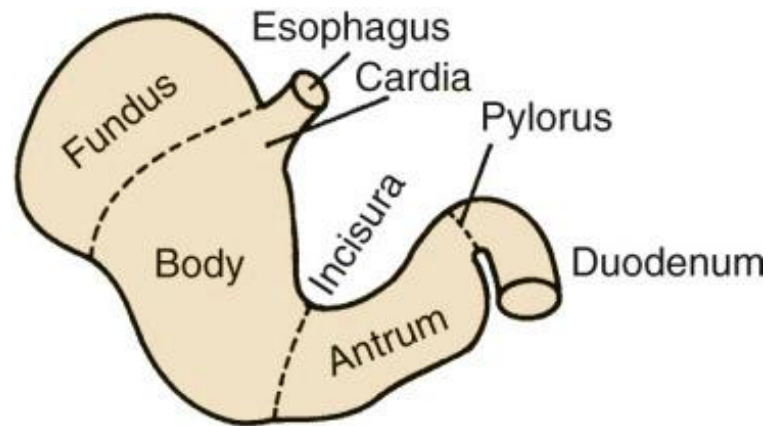
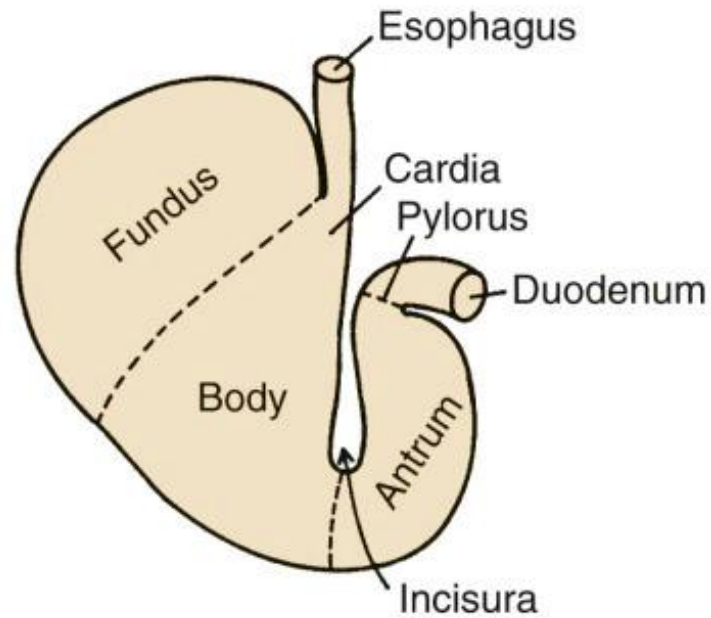


