

SWALLOWING NEWS

The Newsletter of The Center for Swallowing Disorders

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Director's Forum

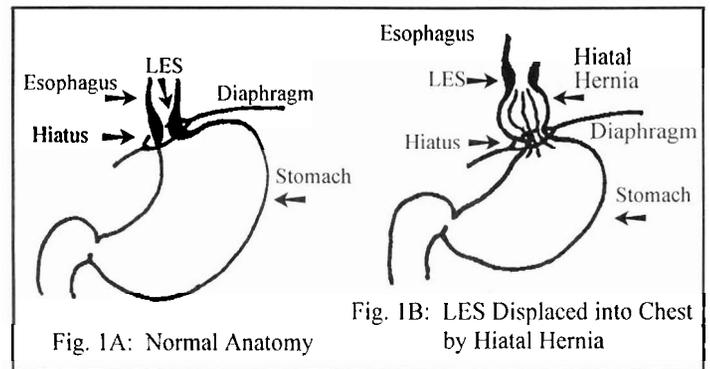
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GASTROESOPHAGEAL REFLUX DISEASE (GERD): PART II - THERAPY

The treatment of gastroesophageal reflux disease (GERD) over the past decade has been improved by a better understanding of the pathophysiology or causation of GERD, the availability of medications that effectively reduce the acid output by the stomach and a new technique of performing antireflux surgery through the laparoscope. Patients with gastroesophageal reflux disease usually have an entirely normal amount of acid produced each 24 hours. Only a few patients with this condition have excessive acid secretion. There are two basic defects that may lead to acid reflux. First, there is a reduction in pressure of the lower esophageal valve or sphincter (LES) that normally prevents significant reflux from the stomach into the esophagus. This valve normally relaxes during swallows and intermittently for very brief periods during and following meals. Patients with significant gastroesophageal reflux may have either a normal pressure, low pressure, or even absent pressure in the LES. In general, the lower the pressure in the LES, the greater the degree of reflux and the greater the potential for tissue injury such as erosion or ulceration.

There are certain factors that will reduce sphincter pressure to varying degrees. These include medications such as anticholinergic (antispasmodic) drugs, antihistamines, tricyclic antidepressants and progesterone containing compounds. During the latter stages of pregnancy, it is believed that the enlarging uterus and the increased levels of the normal circulating hormone progesterone may have an adverse influence on the sphincter pressure and provide a basis for the increased problem for severe symptoms of gastroesophageal reflux in pregnant women. These symptoms typically disappear after delivery. They may occur however in some females later, when they are begun on progesterone-containing compounds such as a birth control pill.

Reduced lower esophageal sphincter pressure appears to be more common as we age, and also in combination with a hiatal hernia. For years, it has been argued that the hiatal hernia per se is not responsible for reflux. However, recent investigations have substantiated earlier observations by endoscopists that the anatomical defect of a hiatal hernia is nearly always present in association with severe gastroesophageal reflux disease and plays a role in causation. The hernia per se is not symptomatic but it is an indication of an anatomical alteration that is more liable to allow or enhance reflux. The existence of a hiatal hernia is representative of dislocation of the LES from its position in the hiatus or opening of the diaphragm up into the chest (Figure 1A & B). When this anatomic dislocation occurs, it eliminates one of the factors that normally helps maintain or increase the LES pressure. A portion of the diaphragm called the right crus has been determined to be re-



sponsible for enhancing the LES pressure thereby improving the competence of this sphincter. In some individuals, another important finding is the fact that the hiatal hernia pouch in the chest may retain acid, so that when the sphincter pressure drops below normal and/or under the influence of negative pressure with breathing or high pressure in the abdomen, the retained acid may quickly enter the esophagus in abnormal amounts and for an abnormal duration.

Another major factor in the causation of esophageal injury from acid is the fact that patients often can be shown to have a reduced ability to clear acid from the lower esophagus. The combination of increased acid reflux plus an inability to clear the acid results in an increased exposure or dwell time. This chemical exposure to the esophageal lining cells overwhelms the natural protective mechanisms of these cells and as a consequence, bothersome heartburn and/or severe and sometimes permanent injury may occur. Increasing pressure in the abdomen such as stooping, squatting, excessive body weight, coughing and sneezing generate high pressure in the abdomen and all may contribute pushing acid upward into the esophagus through the weak sphincter. Large meals contribute as well to reducing the sphincter pressure. High-fat content of the diet slows stomach emptying and may result in reduction of sphincter pressure thereby enhancing the potential for reflux injury. An understanding of the mechanisms mentioned above and in our last Swallowing News will help to understand how reflux disease can best be treated.

