PREVALENCE OF GERD
Defined by Symptoms

- Up to 40% of adults
- 50% of GERD patients have complicated disease
- Chronic disease in most
Erosive GERD

Presentations in Practice

Esophageal – Typical Symptoms
- Heartburn (nighttime/daytime)
- Extraesophageal regurgitation

Extraesophageal – Atypical Symptoms
- Dysphagia
- Bleeding (including occult)
- Noncardiac chest pains
- Hoarseness
- Cough, wheezing
- Asthma-like symptoms

Untreated Complications
- Peptic stricture
- Barrett’s esophagus
- Esophageal adenocarcinoma

Pathophysiology of GERD

- Impaired esophageal clearance
- Hiatal hernia
- Transient, inappropriate relaxations of LES
- Gastric acid; Pepsin secretion: normal/raised
- Pyloric incompetence; duodenogastric reflux
- Impaired salivary function
- Impaired esophageal mucosal defense
- Reduced resting pressure of LES
- Delayed gastric emptying
Gastroesophageal Reflux

Damage correlates with duration of reflux exposure

AND

Caustic potential of refluxed material
Mechanism of Reflux

- Transient decrease in LES with normal baseline
- Truly hypotensive sphincter
- Hiatal hemia
Protection from Reflux

- Protection from reflux afforded by esophageal acid clearance

  Prolongation of clearance time occurs in 50% of GERD patients
THE GERD SPECTRUM

Typical Manifestations
(Heartburn/Regurgitation)

- With Erosive Esophagitis
- Without Esophagitis*

Atypical Manifestations*

- Angina-like Pain
- Asthma/Cough
- Laryngitis

Complications

- Ulceration
- Stricture
- Metaplasia (Barrett’s)

* Requires Abnormal pH-metry
Clinical Manifestations

- Heartburn
- Regurgitation
- Chronic Coughing
Impact of heartburn during sleep

Role of Endoscopy

Alarm symptoms
- Dysphagia
- Odynophagia
- Bleeding
- Chest pain

Supraesophageal symptoms
Use of Medication for Heartburn

(n = 1,000)

<table>
<thead>
<tr>
<th>Medication Use</th>
<th>%With Heartburn</th>
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<tbody>
<tr>
<td>Prescription</td>
<td>38%</td>
</tr>
<tr>
<td>Nonprescription</td>
<td>47%</td>
</tr>
<tr>
<td>Both</td>
<td>15%</td>
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</table>
Healing of Erosive Esophagitis

![Bar chart showing healing rates over 12 weeks for H2RA and PPI treatments.](chart_image)
Relief of Heartburn

<table>
<thead>
<tr>
<th>Time</th>
<th>H2RA</th>
<th>PPI</th>
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<tbody>
<tr>
<td>2 weeks</td>
<td>20%</td>
<td>60%</td>
</tr>
<tr>
<td>4 weeks</td>
<td>40%</td>
<td>80%</td>
</tr>
<tr>
<td>8 weeks</td>
<td>60%</td>
<td>100%</td>
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</tbody>
</table>
PPI v. H2RA in Maintaining Remission

- **RAN**: 34%
- **OM20**: 55%
Healing of Erosive GERD
Nocturnal Acid Breakthrough

![Bar Chart](chart.png)

- **ctr**
- **gerd**
- **barrett**
- **sclero**

Legend:
- **nab**
- **no nab**
NAB in GERD

![Bar chart showing NAB in GERD for PPI and PPI+H2](chart.png)
Nonerosive Reflux Disease

70%

NERD

30%

EE
NERD v. EE

Heartburn severity is similar

Response to Rx is 10–30% less

Rarely have typical complications but rather atypical complications/ symptoms

24 hr esophageal pH studies normal in 50%
Heartburn and Normal Endoscopy

- Abnormal acid exposure
- Functional heartburn
- Hypersensitive v. not acid reflux
GERD and the OLDER Patient

- Frequency
- Factors that influence
  - LES pressures
  - Acid clearing time
  - Hiatal hernia
WARNING

- Older patient less likely to report heartburn
- More likely to have dysphagia, chest pain, or vomiting

Severity of symptoms does not correlate with the degree of esophagitis therefore lower threshold to do endoscopy
Barrett’s Esophagus

- Columnar epithelium replaces the squamous epithelium in the distal esophagus when reflux disease damages the mucosa and healing occurs through a metaplastic process. This columnar epithelium is a form of intestinal metaplasia that is prone to develop adenocarcinoma.
Treatment

- **Symptom Relief**
  - PPIs
- **Complications**
  - Erosions, ulcers, strictures
  - Progession of metaplasia
- Effective acid suppression one step forward
- Mucosal ablation may be key
Treatment of Reflux in Barrett’s

- **Rationale**

Exposure to esophageal acid activates protein kinase pathways that increase proliferation and decrease apoptosis.

Markers of proliferation were reduced in esophageal biopsies when acid was normalized by PPI.
? Screen GERD for Barrett’s ?

- EGD in GERD
  - 3 to 5% have long segment
  - 10 to 15% have short segment

- Who to screen?
  - White males > 50 with Gerd > 5 yrs.
**Dysplasia**

- HGD associated with cancer 30-40%

**ACG Recommendation**

- No dysplasia q 3 yr
- Low grade q 6 mo. x 2
- No progression then q 1 yr.
Surveillance

- Treat aggressively prior to bx’s
  - HGD get 2^nd^ opinion
  - Surgery v. survey q 3 mo.
## Surveillance Initial Dx

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<table>
<thead>
<tr>
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<tr>
<td>patients</td>
<td>19</td>
<td>58</td>
</tr>
<tr>
<td>stage 0-1</td>
<td>58 %</td>
<td>17 %</td>
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<tr>
<td>5-yr. survival</td>
<td>62 %</td>
<td>20 %</td>
</tr>
</tbody>
</table>
Barrett’s and Surgery

- 10 studies with 408 patients
- 86% Segment unchanged
- Equal numbers regressed/progressed
Mucosal Ablation

Photodynamic therapy (PDT)

100 patients

Barrett’s undetectable in 43

Eradication HGD 88%

Eradication LGD 92%
Ablative Therapy

Endoscopic mucosal resection

(EMR)
Protonix 40 mg I.V. vs. Placebo

% Inhibition

-40 -20 0 20 40 60 80 100

8am 10am Noon 2pm 4pm 6pm 8pm 10pm 12pm 2am 4am 6am 8am

*pentagastrin stimulated

Data on file, Wyeth-Ayerst Laboratories. Study 100-US.