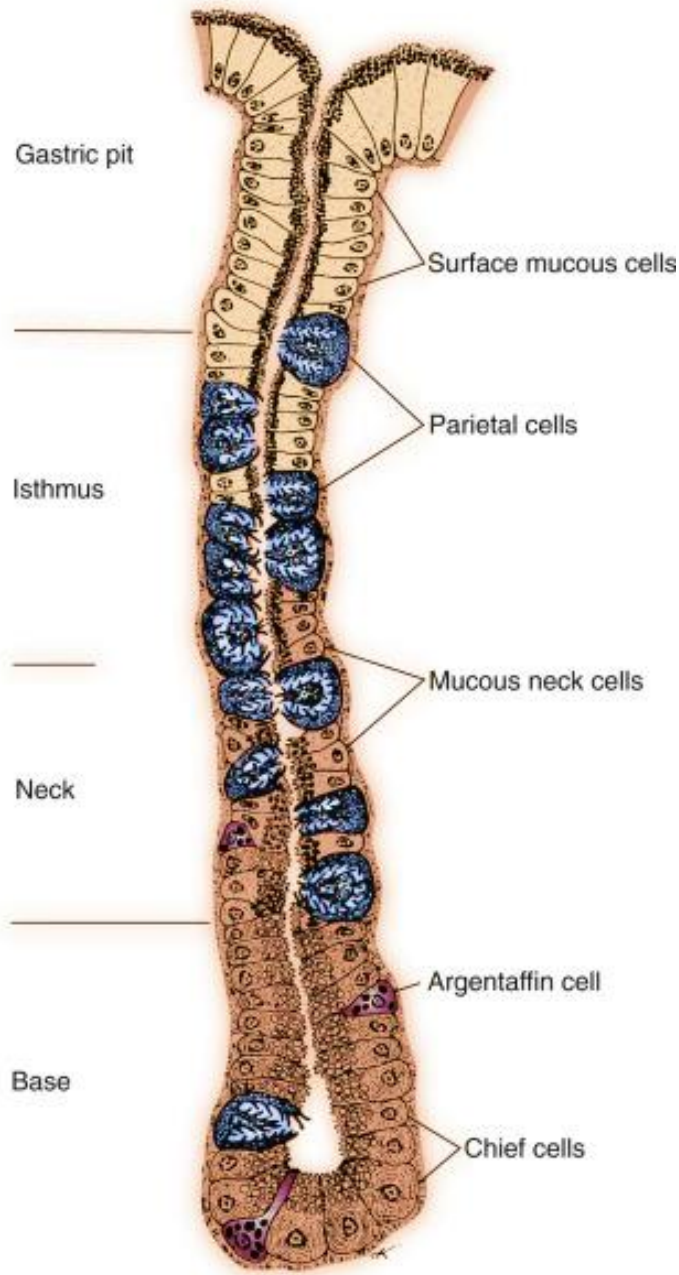
# Malattie dello stomaco



Empty stomach



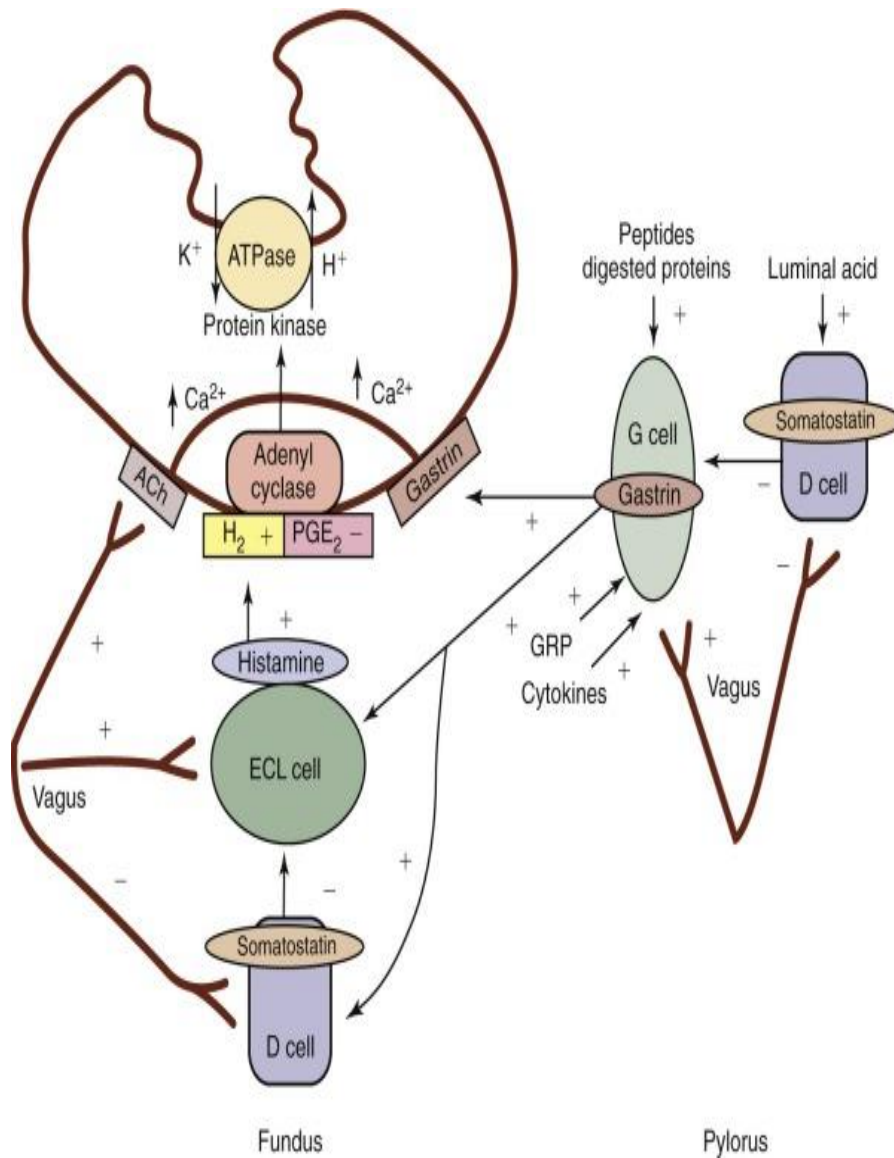
Full stomach



The mucosa of the body contains **mucous neck cells** (pepsinogen A, gastric lipase), **parietal cells** (acid, pepsinogen A, intrinsic factor), and **chief cells** (pepsinogen A).

**Neuroendocrine cells** involved with the secretion of gastric acid are interspersed between the glands. A) enterochromaffin-like and somatostatin-producing cells in the fundus

B) gastrin and somatostatin-producing cells in the antrum  
Localized small aggregates of **lymphoid tissues** are observed at the base of the gastric glands



Luminal peptides, digested protein, acetylcholine, and gastrin-releasing peptide stimulate gastrin secretion from G cells and effect histamine release from enterochromaffin-like cells

**Histamine** release from mast cells and binding of acetylcholine and gastrin to parietal cells also contribute to secretion.

**Somatostatin** released in response to gastric pH levels **below 3** decreases gastrin, histamine, and acid secretion.

# Gastric mucosal Barrier

## Mucosal defense

### • 3 level barrier:

#### 1. Pre-epithelial

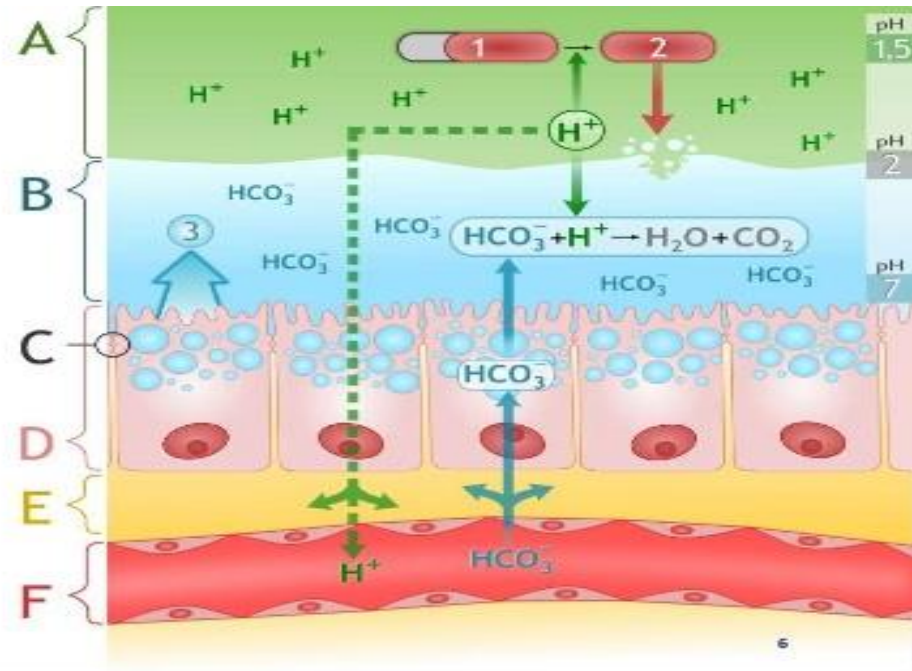
Physicochemical, mucus-HCO<sub>3</sub>-phospholipid layer

#### 2. Epithelial

#### 3. Subepithelial

Microvascular system, HCO<sub>3</sub>, micronutrients, oxygen

2015-04-07



The GMB comprises **tightly opposed epithelial cells** coated with a layer of bicarbonate-rich mucus and an abundant **mucosal blood supply** that delivers bicarbonate, oxygen, and nutrients.