Most physicians will recommend therapy in a step-wise fashion and will continue to emphasize the importance of lifestyle modification as a sound basis for any more extensive medical treatment. The first phase of therapy consists of recommending a reduction in total calories, especially fat calories, both to reduce body weight and to improve emptying of the stomach. The patient is

advised to elevate the head of bed at least six inches or to utilize a bed wedge to keep the torso on an incline during recumbency. The patient should avoid recumbency for 2 to 3 hours after eating, and also avoid any medications as mentioned above that might increase the tendency to reflux. A reduction or cessation of smoking and alcohol intake both are factors that will help to relieve symptomatic reflux. This lifestyle modification used for mild reflux symptoms along with over-the-counter antacid therapy often proves to provide significant symptom relief.

It is best for patients with moderate to severe reflux symptoms to follow the lifestyle modification measures at the same time they take a drug to decrease the output of stomach acid. Ordinarily, the histamine-2 receptor antagonists (H2RA's) such as Tagamet, Zantac, Pepcid and Axid in equivalent doses all will reduce gastric acidity to a significant degree. Their optimum effect occurs during the nighttime hours by reducing so-called nocturnal acid reflux. These drugs are not as effective on food stimulated acid output by the stomach during the day. However, if given in appropriate doses, they will result in healing in about 50 to 60% of patients with milder grades of erosive esophagitis as confirmed by endoscopy, and will produce at least partial symptom relief in a higher percentage of patients. In the past several years, it has been recognized that doses of H2RA's, about double the originally recommended levels, are necessary for healing esophagitis. Currently recommended therapeutic doses for these medications are as follows: Tagamet 800mg twice daily (BID), Pepcid 40mg BID and Zantac 150mg four times daily (QID). In some patients, a lower dose will provide long-term symptom relief.

The use of prokinetic (movement enhancing) drugs may be helpful in patients with mild reflux symptoms and especially in those with known delay in emptying of the stomach. The drug Propulsid (cisapride) has been shown to improve esophageal peristalsis and increase the LES pressure. It is preferred in such patients on a dosage schedule of 10mg QID, 30 minutes before meals and bedtime. Another satisfactory schedule is 20mg (BID).

The most potent acid suppressing drugs are called the proton-pump inhibitors (PPI's). Prilosec (omeprazole) was the first of this class of drug released for use and is the most widely used today. More recently, Prevacid (lansoprazole) has been approved. Both drugs are highly effective in producing a dramatic reduction in acid output by the stomach for 20 or more hours daily. These drugs, along with H2RA's, have an excellent safety profile and have been approved by the FDA for long-term use. In patients who have not responded appropriately to the lifestyle changes and H2RA's, it is appropriate to utilize a PPI, either Prilosec or Prevacid in a once daily dosage regimen. Recent studies have proven that patients with more severe grades of GERD will require a PPI drug to provide complete symptom relief as well as healing of esophagitis. The usual dosage would be Prilosec 20mg or Prevacid 30mg each morning. Most patients do very well by utilizing these timed-release, long-acting drugs 30 minutes before the morning meal. To insure bioavailability and optimum effect of PPI's, it is important for the drug to be in the blood at high levels at the time food is eaten and acid production is stimulated. If this is done, there is a significant improvement in the acid reducing effect because the medication will attach more effectively to block the chemical pumps (proton pumps) in the stomach cells that produce acid. Prilosec is prepared in time-release granules enclosed in capsules and should be taken whole and never crushed. The medication contained in this capsule is sensitive to destruction by the stomach acid so it must pass into the small intestine in a more alkaline environment for optimum absorption. The granules in Prevacid are less sensi-

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tive to inactivation by stomach acid. This capsule can be opened and its contents mixed with food or liquids in special situations.

