Heartburn, Acid Reflux, GERD
Preventing the Progression to Esophageal Cancer

John C. Lipham, MD
Chief, Division of Upper GI Surgery
USC Keck School of Medicine
Hoag Foregut Cancer Program Director
James & Pamela Muzzy Endowed Chair in GI Cancer

Patty & George Hoag Cancer Center
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Disclosures

1. I am a surgeon
   – Not a gastroenterologist, internist, or primary care physician

2. This talk will be based heavily in the truth
Objectives

1. Discuss myths and misinformation surrounding GERD
2. Shed light on the etiology
3. Progression & complications of GERD
4. Treatment
GERD

• **44%** have heartburn at least once a month.

• **10%** of U.S. population experience heartburn daily.

• **GERD** is a **SERIOUS** medical condition that produces a **WIDE** variety of symptoms and complications.
What is GERD?

• Gastroesophageal reflux
  – Passage of gastric contents into the esophagus
  – Normal physiologic process
What is GERD?

• Gastroesophageal Reflux Disease
  – Passage of gastric contents into the esophagus
  – “Troublesome symptoms and/or complications”
What is GERD?
What is GERD?
What is GERD?

- A normal sphincter (valve) creates a **barrier against reflux**
- A weak or defective sphincter allows reflux of gastric juice
- **GERD is a disorder of the sphincter (LES)**
More Than Acid in the Stomach!

- Poor saliva flow
- Poor pump (poor motility)
- Poor valve (poor LOS pressure, transient relaxation)
- Duodeno-gastric reflux
- Delayed gastric emptying
- Refluxing irritant: acid, pepsin, bile, pancreatic juice
Why is the Valve (LES) Weak?

- Unknown
- Weakens over time
- Family history
- Strong association with hiatal hernias
Hiatal Hernias

- Anatomic abnormality of the esophagus
- 15% of the population
- Contribute to GERD
- Treatment is same for the associated GERD
How Do I Know If I Have GERD?

• **Diagnostic Modalities**
  – Barium Esophagram (Upper GI)
  – Upper Endoscopy (EGD)
  – Esophageal Manometry
  – pH (24 hr & Bravo)

• **Symptoms**
Symptoms of GERD

- **HEARTBURN** – **NOT** always present
- Regurgitation
- Epigastric Pain
- Bitter / Bile taste
- Chest Pain - ? Heart Attack
- Difficulty Swallowing / Choking
- Nausea / Vomiting
- Sore Throat

- Weight Loss
- Asthma
- Recurrent Pneumonia
- Bronchitis
- Cough
- Dental problems
- Bad Breath
- Hoarseness / Voice Changes
- Excessive Belching
- “Lump” in the Throat
Is this a Serious Problem?

"Well dear colleagues. This is definitely the most severe case of Heart Burn I have ever seen!"
Complications of GERD

• Esophagitis
  – Inflammation of the esophagus secondary to the reflux of ACID
  – Erosion of the lining of the esophagus
  – “Chemical burn”
Complications of GERD

Esophagitis
Complications of GERD

- **Strictures**
  - **Scarring** of the esophagus
  - Secondary to chronic injury
  - Leads to dysphagia
    - **Difficulty swallowing**
    - Food “sticks” in the middle of the chest
Complications of GERD

- Poor motility (pump)
  - Loss of strength
  - Damage to the muscle of the esophagus
  - Chronic reflux
  - Probably due to **BILE**
  - Leads to dysphagia
Complications of GERD

• Pulmonary problems
  – Asthma
  – Cough
  – Pneumonia
  – Bronchitis
  – Pulmonary fibrosis
    • Scarring of the lung

• ENT problems
  – Voice changes
  – Hoarseness
  – Ear infections
  – Sore throat
Barrett’s Esophagus

- Change in the lining of the esophagus
- Secondary to chronic exposure to stomach contents (GERD)
- Will occur in 10-15% of people with GERD
- More common in males than females
Barrett’s Esophagus

• **Pre-cancerous** lesion

• Probably **BILE** related
  – **NOT ACID**

• 3 types (severity)
  – No dysplasia
  – **Low grade dysplasia**
  – **High grade dysplasia**
Barrett’s Esophagus

- **No dysplasia**
  - $40 \times$ risk of adenocarcinoma
  - 0.5-1.0% risk per year of developing cancer
- **Low grade dysplasia**
  - $\approx 2.0\%$ risk per year
- **High grade dysplasia**
  - 40-50% HAVE invasive cancer
Barrett’s Progression

Myth: “It rarely goes on to cancer”

• Nondysplastic Barrett’s → Cancer
  – 0.5% per patient year

• Nondysplastic Barrett’s → HGD
  – 0.9% per patient year

• Advanced Math: 0.5 + 0.9 = 1.4% per year

GERD $\rightarrow$ Barrett’s $\rightarrow$ Cancer

“I’m right there in the room, and no one even acknowledges me.”

