild quidding.. A grade 3/6 diastolic heart murmur was detected 3 years earlier. The horse had been diagnosed and treated with pergolide for equine pituitary pars intermedia dysfunction (PPID).

Clinical Findings: Clinical findings included cachexia, mild to moderate inappetence, long hair coat, muscle atrophy, 2/6 heart murmur- diastolic under left shoulder and mild generalized resorption of incisors.

Abnormal Chemistry Findings: Abnormal chemistry findings included hypercalcemia - ionized CA 3.64 (1.58-1.9) mmol/L and total total calcium 17.8 mg/dl. The horse also had a mild hypophosphatemia and elevated creatinine 2.2 mg/dl.

Differentials?

Further Investigation?

CASE PRESENTATION C2

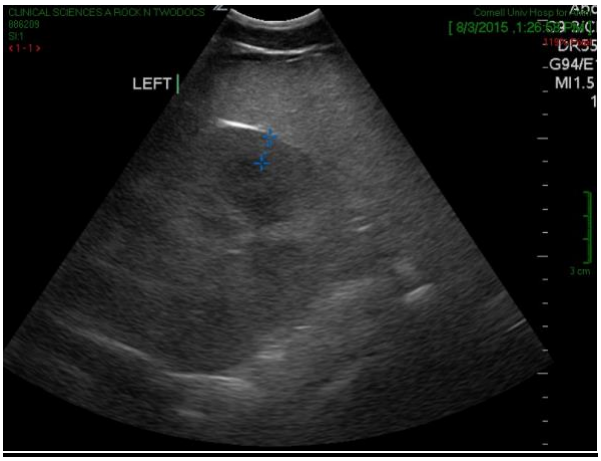
A 3-year-old Quarter Horse filly with rapid onset (1 week) on weight loss following *Streptococcal equi* exposure three weeks earlier. The horse did have a 103F fever on one day but did not have other clinical signs of strangles and nasal PCR for *S. equi* was negative. Appetite has been good but the filly was laying down more than normal; the owner therefore believed the horse had colic signs but always ate well and had normal manure. Clinical examination revealed loss of muscle mass over the topline, neck and gluteals. There was no reason for this muscle loss based upon clinical examination.

PCV, total solids and CBC were normal. Abnormal serum chemistry finding were a marked increase in creatine kinase (CK=55,000 u/L) and aspartate aminotransferase (AST= 1,480 U/L).

Differentials and further testing?

CASE PRESENTATION C3

A 3-year-old Thoroughbred gelding is examined because of two months or more weight loss with a more recent decline in appetite. A complete clinical examinationa and ultrasound of both the chest and abdomen do not reveal any reason for the weight loss. A dental exam is normal except for come excessive tartar on the incisors. PCV and total solids are normal as was the CBC. A complete chemistry panel is performed and the abnormal findings are creatinine of 3.4mg/dl (normal 0.6-1.6), BUN of 84 mg/dl (normal 11-28).

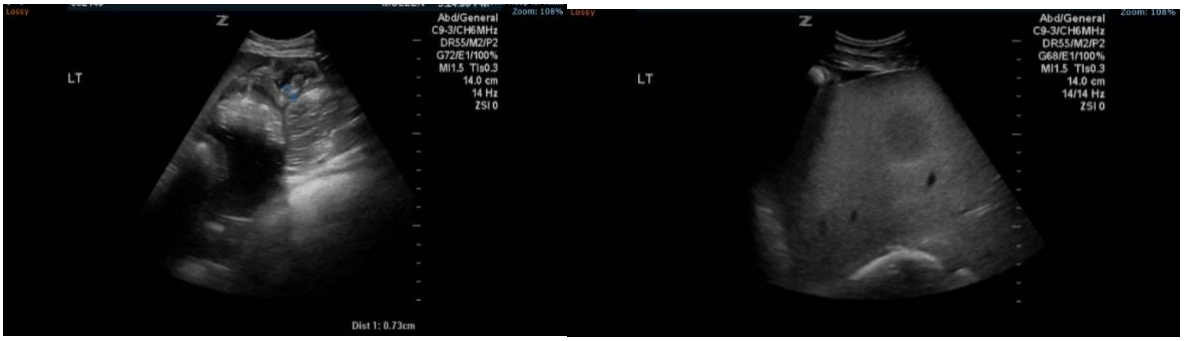


Summary: The chemistry profile is important in the evaluation of organ dysfunction. Urinalysis has specific gravity of 1.010, small amounts of glucose, pH=7.5, 5 RBCs/HPF.

CASE PRESENTATION C4

16-year-old Irish Hunter x Draft gelding examined because of 3 months weight loss. The horse had a chronic cough believed to be asthma but had mild colic signs on 3 occasions during the past 3 months and had been febrile (>102F) twice. The colic signs and fever were at different times and all had responded to a single dose of flunixin each time. On examination, the gelding was bright and alert but very thin (3/9). He had a mucoid nasal discharge in both nostrils, mild epistaxis from one nostril and an easily inducible cough. There was moderate non-painful pitting edema of both hind legs.

Ultrasound examination of the chest was normal while examination of the abdomen revealed a single image of thickened small intestine and one hypoechoic circular area in the spleen.



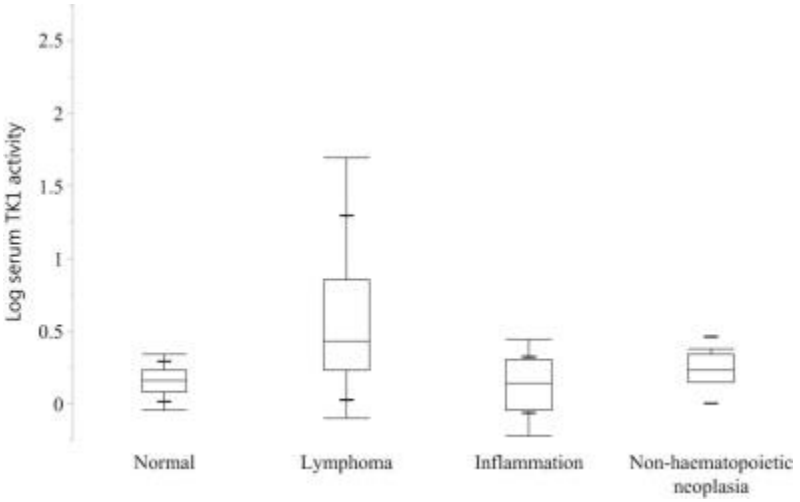
The serum chemistry panel was normal. CBC had only a mild thrombocytopenia 90,000/ul (normal > 94,000) and a mild increase in fibrinogen (300mg/dl- normal 200 or less). The HCT was 36%, total solids 6.5 g/dl with normal white blood cell count.

Differentials and what test to do next?

Peritoneal Fluid- Normal!

How do we confirm neoplasia?

Summary- Diagnosis of Neoplasia as a cause of weight loss can be difficult in many horses! Future Testing?: Serum thymidine kinase (sTK) activity is a tumor marker used as a prognostic indicator for lymphoma in humans, cattle, dogs and cats.



Serum thymidine kinase activity in clinically healthy and diseased horses: a potential marker for lymphoma. Larsdotter S, Nostell K, von Euler H. Vet J. 2015- STK activity was measured using a radioenzyme technique