Prilosec is available in a 10mg capsule and Prevacid is available in 15mg. These formulations at one-half the strength of standard preparations may be adequate for complete symptom relief and long-term maintenance in some patients.

By having an understanding of the basic mechanisms involved in GERD, by following the relatively simple lifestyle modifications, and using appropriate medical therapy as indicated under the guidance of a physician, the symptomatic incapacity of GERD and its potential complications can be avoided. Inadequately controlled acid reflux into the esophagus can result in severe ulceration with hemorrhage, scarring to produce strictures and difficulty swallowing and in some patients a Barrett esophagus which is a premalignant condition. It is extremely important that patients with reflux symptoms unresponsive to simple measures be under medical supervision to hopefully provide sufficient therapy to prevent any significant complications in the future.

Surgical correction of reflux is indicated in patients who fail medical therapy, who are young and will require acid suppressing drugs for many years, for patients with asthma or other pulmonary problems related to reflux, and for certain patients with other complications of acid reflux. The new techniques of laparoscopic antireflux surgery are gaining favor as the preferred surgical methods but long-term results are not yet available.

NEW TECHNOLOGIES FOR THE DIAGNOSIS AND TREATMENT OF ORO-PHARYNGEAL DYSPHAGIA

Joy E. Gaziano, M.A., CCC/SLP

Think for a moment about swallowing. This unconscious act actually requires the intricate coordination of dozens of muscles of the mouth, pharynx, larynx, and esophagus. Although it is estimated that we may normally swallow 500 to 1000 times each day, few can actually describe the process since it is such a subtle spontaneous, almost subconscious body function for much of the time.

At the Speech Pathology Department of the H. Lee Moffitt Cancer Center, exciting new technology is being used by our Speech Pathology Consultants to describe the process of swallowing and to diagnose and treat neuromotor (nerve/muscle) swallowing disorders. It is estimated that over 10 million Americans experience swallowing disorders or dysphagia as a result of acute and chronic illnesses including stroke, traumatic brain injury, brain tumor, oral and pharyngeal cancer, degenerative neuro-muscular diseases, and surgical resections. New diagnostic and therapeutic techniques are combined with traditional methods resulting in a comprehensive dysphagia rehabilitation program.

Comprehensive treatment begins with assessment. A new assessment tool, the FEES (Fiberoptic Endoscopic Evaluation of Swallowing), is used to directly view the pharynx and larynx during swallowing. FEES can be used in conjunction with or in place of the traditional modified barium swallow (MBS) or dynamic video esophagram (DVE) study. The FEES offers many advantages to the patient, speech pathologist, and referring physician:

1. Offers food in its natural state to evaluate swallowing.
2. Identifies the effect of secretions on swallowing and secretion management abilities.
3. Involves no radiation exposure.
4. Performed in clinic or at bedside without premedication allowing for patient comfort, familiar surroundings, plus reduced costs.
5. Permits viewing repeated swallows to assess effects of patient fatigue, benefits of postural changes, and success of compensatory swallowing techniques.
6. Videotaped evaluations allow for physician and patient review of results to enhance patient management.
7. Serves as an outstanding biofeedback and education tool as well as an objective measure of swallowing improvement with therapy.

Another pioneering technique used to enhance swallowing is surface electromyography (EMG) biofeedback. Since swallowing is often an unconscious act, patients frequently experience frustration and confusion in attempts to bring swallowing under conscious control. EMG biofeedback provides auditory and visual signals which guide the patient to consciously monitor and alter oral and pharyngeal swallowing movements. The patient hears and sees the test recording and is an active participant in therapy and can set and meet realistic, measurable, and attainable goals. In addition, as third party payers require documentation of benefits of treatment, EMG biofeedback provides a record of quantitative data supporting the benefits of dysphagia intervention. Data supports excellent patient outcomes using EMG biofeedback in conjunction with traditional swallowing therapy.

