

Gastroesophageal Reflux Disease

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95-11111

Mechanisms of Defense Against Damage from Reflux

- Saliva
- Clearance
- Lower Esophageal Sphincter function
- Augmentation of the diaphragms at level of the lower esophageal sphincter
- Normal gastric emptying

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Mechanism of Defense - Saliva

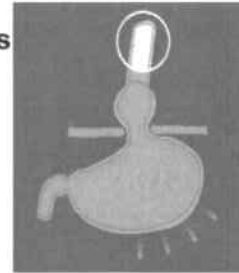
- Nature's antacid – pH 7
- Swallow 1,000 – 10,000 times a day
- Do not swallow when asleep
- Diseases with reduced salivary secretion- Sjogren's syndrome, radiation tx for Head and Neck cancer
- Reduced secretion from esophageal submucosal glands – e.g. radiation tx to chest for Hodgkins

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Mechanism of Defense Effective Esophageal Clearance

Ineffective peristalsis

- Achalasia
- Scleroderma



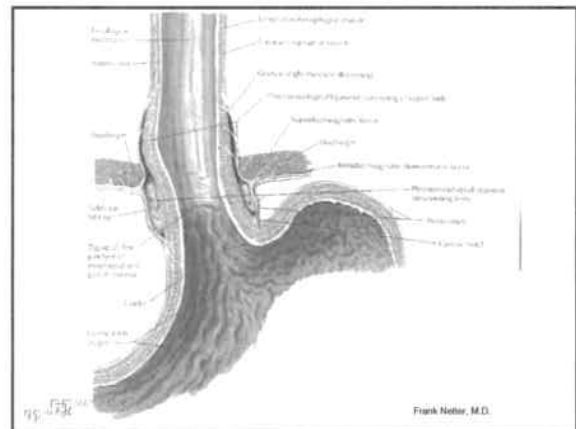
Courtesy of Joseph A. Murray, M.D.

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Mechanism of Defense Effective Esophageal Clearance Elevation of the Head of the Bed



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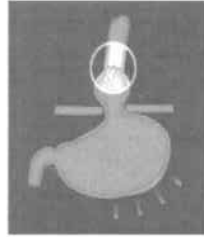
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Lower Esophageal Sphincter

Two types of LES dysfunction

- Reduction in basal LES pressure/tone
- Inappropriate and prolonged transient lower esophageal sphincter relaxations (TLESRs)



Courtesy of Joseph A. Murray, M.D.

Medications that may impair LES function

- β -adrenergic agonists
- Theophylline
- Anticholinergics
- Tricyclic antidepressants
- Progesterone
- α -adrenergic antagonists
- Diazepam
- Calcium channel blockers

Courtesy of Joseph A. Murray, M.D.

Which foodstuff does not cause reflux?

- 1) Beer
- 2) Chocolate
- 3) Coffee
- 4) Orange juice
- 5) Pizza

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Dietary factors that aggravate GERD sx

Direct

- Caffeine
 - coffee
 - tea
 - soda
 - chocolate
- Alcohol
- Tobacco
- Mint

Indirect

- Fatty foods
- Gum

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Indirect

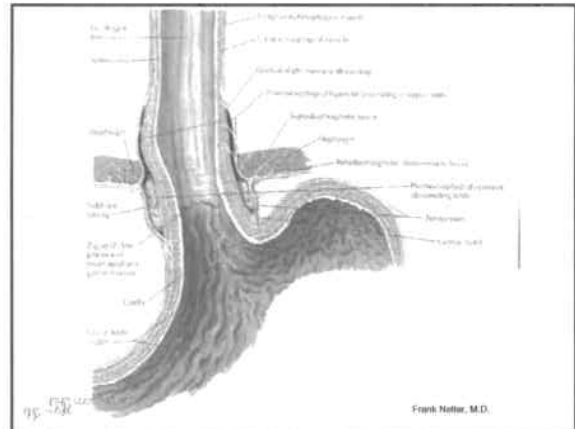
- Fatty foods
- Gum

NOTE: Spices are not on this list

**Mechanism of Defense
Lower Esophageal Sphincter
Augmentation by the Diaphragms**

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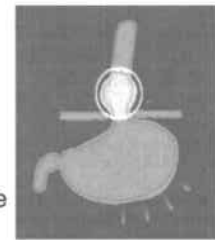
Hiatal Hernia



