**Chronic diarrhea in dogs**

Peter S Chapman  
BVetMed DECvim-CA DACVIM MRCVS

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**Introduction**

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CEO, VETgirl

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**Introduction**

Garret Pachtinger,  
VMD, DACVECC  
COO, VETgirl

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New and improved video!

Measurement of Electrolytes

- In-house electrolyte monitoring is essential in emergency practice
- Bench-top chemistry analyzers (iStat, iRef3)
- Hand-held devices

New and improved video!

50 Shades of Haze
Canine Corneal Diseases (5 hrs)

VETgirl On-Demand Webinar: June 1, 2016

Shelby Reinertsen, MS, LAT, AADVT, DACVO

Active participation = no quiz
Watching video later, must complete quiz
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Email/contact with ANY questions
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Logistics: CE Certificates

- Type in questions
- Emailed to you 48 hours after the webinar
- Active participation = no quiz
- Watching video later, must complete quiz
  - ELITE members only
- Email/contact with ANY questions
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  - justine@vetgirlontherun.com
Introduction

Dr. Peter Chapman
BVetMed(Hons), DECVIM-CA, DACVIM,

Outline

- Differential diagnoses
  - Discussion of common causes
  - Protein-losing enteropathy
- Diagnostic plan
  - Minimum database
  - Further diagnostics
- Treatment
  - Focus on IBD

Differential Diagnoses

- Dietary
- Infectious
- SIBO/ARD
- Inflammatory bowel disease
- Neoplasia
- Systemic disease
- EPI

Differential diagnoses

- Infectious
- Food allergy/intolerance
- Systemic disease
- Foreign body/obstruction
- Inflammatory bowel disease
- Neoplasia

Differential diagnoses

- Inflammatory bowel disease
- Food allergy/intolerance
- Neoplasia
- Systemic disease
- Infectious
- Foreign body/obstruction
**Food-responsive diarrhea**

- Intolerance
- Allergy
- Mild/early inflammatory bowel disease
- Appetite good
- Weight stable
- Signs may be intermittent/waxing and waning

**Giardia update**

- Canine strains probably have very low zoonotic potential!

**Infectious**

- Giardia
- Parasites
- Bacterial
- Viral
- Fungal

**EPI**

<table>
<thead>
<tr>
<th>HIGH RISK</th>
<th>LOW RISK</th>
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<tbody>
<tr>
<td>GSD</td>
<td>Boxer</td>
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<tr>
<td>Chow</td>
<td>Labrador</td>
</tr>
<tr>
<td>CKCS</td>
<td>Golden Retriever</td>
</tr>
<tr>
<td>Rough Collie</td>
<td>Rottweiler</td>
</tr>
<tr>
<td></td>
<td>Weimaraner</td>
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</tbody>
</table>

**IBD**

- Inappropriate inflammatory response to normal antigens in GI tract
- Loss of tolerance
- Autoimmunity
Findings

- Hypoalbuminemia
- Hypoglobulinemia
- Hypocholesterolemia

Ddx

- Protein-losing nephropathy
- Liver failure
- Hypoadrenocorticism
- Neoplasia
- Exudative loss
- Inflammatory disease

Small intestinal bacterial overgrowth
Antibiotic responsive-diarrhea

PLE - Causes

- Acute gastroenteritis
- Inflammatory bowel disease
- Lymphangiectasia
- Lymphoma
- Infectious
- Gastrointestinal hemorrhage
- Exocrine pancreatic insufficiency

PLE - Complications

- Effusions
  - Pure transudate
  - SG < 1.018, protein < 2.5g/dL
  - Low cellularity
- Thrombosis
  - Especially distal aortic
- Hypocalcemia
  - Presumed vitamin D malabsorption
  - Check ionized calcium
**Diagnostic plan**

- Initial approach

**Minimum database**

- History
- Physical examination
- CBC/chemistry panel
- Fecal analysis

**Fecal analysis**

- Fecal flotation
- Giardia ELISA
- Helminth ELISA?
- PCR?