Local production of prostaglandins (PGE<sub>2</sub>) is important in modulating blood flow, bicarbonate secretion, and epithelial cell renewal.

When damage occurs, epithelial cells rapidly migrate over superficial mucosal defects aided by the local production of growth factors such as EGF (epidermal growth factor).

# Motilità

- Pressione differente tra stomaco e duodeno
- Liquidi/solidi, volume
- Densità calorica: alimento digeribile e  $< 2\text{mm}$  → duodeno
- Duodeno: osmocettori, chemiocettori
- Carboidrati, aminoacidi, GRASSI
- CCK → acidi grassi, aminoacidi (triptofano) → SLOW
- Grosso pasto indigeribile → espulso dallo stomaco velocemente (motilina, fase III complesso di migrazione)

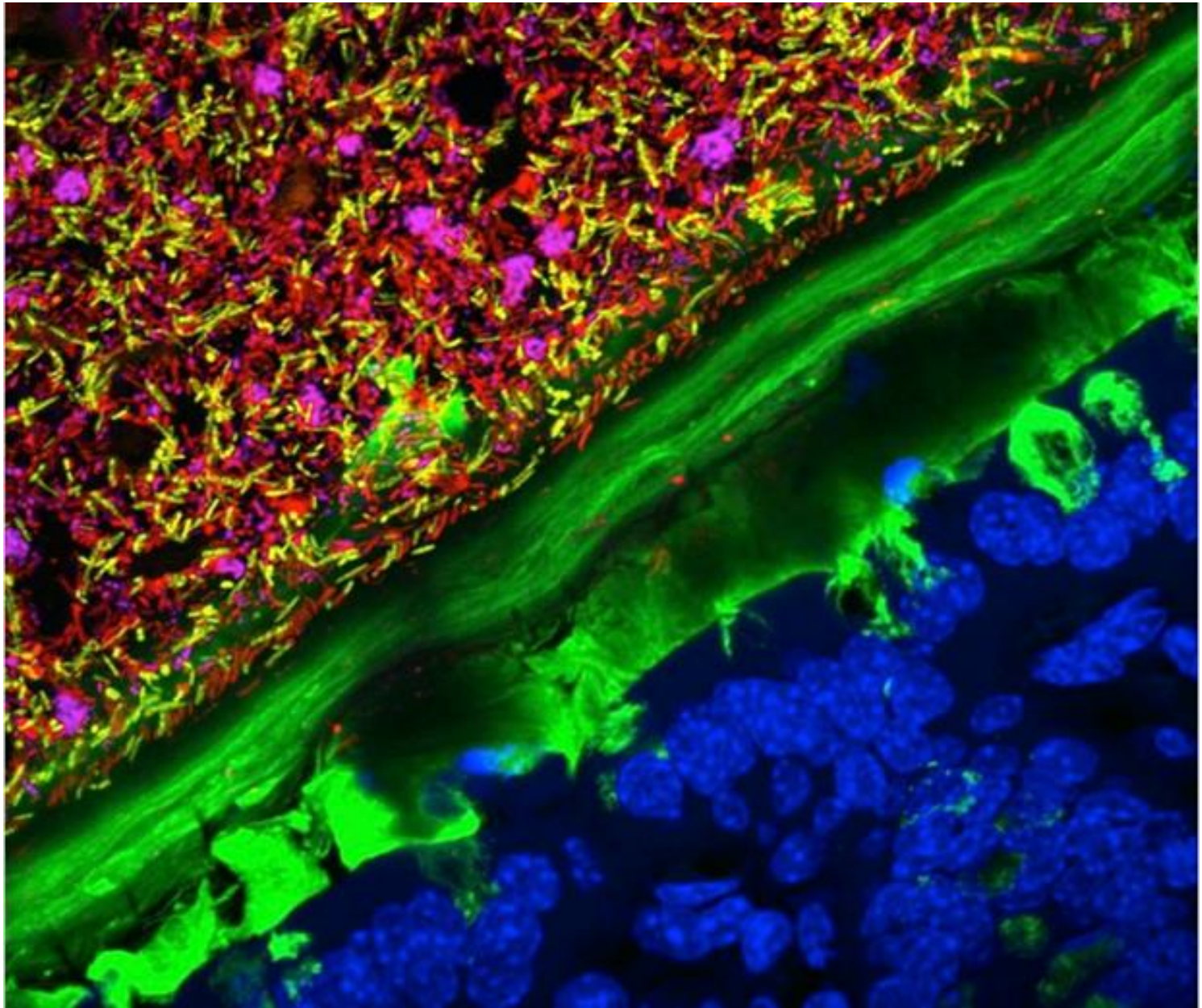
# Flora gastrica

Aerobi – anaerobi

- *Helicobacter pilori* (ureasi)
- *Proteus sp*
- *Streptococcus sp*
- *Lactobacillus sp*
- *Escherichia coli*

