

# SWALLOWING NEWS

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## *Director's Forum*

**Center For Swallowing Disorders - University of South Florida Medical Center**

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### **Gastroesophageal Reflux Disease (GERD)**

The spectrum of problems caused by gastroesophageal reflux disease has expanded in the last decade far beyond the traditional "heartburn and hiatus hernia" concept of a generation ago. Accompanying our increased knowledge of the manner in which GERD may produce problems is new understanding of the physiological factors which contribute to this problem and a host of diagnostic methods by which the diagnosis may be confirmed and the progress of treatment monitored. Finally, advances in therapy have carried us beyond the choice of antacid or surgery which were the primary options only two decades ago.

### **The Many Faces Of Gerd**

Every physician is familiar with the typical smoking, coffee drinking, obese patient who complains of recurrent burning behind the sternum, on occasion associated with reflux of sour stomach contents into the mouth. The diagnosis is made with little difficulty in such patients and therapy may be instituted.

However, the introduction of ambulatory pH monitoring (measurement of frequency and degree of acid reflux into the esophagus) of the lower esophagus in which the patient goes about his usual affairs while wearing a small recording device (similar to the Holter cardiac monitor) has shown us that GERD may masquerade as other syndromes. These include "intrinsic asthma", nocturnal cough, recurrent pneumonia, persistent hoarseness, non-cardiac anginal-type chest pain, and episodic increased salivation. Episodic bronchospasm and inflammation of the posterior portion of the vocal cords result from entrance of stomach acid into the respiratory tree and laryngeal apparatus while chest pain resembling ischemic heart disease may result from acid reflux, and high pressure contractions of the esophageal musculature. Increased salivation appears to be a reflexive response to acid gaining entrance to the lower esophagus. Potentially this increase in saliva when swallowed, would help to neutralize and clear refluxed acid from the esophagus.

It should be remembered of course, that GERD may also present initially with evidence of chronic damage such as a stricture, with or without Barrett's metaplastic columnar epithelium (a precancerous condition due to acid reflux).

Acute dysphagia, i.e., meat impaction or chronic difficulty in swallowing of solids may therefore be the first indication of GERD in an individual patient.

### **Diagnosis Of Gerd**

The proliferation of tests to diagnose reflux disease requires that the physician decide what question (s) are to be answered in order to pick the most efficient tests and to determine whether tests be done at all.

The presence or absence of reflux can be investigated utilizing upper GI series with request to the radiologist to attempt to demonstrate reflux (Valsalva, abdominal pressure, positional change, etc.). Alternatively, scintiscanning, using isotopic material instilled into the stomach in association with abdominal pressure, may be used to demonstrate reflux. Finally, if available in your area, ambulatory or stationary 24-hour pH monitoring can be done with an intraesophageal pH electrode (sensor) and recorder.

If one is attempting to correlate symptoms with reflux (chest pain, bronchospasm, etc.) one can utilize either acid perfusion of the lower esophagus (Bernstein test) or the use of a pH monitor which allows the patient to record the time of specific symptoms (such as chest pain or wheezing) while intraesophageal pH (or acidity) is being continuously monitored. High correlation suggests causality.

If one wishes to assess the degree of esophagitis, stricture formation, or the presence of metaplastic epithelium (pre-cancerous cells), fiberoptic endoscopy and mucosal biopsy can be performed by consultants trained in this technique. Alternatively, barium study with air contrast, although somewhat less sensitive, is usually reliable in diagnosing erosive esophagitis, ulceration or stricture.

Accurate diagnosis is essential for proper therapy. Fortunately, most patients respond well to medical treatment and relatively few require an antireflux operation for relief.

## Medications Used To Treat Acid Reflux Esophagitis And Heartburn

The predominant treatment of gastroesophageal acid reflux disease involves the neutralization of acid produced by the stomach and/or by decreasing acid production by the specialized cells within the stomach.

Neutralization of acid already produced by the stomach is achieved with antacids. Generally, liquid antacids are more effective than tablets. However, the need for frequent dosing ( 1 tbsp 1 and 3 hours after meals and at bedtime for 7 doses per day), and the side effects of antacids, either diarrhea or constipation in some patients, may lead to poor compliance.

Another class of medications is used to decrease acid produced by specialized cells in the stomach. These drugs are often referred to as H<sub>2</sub>-blockers (Histamine-2), which block receptors for acid production on the surface of acid producing cells in the stomach. Examples of these drugs are Tagamet (the first such medication released in 1977), Zantac, Pepcid, and Axid. These medications reduce the amount of acid the stomach produces by up to 60-70%, and are taken between 1 and 4 times per day.