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Hiatal Hernia

- Common - 30% US adults
- May compromise LES function
 - Increased TLESRs
 - Loss of crural augmentation
- May trap a reservoir of gastric contents above the diaphragm, increasing reflux



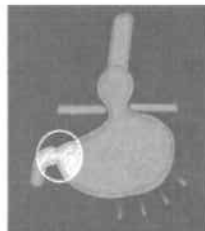
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**Mechanism of Defense
Normal Gastric Emptying**

**Liquids – 1 hour to
leave the stomach**

Solids – 4 hours



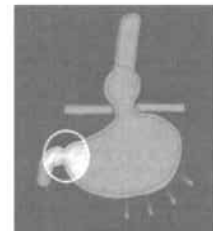
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Courtesy of Joseph A. Murray, M.D.

Delayed Gastric Emptying

**May increase volume of
gastric contents
available for reflux into
the esophagus**

- Gastroparesis – e.g. Diabetics
- Outlet obstruction – e.g. Peptic ulcer disease

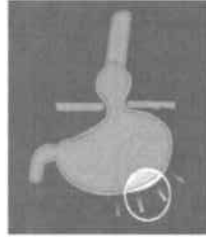


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Increased intra-abdominal pressure exacerbates reflux

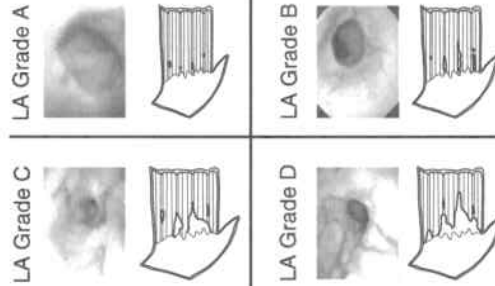
- Pregnancy
- Obesity
- Bending
- Straining
- Coughing
- Tight clothes
- Sleep apnea*



*negative intra-thoracic pressure

Courtesy of Joseph A. Murray, M.D.

Erosive Reflux Esophagitis Los Angeles Classification



Courtesy of AstraZeneca

Proton Pump Inhibitors

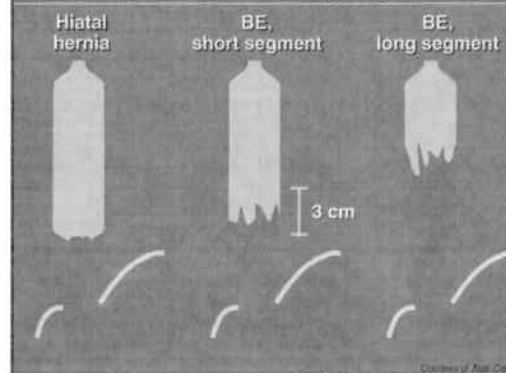
- Omeprazole
 - Generic omeprazole 20 mg 2 tablets twice per day
 - Prilosec (purple capsule with microbeads) 40 mg 1/day
 - Omeprazole/sodium bicarbonate (Zegerid) 40 mg 1/day*
 - Esomeprazole (Nexium) 40 mg 1/day
- Non-omeprazole
 - Dexlansoprazole (Kapidex) 60 mg 1/day**
 - Lansoprazole (Prevacid) 30 mg 1/day
 - Pantoprazole (Protonix) 40 mg 1/day
 - Rabeprazole (Aciphex) 20 mg 1/day

*advantage: can be taken anytime – even at bedtime

**advantage: bimodal distribution

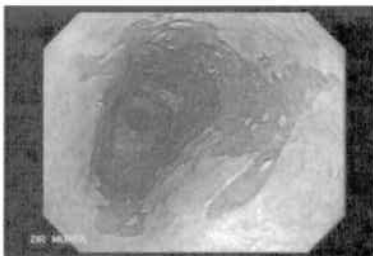
Courtesy of AstraZeneca

Barrett's Esophagus



Courtesy of Alan Coenen, M.D.

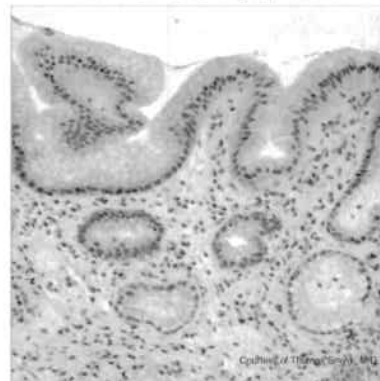
Barrett's Esophagus



Courtesy of AstraZeneca

Courtesy of Joseph Murray, M.D.