• **SECREZIONE ACIDA**





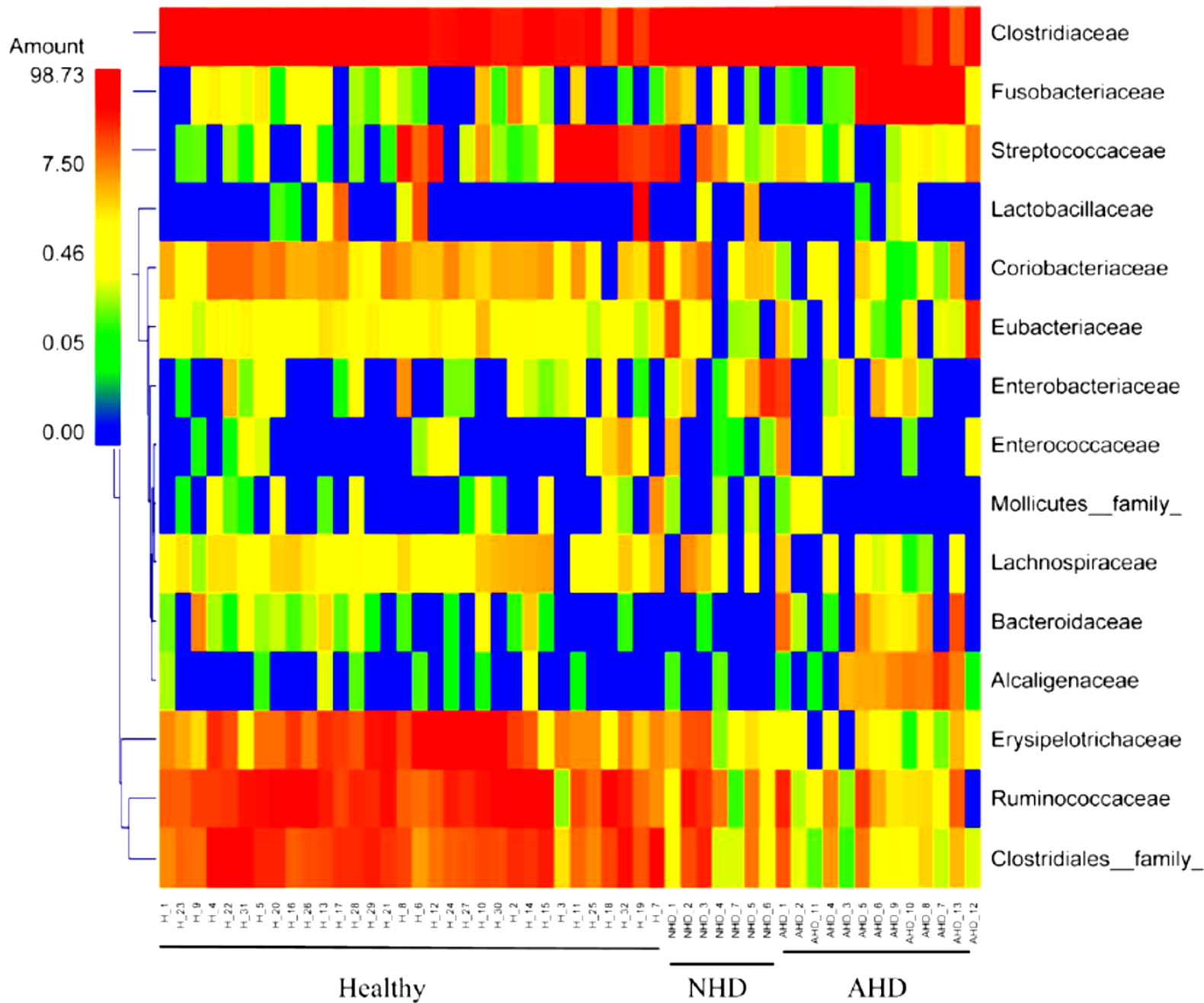


# The Fecal Microbiome in Dogs with Acute Diarrhea and Idiopathic Inflammatory Bowel Disease

Jan S. Suchodolski<sup>1\*</sup>, Melissa E. Markel<sup>1</sup>, Jose F. Garcia-Mazcorro<sup>2</sup>, Stefan Unterer<sup>3</sup>, Romy M. Heilmann<sup>1</sup>, Scot E. Dowd<sup>4</sup>, Priyanka Kachroo<sup>5</sup>, Ivan Ivanov<sup>5</sup>, Yasushi Minamoto<sup>1</sup>, Enricka M. Dillman<sup>5</sup>, Jörg M. Steiner<sup>1</sup>, Audrey K. Cook<sup>5</sup>, Linda Toresson<sup>6</sup>

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**Conclusions:** Results of this study revealed a bacterial dysbiosis in fecal samples of dogs with various GI disorders. The observed changes in the microbiome differed between acute and chronic disease states. The bacterial groups that were commonly decreased during diarrhea are considered to be important short-chain fatty acid producers and may be important for canine intestinal health. Future studies should correlate these observed phylogenetic differences with functional changes in the intestinal microbiome of dogs with defined disease phenotypes.



# Malattie dello stomaco

Sindrome clinica	Segni clinici
<b>Gastrite acuta</b>	Vomito ad insorgenza acuta
<b>Erosione/Ulcera Gastrica</b>	Vomito, ematemesi, melena, ± anemia
<b>Dilatazione gastrica/volvolo</b>	Conati non produttivi, distensione addominale, tachycardia
<b>Gastrite cronica</b>	Vomito cronico (cibo, bile)
<b>Ritardato svuotamento gastrico</b>	Vomito acuto o cronico a più di 8-10 ore dal
<b>Neoplasia</b>	Vomito cronico, perdita di peso, ± anemia

Danese, Setter Irlandese... (dilatazione gastrica)

Basenji, razze di piccola taglia barchicefale ( Shitzu) (gastropatia ipertrofica)

Lundehund (gastropatia atrofica)

# • VOMITO

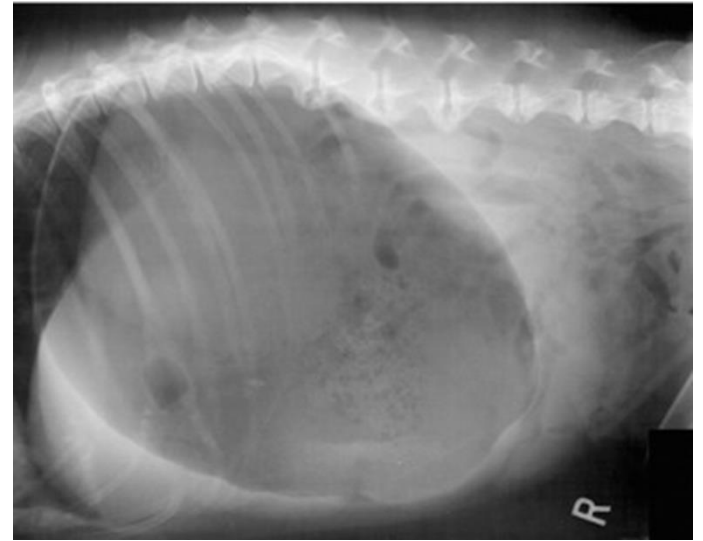
- Caratteristiche del vomito
- Anamnesi ambientale
- Condizioni cliniche: dilatazione addominale
- Pu/PD
- Perdita di peso
- Diarrea
- Tosse, starnuti
- Intolleranza all'esercizio