A new medication recently approved by the Food and Drug Administration is omeprazole or Prilosec. This powerful new agent is given once-a-day and acts by interfering with a special "pump" within the acid-producing (parietal) cells of the stomach. Prilosec has been shown to reduce acid production by over 90%. Because the long-term effects of almost total acid suppression by this drug are unknown, treatment of longer than 2-3 months is reserved for special cases.

The treatment of acid/peptic diseases has certainly advanced within the past decade with these medications and as a consequence the need for surgical treatment has been dramatically reduced.

## Pill-Induced Esophageal Disease

A pill that's hard to swallow can become even more difficult to swallow if you are not careful how you swallow! To date, there are reports in the medical literature of over 300 people who have suffered from esophageal pain and/or obstruction caused by tablets or capsules that have become stuck or impacted in the esophagus. Over 30 different types of medication have caused this problem. Sadly, the public and many physicians are not aware of this risk indicating that public education has not been effective to date.

The types of medication most often responsible are certain antibiotics, potassium chloride tablets, especially the slow-release type (Slo-K), quinidine and quinidine gluconate (Quinaglute) used for irregular heart rhythm and NSAID's (non-steroidal anti-inflammatory drugs) used for arthritis. The elderly and bedridden are at high risk for such esophageal injury.

## Things To Remember

1. **OFFICE HOURS:** 8:30 a.m. till 4:30 p.m. Monday through Friday.

Our office is **closed on weekends** so it is important to make sure any medication refills are called to us during our regular office hours.

Also, our emergency telephone number for after hours is (813) 974-2201. Please remember these calls will be responded to by one of our gastroenterology residents who will in turn contact the appropriate attending physician on call.

2. **BILLING:** Individuals who may have any problems with their accounts should contact the Patient Relations Department of the University of South Florida Medical Clinics at (813) 974-3573 between the hours of 10:00 a.m. till 4:00 p.m. Monday through Friday.
3. **DILATIONS:** For our patients who receive periodic esophageal dilations: Please try to anticipate and contact our office at least 2 to 3 weeks in advance of your need for dilation if at all possible. We have been having to schedule routine cases 2 to 3 and sometimes 4 weeks in advance due to our heavy patient load. We do not want any of you to suffer unnecessarily, so please help us with your appointment needs.

### "Please Bear With Us"

If your telephone call to the Center for an appointment is not immediately returned, "please bear with us" as we have not forgotten you. Our mornings are usually consumed by procedure visits and our Patient Care Coordinator may not be able to return your call until later in the day and sometimes the next. We do, however, need to know if you are having an emergency so proper intervention can be accomplished.

The following recommendations should be followed when taking **any** tablet, capsule or caplet:

1. Take at least 2-3 ounces of liquid after all medication.
2. Remain upright at least 15 minutes after taking medication.
3. **NEVER** take medicine while lying flat or without adequate fluid, especially at bedtime.
4. Report any sensation of medicine sticking in or burning of your esophagus to your physician. You may need a change in your medicine or a more thorough evaluation to search for another problem with your esophagus.

## Faculty and Staff

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## Endoscopic Ultrasound

Endoscopic Ultrasound, a new technique for evaluation of the esophagus and stomach, is currently available through the Center for Swallowing Disorders. The instrument for this technique contains a miniature ultrasound transmitter built into the tip of an upper endoscope to allow passage into the esophagus and stomach by a technique similar to standard upper endoscopy. The passage of the ultrasound endoscope allows for high resolution imaging of the wall of the esophagus and stomach. The five (5) individual tissue layers of esophageal and stomach wall can be evaluated using this technique. Endoscopic ultrasound is particularly useful in the evaluation and staging of gastrointestinal tract tumors by determination of the depth of tumor/cancer extension through the wall. This procedure is performed on an outpatient basis, utilizing mild sedation. It is now considered by many gastroenterologists and surgeons as an important preoperative test to help determine whether a surgical operation is indicated. Further information can be obtained by contacting the Center for Swallowing Disorders.

## Esophageal Function Tests

Richard H. Davis, Jr., P.A.-C  
Instructor of Medicine

The evaluation of the esophagus in patients with swallowing disorders begins with tests which examine the structure or anatomy of the esophagus, such as a barium swallow X-ray study or fiberoptic endoscopy. Additional tests of esophageal function are often used to assist with diagnosis and therapy. Three of these tests are 1) esophageal manometry or motility, 2) ambulatory esophageal pH monitoring, and 3) timed esophageal emptying X-ray studies.

**Esophageal manometry** measures the progressive contractions (peristalsis) in the esophagus as well as the appropriate relaxation of the two sphincters or valves which 'guard' both ends of the esophagus. The study involves passing a flexible plastic tube through the nose or mouth into the stomach. This special tube has 3-6 pressure sensors along its length. As the tube is slowly withdrawn, pressure measurements are recorded as the patient swallows sips of water. This test is especially helpful in patients who have difficulty swallowing without any structural (anatomic) defects and in patients with unusual chest pains of esophageal origin.