_The New Yorker, 9/18/06_
Current Management of Barrett’s

Watch & Wait

Barrett’s Esophagus
- Surveillance (3-5 yrs)

Low Grade Dysplasia
- Surveillance (6-12 mo)

High Grade Dysplasia
- Surveillance (3 mo)
- RFA/EMR
- Esophagectomy

Esophageal Adenocarcinoma
- Esophagectomy
- Pallative care
Risk of Watch & Wait

Esophageal Adenocarcinoma

Barrett’s Esophagus

ESOPHAGEAL CANCER = ESOPHAGECTOMY
Esophageal Cancer in the U.S.

• Estimates for 2016
  – > 20,000 new cases
    – 1.1% of all new cases (18th)
  – 33,839 people living with esophageal cancer
    – Approach 50,000 by 2020
• Average age at diagnosis = 67
• GERD & Barrett’s esophagus are the primary risk factor
• Dramatic rise in the incidence in the last 25 years
Esophageal Cancer Epidemic
(1975-2001)

Pohl H and Welch HG. J Natl Cancer Inst 2005;95:142-146
Esophageal Cancer Epidemic
(1975-2001)

600% Increase

Pohl H and Welch HG. J Natl Cancer Inst 2005;95:142-146
Esophageal Cancer Risk Factors

• **GERD**
  - 44 times the risk with GERD > 20 years

• **Barrett’s esophagus**
  - 40 times the risk

• Alcohol
• Tobacco
Progression of GERD

- Chronic Injury (GERD)
- Barrett’s Esophagus
- Low grade dysplasia
- High grade dysplasia
- Cancer
<table>
<thead>
<tr>
<th></th>
<th>Colon Cancer</th>
<th>Esophageal Cancer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual Deaths</td>
<td>52,180</td>
<td>13,940</td>
</tr>
<tr>
<td>Pre Cancerous Lesion</td>
<td>Polyp: 0.5% / yr</td>
<td>Barrett’s: 0.5% / yr</td>
</tr>
<tr>
<td>(Progression)</td>
<td>(Truth: 1-1.5% / yr)</td>
<td></td>
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<tr>
<td>Screening</td>
<td>Yes &gt; age 50</td>
<td>NONE</td>
</tr>
<tr>
<td>Surveillance</td>
<td>Yes</td>
<td>POOR</td>
</tr>
<tr>
<td>Management</td>
<td>Polypectomy</td>
<td>Watch &amp; Wait</td>
</tr>
</tbody>
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*Estimated US data 2007; CA J Clin 2007
Does It Make A Difference?

Screening & Surveillance

Protection From Colorectal Cancer After Colonoscopy

A Population-Based, Case-Control Study

Hermann Brenner, MD, MPH; Jenny Chang-Claude, PhD; Christoph M. Seiler, MD, MSc; Alexander Rickert, MD; and Michael Hoffmeister, PhD

77% Lower Risk of Cancer

and risk for CRC.

**Design:** Population-based case-control study.

**Setting:** Rhine-Neckar region of Germany.

**Patients:** A total of 1688 case patients with colorectal cancer and 1932 control participants aged 50 years or older.

**Measurements:** A detailed lifetime history of CRC risk factors and preventive factors, including history and results of previous colonoscopies, and of medical data obtained by self-reports and medical records. Odds ratios of CRC associated with colonoscopy in the preceding 10 years were estimated, after adjustment for sex, age, education level, participation in a general health screening examination, family history of CRC, smoking status, body mass index, and use of nonsteroidal anti-inflammatory drugs or hormone replacement therapy.

**Results:** Overall colonoscopy in the preceding 10 years was associated with a lower risk of CRC.

**Limitation:** The study was observational, with potential for residual confounding and selection bias.

**Conclusion:** Colonoscopy with polypectomy can be associated with strongly reduced risk for CRC in the population setting. Aside from strong risk reduction with respect to left-sided CRC, risk reduction of more than 50% was also seen for right-sided colon cancer.

**Primary Funding Source:** German Research Council and German Federal Ministry of Education and Research.

Why Do We Manage These Differently?

- **Colon**
  - Risk of cancer: Polyp 0.5% / year
  - Screen & surveillance
  - ↓ Colorectal cancer by 77%

- **Esophagus**
  - Barrett’s 0.5% - 1.4% / year
  - NO screening & poor surveillance
  - Watch & Wait → 600% ↑ Esophageal Cancer
Head in the Sand Mentality

Pull Your Head Out!
Barrett’s is a Precancerous Lesion... and we need to start treating it as such!

Esophageal Cancer

Untreated Barrett’s