# Test clinico-patologici

- Emocromocitometrico
- Biochimico
- Esame delle urine
  
- Malattia renale
- Ipoadenocorticismo
- Ipertiroidismo
- Malattia epatica
  
- Gastroenteriti/enteriti infettive (Salmonella, Giardia, Campilobacter, Parvovirus)

# Diagnostica per immagini

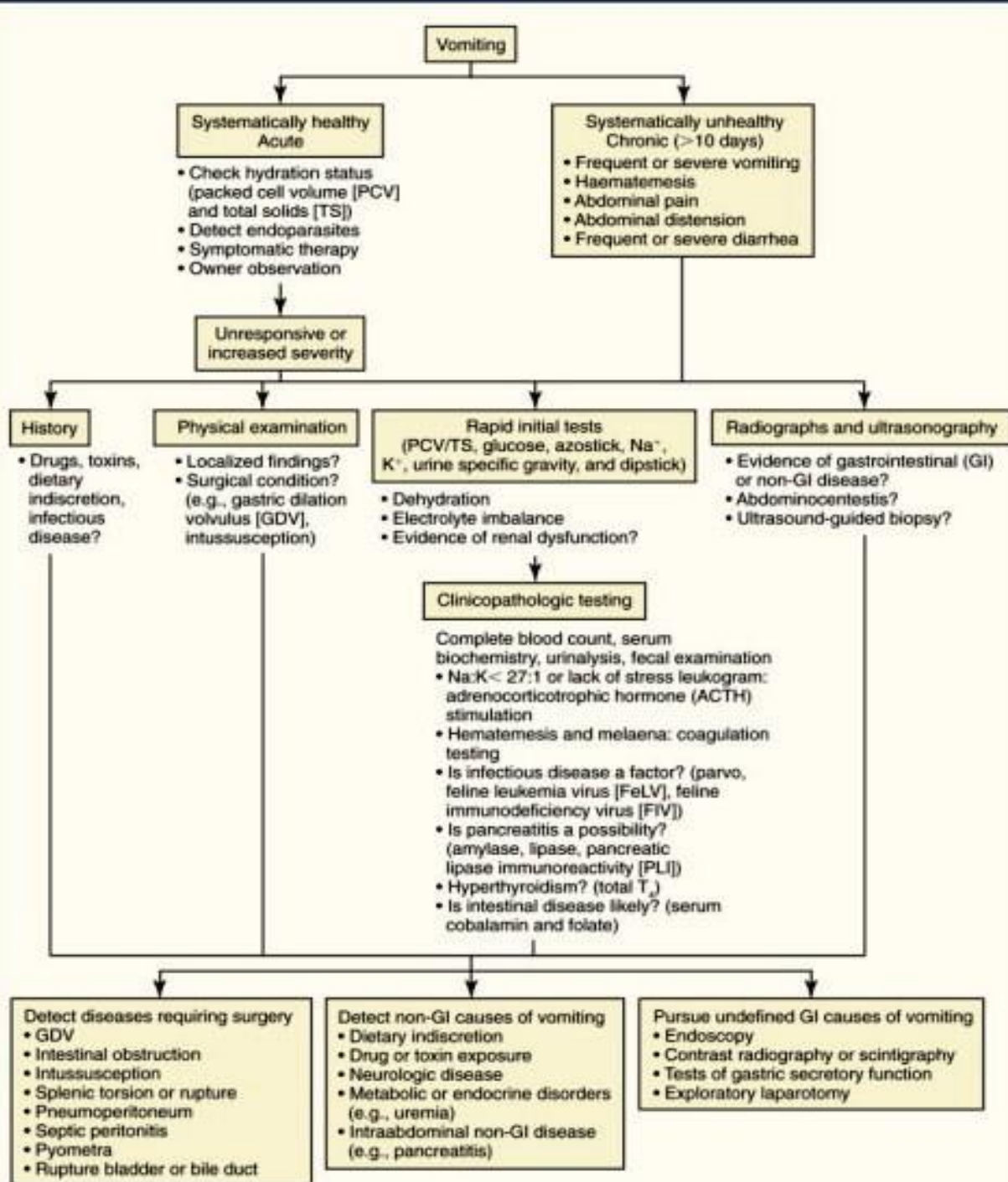
- Radiografia
- Endoscopia
- Valutazione dello svuotamento gastrico
- Test per la secrezione gastrica



GASTRIC HALF METHOD	SPECIES	TEST MEAL	N	EMPTYING TIME (T <sub>1/2</sub> )*
Radioscintigraphy	Dog	Eggs, starch + glucose	27	66 min (median), 45-227 min (95% CI)
		Beef baby food + kibble	6	4.9 ± 1.96 hours (mean ± sd)
		Liver	4	About 2 hr
		Canned dog food + egg	6 (18 tests)	172 ± 17 min (mean ± se)
		Canned dog food + egg	7 (14 tests)	285 ± 34 min (mean ± sd); 294 ± 39 min (mean ± sd)
		Canned dog food	6	77 min (mean)
	Cat	Dry cat food	10	2.47 ± 0.71 hr (mean ± sd)
		Liver + cream	6 (15 tests)	163 ± 11 min (mean ± se)
		Canned cat food	20	2.69 ± 0.25 hr (mean ± sd)
		Dry cat food	20	3.86 ± 0.24 hr (mean ± sd)
		Eggs	10	330 min (median), 210-769 min (range)

