

#### Indications for GI Ultrasound

- •Anorexia, weight loss, dehydration
- •Vomiting and/or Diarrhea
- •Abdominal pain (acute abdomen)
- •Highly regenerative or iron deficiency anemia
- Patient deterioration 3-5 days after GI surgery
   Evaluate for perforation or peritonitis which might require prompt surgical intervention (clean your gutters)
- •Patient inappetance after GI surgery
- •Distinguish ileus from complication requiring surgery



large abdominal masses, dependent stomach/colon



















Image Views - Gut	
Long Axis Views (5-6)	11211
13. Stomach – fundus, body (transverse) and pylorus	and a
4. Duodenum - sagittal	
5. Ileum/Jejunum	l
(6.) (Abnormal Colon)	Ŀ
Short Axis Views (5-6)	٢
13. Stomach – fundus, body (sagittal) and pylorus	
4. Duodenum - transverse	2
5. Ileum/Jejunum	-
(6.) (Abnormal Colon)	9











































#### Goals – GI Ultrasound

- •Find and sample ascites in the acute abdomen •Is surgery indicated (fluid analysis chart) ? •More info in the ascites section (local or general)
- •Assess for perforation (more info in ascites section)
- •Assess for obstruction, foreign body or intussusception •Target patterns in the bowel
- Assess motility (count peristaltic waves for 3 minutes)
   Normal stomach is 3-6 per minute
   Normal intestine is 1-3 per minute



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- Assess motility (count peristaltic waves for 3 minute
- •Assess intestinal wall structure (layers)

#### Tips – GI Ultrasound

- •pylorus & descending duodenum are thickest•Pay attention to localized pain as you scan
- •Redirect the probe to painful areas or abnormalities on palpation
- •Assess long and short axis of gut at the problem area •If you find a suspicious area, follow gut orad and aborad as far as is possible

Tips – GI Ulfrasound				
Dogs	Dogs	Cats		
<20 kg	>20 kg			
3-5mm	3-5mm	3-4.5mm		
3-4mm	3-5mm	1-3mm		
3-5mm	4-5mm	2-4mm		
2-5mm	3-6mm	1.5-3.5mm		
		2.5-3.5mm		
2-4mm	3-5mm	1.5-3.5mm		
2-3mm	2-4mm	1-2.5mm		
	Dogs 20 kg 3-5mm 3-4mm 3-5mm 2-5mm 2-4mm 2-3mm	Dogy         Hots           420 kg         320 kg           3-5mm         3-5mm           3-4mm         3-5mm           3-5mm         4-5mm           2-5mm         3-6mm           2-4mm         3-5mm           2-3mm         2-4mm		



































#### Tips – GI Ultrasound

#### Ulceration and Perforation

- Localized thickening with a crater
- Indications of perforation:
- Dissection of the wall with gasHyperechoic fat locally (omentum)
- Localized or generalized ascites
- pneumoperitoneum









#### Pitfalls – GI Ultrasound

•Thorough interrogation of entire GI tract may not be possible, even when the animal is fasted

- •Gas can interfere •GI tract is mobile, so it's impossible to follow from one end
- to the other
- •And orientation can be from any angle
- Brachycephalics can be difficult due to aerophagia
  Deep chested dogs can be difficult because so much is under the costal arch (especially if liver is small)



















Pitfalls – GI Ultrasound

# •If you're not sure if the gut you are looking at is abnormal, compare to gut in other locations

•Four strong indicators of intestinal obstruction:

- 1. Segmental fluid distension of lumen
- 2. Hypomotility and hypermotility in the same dog
- 3. Non-uniform intestinal peristalsis
- 4. Hypermotility without luminal content progression

•Presence of two: 100% sensitivity, 98.5% specificity •*Caveat:* 2&4 only can lead to false positives (motility disorder)



## Summary

•Forms: •PVM - Complete Abdominal US Exam •(.pdf and <u>.doc</u>) •Vet Handout: <u>PVM Abdomen Hints</u>





Soren Boysen & Jennifer Gambino Chapter 7: Focused or COAST<sup>3</sup> - Gastrointestinal and Pancreas Focused Ultrasound Techniques for the Small Animal Practitioner Editor Greg Lisciandro

John Mattoon, Danelle Auld, Thomas Nyland Chapter 4: Abdominal Ultrasound Scanning Techniques Small Animal Diagnostic Ultrasound Editors Nyland and Mattoon - 3<sup>rd</sup> Edition 2014





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