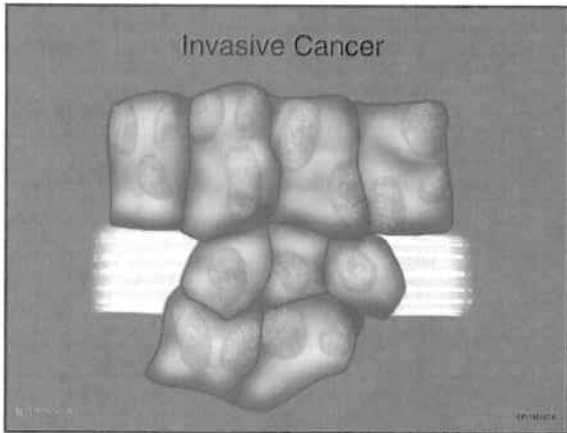
Low Grade Dysplasia



Courtesy of AstraZeneca

Courtesy of Thomas Combs, M.D.

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Barrett's Esophagus Early Detection of Carcinoma

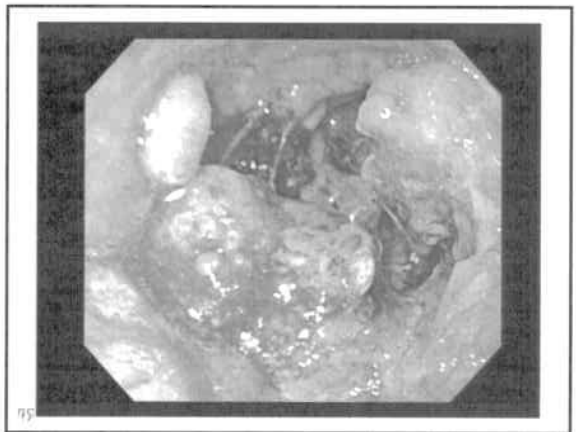
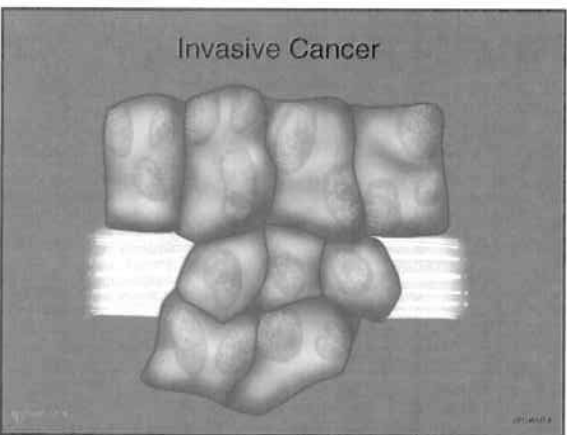
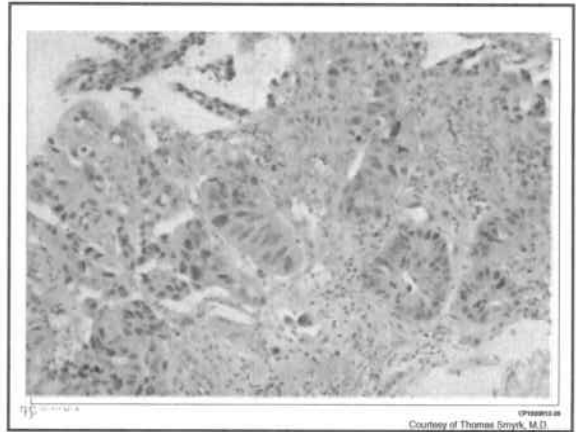
- Any unusual area, ulcer or nodule
- 4-quadrant biopsies every 2 cm

Courtesy of Alan Chaitman, M.D.

No Dysplasia

<p><u>Documentation</u></p> <p>Two EGD's with bx <u>within</u> 1 year</p>	<p><u>Follow-Up</u></p> <p>EGD every 3 years</p>
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Wang K, AJG 2008;103(3):788-97.



Low Grade Dysplasia

Consider adjusting PPI therapy

Documentation

- Expert pathologist confirmation
- Next EGD within 6 months

Follow-Up

EGD every year until
no dysplasia x 2