Radiography		Dry dog food + radioopaque solids	10	3.5 hr (median), 1-6 hr (range)
		Canned dog food + egg + BIPS	6 (18 tests)	Small BIPS = 416 ± 81 min (mean ± se)
	Dog	Canned dog food + BIPS	20	Small BIPS = 6.05 ± 2.99 hr (mean ± sd)
				Large BIPS = 7.11 ± 3.60 hr (mean ± sd)
		Kibble + BIPS	8	Small BIPS = 8.29 ± 1.62 hr (70% of dogs ± se)
				Large BIPS = 29.21 ± 18.31 hr (70% of dogs ± se)
		Kibble + liquid barium	9 (27 tests)	Total gastric emptying time = 7-15 hr (range)
		Kibble + liquid barium	4	Total gastric emptying time = 7.6 ± 1.98 hr (mean ± se)
	Cat	Canned cat food + BIPS	10	Small BIPS = 6.43 ± 2.59 hr (mean ± sd)
				Large BIPS = 7.49 ± 4.09 hr (mean ± sd)
		Canned cat food + BIPS	6	Small BIPS = 7.7 hr (median), 3.5-10.9 hr (range)
				Large BIPS = 8.1 hr (median), 5-19.6 hr (range)
		Canned cat food + BIPS	10	Small BIPS = 5.36 hr (median)
				Large BIPS = 6.31 hr (median)
		Cat food + liquid barium	8	Gastric emptying time = 11.6 ± 0.9 hr (mean ± sd)
Gastric emptying	Cat	Canned cat food	6	Peak <sup>13</sup> C-excretion = 56.7 ± 9.8 min (mean ± sd)
Breath test	Dog	Bread, egg + margarine	6 (18 tests)	3.43 ± 0.50 hr (mean ± sd)





# Gastrite Acuta

## Cause di Gastrite Acuta

Indiscrezione alimentare o intolleranza alimentare (allergica, non allergica)

Corpi estranei (ossa, giocattoli, tricobezoari))

Farmaci e tossine (FANS, corticosteroidi, metallici pesanti, antibiotici, piante, detersivi, candeggina)

Malattie sistemiche (uremia, malattie epatiche, ipoadrenocorticism)

Parassiti (*Ollulanus*, *Physaloptera* spp.)

Batteri (tossine batteriche, *Helicobacter*)

*Virus*

# Erosione Gastrica/ Ulcera

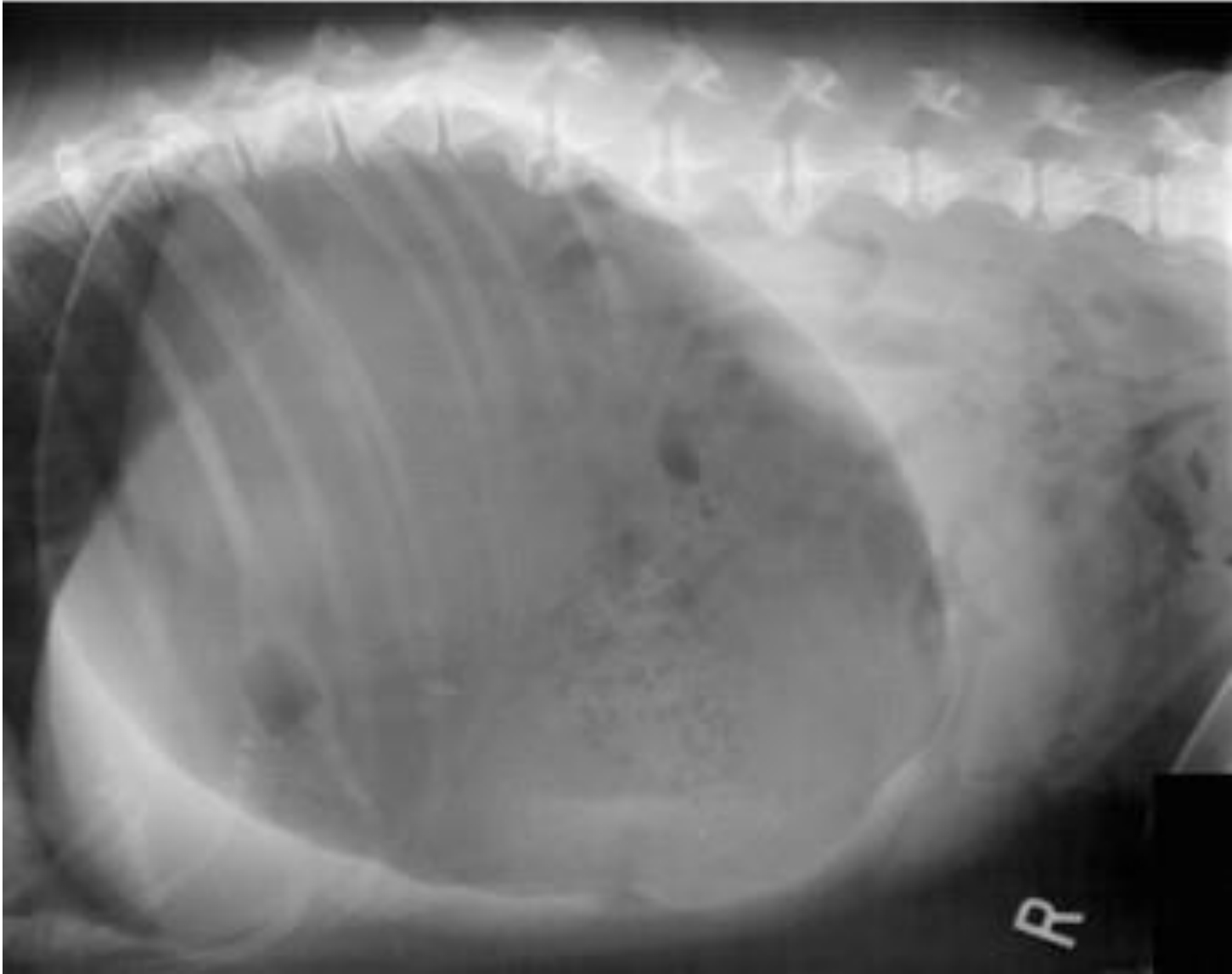
<b>Problema gastrico</b>	<b>Malattia correlata</b>
Metabolic/Endocrine	Ipoadrenocorticismo, uremia, M. epatiche, mastocitosi, DIC, ipergastrinemia, APUD oma
Infiammatoria	Gastrite
Neoplastica	Leiomioma, adenocarcinoma, limfosarcoma
Farmaco-indotta	FANS, FAAS
Ipotensiva	Shock, sepsis
Idiopatica	Stress, chirurgia spinale, esercizio intenso (cani da slitta)