**Other diagnostics to consider with PLE**

- Urinalysis
- +/- Urine protein:creatinine ratio
- Resting cortisol
- +/- ACTH stimulation test
- Bile acids
- Ionized calcium
- Fecal alpha-1 antiprotease

**What next?**

**When is ultrasound most helpful?**

- Chronic diarrhea:
  - 15% cases - ultrasound examination vital or beneficial
  - 17% cases - not vital but gave additional information
  - 67% cases - ultrasonography did not affect diagnosis
- Ultrasound more likely to be higher yield if:
  - Weight loss
  - Abdominal or rectal mass

Leib et al. Journal of Veterinary Internal Medicine (2010), 24: 803-808
Ultrasound?
- Case selection can increase diagnostic utility
  - Weight loss
  - Mass
  - Age
  - Hypoalbuminemia
  - Ascites

If no systemic signs, consider treatment trials

Diet trial

Deworm
- 50mg/kg SID
- 3 days

Antibiotic trial
- Metronidazole
  - 10 mg/kg BID
- Tylosin 20mg/kg BID
  - 1/8 tsp ≈ 325 mg tylosin
  - Large dog = ¼ tsp BID

Fiber
- Psyllium husk
  - 1 tsp – 1 TBSP BID
Large vs Small

<table>
<thead>
<tr>
<th>Large intestine</th>
<th>Small intestine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tenesmus</td>
<td></td>
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<tr>
<td>Hematochezia</td>
<td></td>
</tr>
<tr>
<td>Decreased volume</td>
<td>Weight loss</td>
</tr>
<tr>
<td>Increased frequency</td>
<td></td>
</tr>
<tr>
<td>Urgency</td>
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</table>

TLI, folate, B12

- TLI - Check if
  - Severe weight loss
  - Polyphagia
- B12 - Check if
  - Weight loss
  - PLE
  - Suspicion of malabsorption
  - EPI
- Folate - Check if
  - ?

Ultrasound

Integration of ultrasound and endoscopy

- Focal vs diffuse changes?
- Upper vs lower GI?
- Lymphadenopathy?
- Mass?
- Other organ changes?

Indications for endoscopy

- Severe clinical signs
  - Weight loss, inappetance
  - PLE
- Failure to respond to treatment trials
- Ultrasound findings?
**Which ultrasound findings?**

- Severe thickening
- Lymphadenopathy
- Ascites
- Accessible mass
- Ulceration

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**Endoscopy vs Surgery**

<table>
<thead>
<tr>
<th>Endoscopy</th>
<th>Surgery</th>
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<tbody>
<tr>
<td>Access limited</td>
<td>Can biopsy all regions</td>
</tr>
<tr>
<td>Superficial mucosal biopsies</td>
<td>Full thickness biopsies</td>
</tr>
<tr>
<td>Can evaluate mucosal lesions</td>
<td>Can only evaluate serosal surface</td>
</tr>
<tr>
<td>GI tract only</td>
<td>Full abdominal exploration</td>
</tr>
<tr>
<td>Low morbidity</td>
<td>Risk of dehiscence</td>
</tr>
<tr>
<td>Low invasiveness</td>
<td>More invasive</td>
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**Inflammatory bowel disease**

- Chronic gastrointestinal signs
- Biopsy evidence of mucosal inflammation
- No evidence of other underlying disease
- Inadequate response to therapeutic trials
- Clinical response to immunosuppressives

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**Treatment of IBD**
Treatment

Prednisone vs Prednisolone

Budesonide

- Delayed release in ileum/colon
- Metabolized by first pass metabolism
- Compounded?

Second agents

- Metronidazole
  - 10 mg/kg BID
- Azathioprine
  - 2 mg/kg SID 2 weeks then EOD
- Cyclosporine
  - 5 mg/kg BID
- Chlorambucil
  - 4 to 6 mg/ m² every 24 hours
- Sulfasalazine
  - 25 mg/kg TID

B12 replacement

<table>
<thead>
<tr>
<th>Weight</th>
<th>Dose</th>
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<tbody>
<tr>
<td>&lt;10kg</td>
<td>250μg</td>
</tr>
<tr>
<td>10-20kg</td>
<td>500μg</td>
</tr>
<tr>
<td>&gt;20kg</td>
<td>1000μg</td>
</tr>
</tbody>
</table>

- Weekly for 6 doses then monthly
- Recheck after 3-6 monthly doses
- If low then continue lifelong
- If high then try discontinuing and recheck
- Try oral?

Other treatments for PLE

- Antithrombotics
  - Aspirin 0.5mg/kg SID
  - Clopidogrel 1mg/kg SID
- Calcitriol
  - 20-30 μg/kg per day for 2-3 days then 5-15 μg/kg per day
- Diuretics
  - Limited utility

Questions?