DIFFERENTIAL DIAGNOSIS AND TREATMENT OF GASTRIC AND COLONIC ULCERS

Franklin L. Pellegrini, DVM

Wild West Veterinary Conference
19 October, 2012
Ulcers vs. Syndrome

- GI Ulcers = lesions of the GI mucosa
- Ulcers reflect a syndrome (collection of symptoms that occur as a result from an underlying condition)
- **Gastric ulcers/lesions** = EGUS = stage of gastritis
- **Colonic ulcers/lesions** = colonic ulcer syndrome (ECUS?) = stage of colitis
Gastric ulcers

EGUS
EGUS

- Widely known
- Widely studied
- Widely diagnosed
- Poorly understood
EGUS

Lots of information, but many uncertainties:

- Do all the lesions have clinical importance/significance?
- Has EGUS been over-diagnosed and/or over-treated?
- Is the etiology certain?
- And, most important:

  is EGUS a single ulcerative pathologic gastric condition?
Severe gastric ulceration in the squamous (non-glandular) portion of a horse’s stomach.

Glandular mucosa, near the pyloric opening, showing several linear ulcers.
A new study shows that EGUS is not a single existing gastric ulcerative condition.

BEVA Congress 2012: new research reported that Gastric Ulceration must be further differentiated in 2 syndromes.

- **EGGUS** (Equine *glandular* gastric ulcer syndrome)
- **ESGUS** (Equine *squamous* gastric ulcer syndrome)


Sykes BW and Hallowell GD
EGUS

- In a 24-plus horse study, horses were scoped and treated with conventional omeprazole at therapeutic dosage for 30 days.
- Upon completion of this study the following findings were noted...
### Omeprazole Effects at 4mg/Kg

<table>
<thead>
<tr>
<th></th>
<th>ESGUS</th>
<th>EGGUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improving</td>
<td>100%</td>
<td>57%</td>
</tr>
<tr>
<td>Healing</td>
<td>70%</td>
<td>41%</td>
</tr>
</tbody>
</table>

Thursday, November 1, 2012
Omeprazole Effects at 1.6mg/Kg

<table>
<thead>
<tr>
<th>ESGUS</th>
<th>EGGUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>62% Improving</td>
<td>26% Improving</td>
</tr>
<tr>
<td>50% Healing</td>
<td>9% Healing</td>
</tr>
</tbody>
</table>
EGUS

As a consequence, Glandular Gastric Ulceration and Squamous Gastric Ulceration cannot be represented as a single syndrome called EGUS.

- They may have completely different TREATMENT and ETIOLOGY.
- Further work is needed to determine whether the two syndromes share the same symptomology.
- It’s likely that all we know about EGUS refers only to ESGUS (squamous).
EGUS

Summary of causes known for EGUS before the new differentiation and findings (published etiology theories):

- NSAIDs (anti prostaglandins)
- Cortisol level (stress)
- Acidity (intermittent feeding)
- Hard feed (excessive carbohydrates)
- Bacteria (H Equorum) (i)
- Parasites (bots)
Consequences of Sykes’ work for the common equine practice:

1. 50% of the horses treated conventionally are not going to respond (omeprazole)
2. This helps to explain the large percentage of poor performing/training horses even after an expensive complete course of omeprazole
COLONIC ULCER SYNDROME
Colonic Ulcer Syndrome (Colitis)

- Not widely known
- Not widely studied
- Not widely diagnosed
- Poorly understood
Colonic Ulcer Syndrome (Colitis)

Summary of possible causes:
- NSAIDs (anti prostaglandins)
- Cortisol level (stress)
- Acidity (intermittent feeding)
- Bacteria
- Parasites
Bacteriology

What is “normal flora” in a healthy horse?

- It’s not the same in each horse
- There are thousands of bacterial species, but each horse has typically only a hundred or so, and those populations are unique.
- There are bacteria associated with colonic lesions (colitis)
Bacteriology

Analysis of Tissue Samples (via necropsy)
Each column is a bacterial species
A correlation was found between ulcerated and un-ulcerated tissue, distinguished by both quality and quantity.
Differential Diagnosis

Gastric and colonic ulcers

DIFFERENTIAL DIAGNOSIS
Gastric and Colonic Ulcers

Necropsy results, 2003 – 180 performance horses:

- Total Ulceration 97%
  - 87% Gastric Ulcers
  - 3% Colonic Ulcers
  - 63% Gastric & Colonic Ulcers
- 54% No Ulcers

Journal of Equine Veterinary Science, March 2005
Differential Diagnosis

- Differentiating foregut vs. hindgut allows for a more targeted treatment.
- Treatment protocols are different.
Differential Diagnosis

S.O.A.P.

Subjective
Objective
Assessment
Plan

Thursday, November 1, 2012
Subjective

Clinical Signs?
S.O.A.P.

Subjective:

- Poor body condition
- Partial anorexia/poor appetite
- Girthiness
- Attitude changes
- Poor performance/poor training
- Altered fecal consistency (diarrhea)
Subjective:
Clinical Signs
- Poor body condition
Subjective:
Clinical Signs
- Partial anorexia/poor appetite
Subjective:
Clinical Signs
- Girthiness
S.O.A.P.

Subjective:
Clinical Signs
- Girthiness
S.O.A.P.

Subjective:
Clinical Signs
- Attitude changes
S.O.A.P.