# Erosione Gastrica/ Ulcera

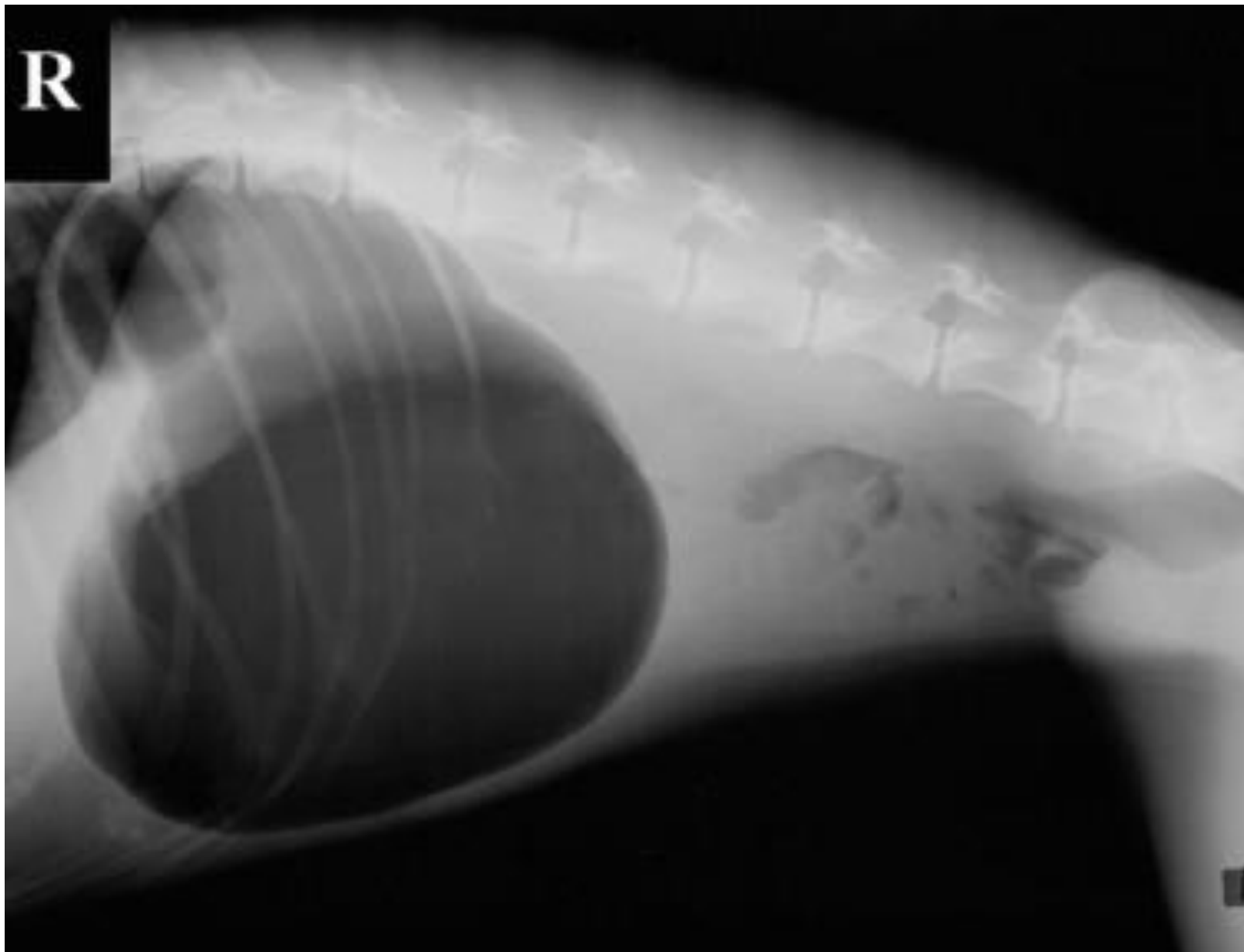
- Vomito
- Ematemesi
- Melena
  
- Mucose pallide
- Dolore addominale
- Debolezza
- Inappetenza
- Ipersalivazione
  
- Emocromocitometrico (anemia ipocromica, non rigenerativa, eosinofilia, leucocitosi neutrofilica left-shift)
- Biochimico (alterazioni elettrolitiche, coinvolgimento multi-organico)

# Dilatazione gastrica/volvolo

- Akita, Blood Hound, Collie, Danese, Setter Irlandese, Irish Wolfhound, Rottweiler, Sen Bernardo
- Dieta e abitudini alimentari
- Areofagia
- Disturbi della motilità