The **ambulatory esophageal pH** monitor is a test which records the amount of acidity or alkalinity in the esophagus over prolonged periods of time in patients with suspected gastroesophageal reflux. The test involves passing a small tube through the nose and into the esophagus. On the end of this tube is a sensor which measures pH. Those of you with swimming pools will recognize the pH (percent hydrogen) measurement. It is based on a scale of 0-14. The normal pH of the esophagus is between 5.0 and 7.0. Values below 4.0 are considered to be associated with reflux of acid from the stomach into the lower esophagus. The small tube placed in the patient's esophagus is connected to a small 'recorder' worn around the waist. The patient completes a symptom diary for the recording period (usually 24 hours), and is encouraged to resume his daily routine. At the end of the study, a correlation is made between reflux episodes and symptoms from the patient's diary. The results from this test are particularly helpful in patients with unexplained chest pain from the esophagus, adult-onset asthma, unexplained chronic cough, and in the management of patients with known gastroesophageal reflux disease.

The '**Cohen test**' is similar to a conventional barium swallow X-ray study. However, it is a 'timed esophageal emptying study' that measures the rate at which 8 oz. of barium empties from the esophagus into the stomach. This simple test is performed by quickly drinking 8 oz. of thin, liquid barium, a chest X-ray is taken and repeated after 5 minutes. In patients with delayed emptying of the esophagus, the height of the barium column on the 5 minute film measures the degree of retention. This test is useful in determining the best treatment for esophageal food retention and also to follow the results of that treatment.

In summary, tests of esophageal **function**, like the three mentioned above, are complementary studies which together with tests of esophageal **structure** guide the physician to the correct diagnosis and therapy.

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## Continuing Medical Education

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During the past year, members of the Center for Swallowing Disorders staff have continued their active participation in undergraduate and graduate medical education at regional, national, and international meetings. These presentations on topics related to swallowing disorders require considerable research and time to prepare teaching slides and videotapes. Contributions to the medical literature in journals and textbooks also have been significant.

### Lecture Presentations by CSD Staff

1. January 14-19, 1990: The Society for Gastrointestinal Radiologists, Cannon Lecture, Kona, Hawaii. Thirty Years of Looking and Learning: Endoscopic Observations From the Cricopharyngeus to the Cardia. (Boyce)
2. February 7-9, 1990: ASGE Postgraduate Course, Boston, Massachusetts. Esophageal Endoscopic Ultrasound - Esophagus: Normal Anatomy and Pathology. (Boyce)
3. February 11, 1990: Fitzsimons Army Medical Center Consultant, Denver, Colorado. The Diagnosis and Management of Dysphagia. (Boyce)
4. February 23-24, 1990: Surgical Grand Rounds, Jefferson Medical College, Philadelphia, Pennsylvania. Carcinoma of the Esophagus. (Boyce)
5. March 13, 1990: Lake Buena Vista, Florida. Diagnosis and Management of Dysphagia. Gastroesophageal Reflux-Related Disorders. Endoscopic Ultrasonography: A New Method for Staging Cancer. (Boyce)
6. March 19, 1990: Medical College of Virginia, Richmond, Virginia. Carcinoma of the Esophagus: Diagnosis, Staging and Therapy. (Boyce)
7. May 12-13, 1990: AGA Postgraduate Course, San Antonio, Texas. Management of UGI Cancer. (Boyce)
8. May 14, 1990: Meet-the-Professor Session, San Antonio, Texas. Treatment of Benign and Malignant Esophageal Strictures. (Boyce)

### Medical Articles:

Peroral Esophageal Dilation Over A Guide Wire: Fluoroscopy, Endoscopy Or Blind Passage. American Journal Of Gastroenterology.

The Role Of Imaging In The Non-Operative Staging Of Gastrointestinal Tumors. Working Party Reports, World Congress Of Gastroenterology.

Evaluation of Submucosal UGI Tract Lesions By Endoscopic Ultrasound (EUS). Gastrointestinal Endoscopy.

Effects of Temperature On Opossum LES In Vitro: Role Of Afferent Nerves? Gastroenterology.

Pathogenesis Of Disorders Of The Esophagogastric Junction. Progress In Gastrointestinal Surgery. NS Najarian And JP Delaney, Editors.

Esophagus - Anatomy And Structural Anomalies. Textbook Of Gastroenterology. Yamada, Alpers, Owyang, Powell And Silverstein, Editors.

Esophagus - Anatomy And Structural Anomalies. Atlas Of Gastroenterology. Yamada, Alpers, Owyang, Powell And Silverstein, Editors.

Drug-Induced Esophageal And Gastric Damage. Current Topics In Gastroenterology And Hepatology., Tytgat And Van Blankenstein, Editors.

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