Subjective:
Clinical Signs

☐ Poor performance/poor training
S.O.A.P.

Subjective:
Clinical Signs

- Altered fecal consistency (diarrhea)
Objective

Measurable Data
S.O.A.P.

Objective:
1. 3-meter endoscopy
2. Rapid antibody test (lateral flow immunoassay)
3. pH Meter
S.O.A.P.

Objective:
Measurable data sources

- 3-meter endoscopy
S.O.A.P.

Objective:
Measurable data sources

- Rapid antibody test
  (lateral flow immunoassay)
S.O.A.P.

Objective:
Measurable data sources

☐ pH Meter
S.O.A.P.

Assessment:
DDX – Foregut
- EGUS (ESGUS and/or EGGUS) – stomach ulcers (squamous, glandular or both).
- Gastritis
- Neoplasia
- Parasitism
- Anterior enteritis
S.O.A.P.

Assessment:

DDX

Foregut or hindgut...or both?
Problems with differentiation

- Clinical signs of RDC can be similar to the signs of gastric ulceration.
- They may occur concomitantly.
- Our studies have shown that 60% of gastric ulcers are accompanied by colonic ulceration (colitis).
S.O.A.P.

Assessment:

DDX – Hindgut

- Colonic ulcers
- Colitis
- Intestinal traumas (rectal tears, traumatic events)
- Parasitism
- Neoplasia
Assessment:
DDX – Hindgut

- Intestinal inflammatory disease

- Infectious
  - Salmonellosis
  - Clostridiosis
  - Lawsonia
  - Etc.

- Non-infectious
  - Eosinophilia
  - Lymphocytic
  - Plasmacytic
  - Inflammatory bowel disease
  - Etc.
S.O.A.P.

Plan:
- Further investigation, if needed
- Treatment plan

Thursday, November 1, 2012
Gastric and colonic ulcers
TREATMENT
EGUS Treatment

Prior to ESGUS and EGGUS differentiation:
1) Pharmaceutical
2) Husbandry
3) Over-the-counter products (OTC)
EGUS Treatment

Prior to ESGUS and EGGUS differentiation:
Pharmaceuticals

- Proton pump inhibitors - omeprazole
  - Gastrogad, FDA approved Rx
  - Ulcergard (preventative?)
  - Compounded

- H2 Antagonist
  - Cimetidine, Ranitidine, Famotidine (all off label)
  - Are these well absorbed?
EGUS Treatment

Prior to ESGUS and EGGUS differentiation:
Pharmaceuticals

- Fenbendazole – Weak PPI (anthelmentic)
- Mucosal Protectant – Sucralfate
EGUS Treatment

Prior to ESGUS and EGGUS differentiation: Pharmaceuticals
EGUS Treatment

Prior to ESGUS and EGGUS differentiation:
Husbandry

- Turn out
- Multiple feedings (4 daily, at least)
- Dietary modification
  - Alfalfa (Brett Scott 2007)
EGUS (before ESGUS and EGGUS differentiation) Treatment

Husbandry
EGUS Treatment

Prior to ESGUS and EGGUS differentiation:
OTC Products
- Antacids
- Herbals
- Patented products
- “Gastric Aids” (supplements)
EGUS Treatment

Prior to ESGUS and EGGUS differentiation:
OTC Products

- Antacids
  - Neigh-Lox
  - Mylanta extra strength
  - Maalox

Temporary effect 30 to 90 minutes
EGUS Treatment

Prior to ESGUS and EGGUS differentiation:

OTC Products

- Herbals
  - Devil’s Claw
  - Exacerbate ulcerations?
- Licorice

Anecdotal value
EGUS Treatment

Prior to ESGUS and EGGUS differentiation:
Patented Products

- SUCCEED Digestive Conditioning Program

“The only patented product for the treatment and prevention of gastric and colonic ulcers.”
Colonic/Colitis Treatment

- May vary by diagnosis
  - Symptomatic vs. asymptomatic
  - Infectious vs. non-infectious
  - Febrile vs. afebrile
  - Immune-mediated
  - Parasitic
  - Neoplastic
Colonic/Colitis Treatment

1) Pharmaceutical
2) Husbandry
3) Over-the-counter products (OTC)
Colonic/Colitis Treatment

Pharmaceutical

- Antibiotics
- Immuno-modulators
- Anti-inflammatory
  - Steroidal
  - Non-steroidal
- Mucosal protectant – Sucralfate
- Psyllium
Colonic/Colitis Treatment

**Husbandry**
- Turn out
- Multiple feedings (4 daily, at least)
- Dietary modification
  - Alfalfa (Brett Scott 2007)
Colonic/Colitis Treatment

**Over-the-Counter (OTC)**

- Probiotics
- Patented products – SUCCEED
- “Digestive aids” (supplements)
Conclusions

**EGUS and Colonic Ulceration:**
- Lots of assumptions on EGUS: may be over-diagnosed and over-treated.
- In fact, EGUS is two separate syndromes – EGGUS and ESGUS
- Symptomatology of EGUS overlaps other conditions (i.e., hindgut)
- Thus, hindgut (ulcers, colitis) represents a third syndrome to consider in diagnosis of GI tract conditions
- Further studies needed for colonic pathologies and EGGUS (Equine Gastric Glandular Ulcerative Syndrome)