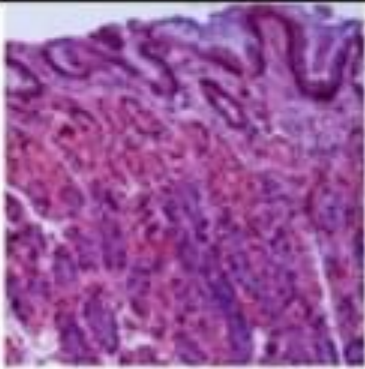
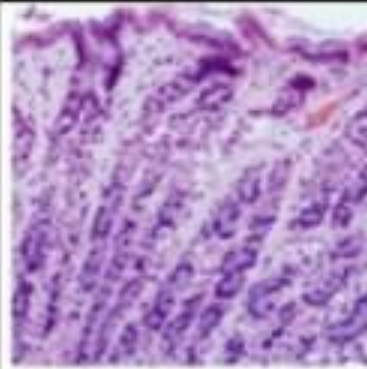
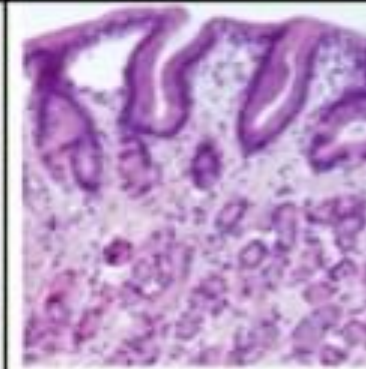
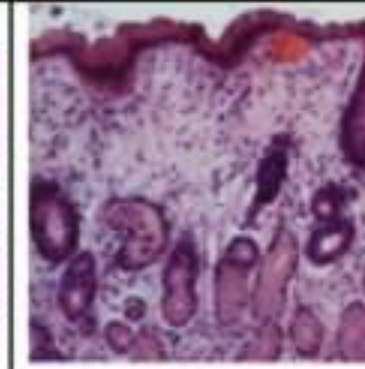
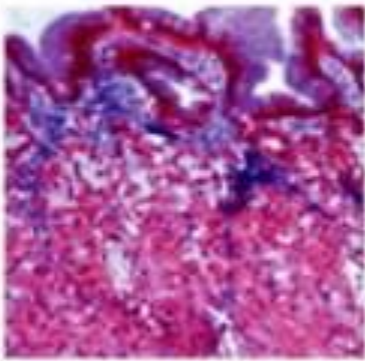
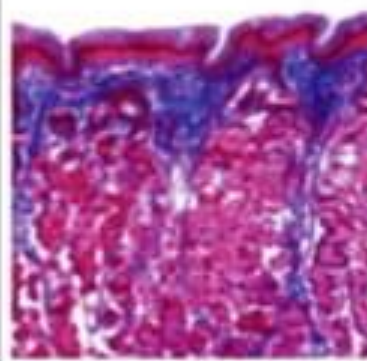
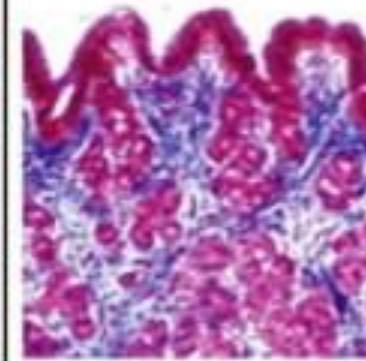
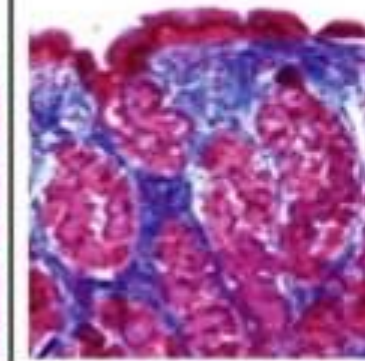
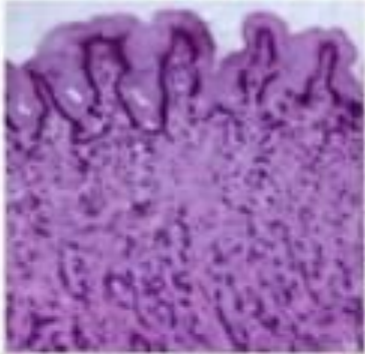
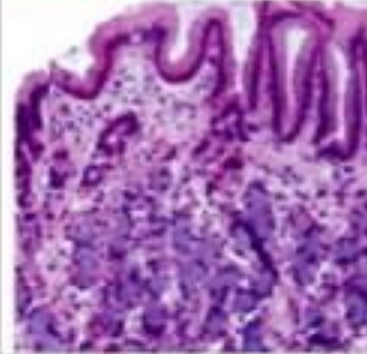
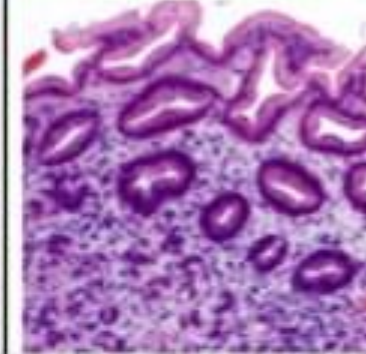
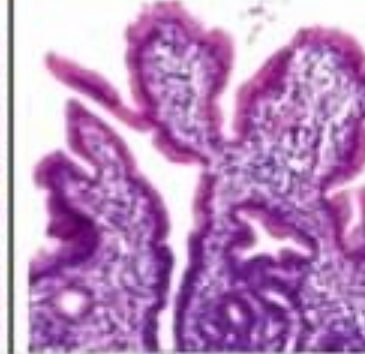
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# Gastrite Cronica

- Tipologia di infiltrato
- Eosinofilico
- Linfo-plasmacellulare
- Granulomatoso
- Linfoide-follicolare
- Presenza di anomalità strutturali
- Atrofia
- Ipertrofia
- Fibrosi
- Edema
- Ulcera
- metaplasia



	0	1	2	3
Atrophy				
Fibrosis				
Cellular infiltrate				

# Ritardo nello svuotamento gastrico

## cause

### **Ostruzione al normale flusso**

**Stenosi congenite**

**Corpi estranei**

**Ipertrofia della mucosa pilorica**

**Granuloma**

**Polipi**

**Neoplasia**

**Masse extragastriche**

## **Difetto alla propulsione**

### **Malattie gastriche**

**Gastriti**

**Ulcere gastriche**

**Neoplasie gastriche**

**Gastroenteriti**

**Peritoniti**

**Pancreatite**

**Cause Metaboliche (IpoKalemia, Ipocalcemia, Ipoadrenocorticismo)**

**Neurologica - Inibizione (Trauma, dolore, stress)**

**Disautonomia**

**Dilatazione gastrica/volvolo**

**Chirurgia**

**Farmaci**

**Idiopatica**