Physicians may refer their patients directly to the Speech Pathology service at the H. Lee Moffitt Cancer Center or to the Center for Swallowing Disorders at the USF Medical Center when the diagnosis is unclear or when complete medical evaluation is indi-

Things To Remember

1. **OFFICE HOURS:** 8:00 a.m. 'til 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 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. 'til 4:00 p.m. Monday through Friday. For those patients who are from out-of-town, a new toll-free number has been added for you to call with billing questions. The number is 1-800-933-8672. This number is for calls originating in Florida and is **only for billing questions.**
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 3 to 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.

cated. To inquire about swallowing rehabilitation or to schedule an evaluation, call Moffitt Speech Pathology at (813) 972-8449 or the USF Swallowing Center at (813) 974-3374.

Comprehensive evaluation reports as well as periodic treatment updates are provided to all physicians. Dysphagia team management is a critical component of patient care. Nutritional, psychosocial, physical therapy, and specialized medical services are also available upon physician or patient request.

eating smart

A RUDE AWAKENING

Avoiding hidden sources of caffeine

A cup of coffee delivers about 115 milligrams of caffeine, espresso a good deal more. Ounce for ounce, espresso gives you more than twice the caffeine. This you may know. What you may not know is that caffeine can give you withdrawal headaches, raise your blood pressure and even trigger anxiety attacks if you get too much. Some covert sources of America's favorite stimulant:

SOURCE	CAFFEINE (mg)
Excedrin (2 tablets)	130
Jolt Cola (12 oz.)	72
Iced tea (12 oz.)	70
Anacin (2 tablets)	64
Mountain Dew (12 oz.)	54
Coca-Cola Classic (12 oz.)	47
Hershey's Milk Chocolate bar (1.55 oz.)	10
Hot Chocolate (6 oz.)	4
Decaf coffee (6.5 oz.)	2

CONTINUING MEDICAL EDUCATION

During the past six months, members of the Center for Swallowing Disorders staff have continued their active participation in graduate medical education at regional, national, and international meetings and by contributions to the medical literature.

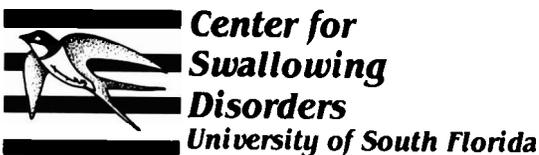
Lecture Presentations by CSD Staff

1. July 29-30, 1995: Advanced Endoscopic Skills: 1) Dilation of Esophageal Strictures. 2) Pneumatic Dilation for Achalasia. Seattle, WA (Boyce)
2. August 18-20, 1995: Therapeutic Endoscopy and Gastrointestinal Motility Diseases: Advanced Diagnostic and Therapeutic Workshops. Endoscopy of Esophageal Disease. San Diego, CA (Boyce)
3. September 14, 1995: Diagnosis and Management of Complex Esophageal Strictures. Johns Hopkins University. Baltimore, MD (Boyce)
4. September 15-17, 1995: Barrett Esophagus. E. Carolina University School of Medicine and ACG's "Current Gastroenterology" Southern Pines, NC (Boyce)
5. October 10-13, 1995: International Course on Therapeutic Endoscopy: Stents and Their Expanded Role in Esophageal Cancer. Toronto, Canada (Boyce)
6. October 25-27, 1995: Training in EUS. 10th International Symposium on Endoscopic Ultrasonography. Cleveland, OH (Boyce)
7. November 28-29, 1995: 1) Gastroesophageal Reflux Disease, 2) Treatment of Esophageal Obstruction. Visiting Professorship at the University of Miami. Miami, FL (Boyce)

Contributions To Medical Literature

1. Kozarek RA, Raltz S., Brugge WR, Shapiro RH, Waxman I, Boyce HW, et al.: Prospective Multicenter Trial of Esophageal Z[®] Stent Placement for Malignant Dysphagia and TE Fistula. *Gastroenterology* 1995;41(4):353.
2. Boyce HW Jr: Therapeutic Approaches to Healing Esophagitis (in press, 1995 *Am J Gastroenterol.*)
3. Nickl N, Bhutani M, Catalano M, Hoffman B, Hawes R, Chak A, Roubein L, Kimmey M, Johnson M, Affronti J, Canto M, Sivak M, Boyce HW, Lightdale C, Stevens P, Schmitt C, and the American Endoscopy Club. Clinical Outcomes in Endoscopic Ultrasound: The American Endoscopy Club Study. Submitted to *Gastrointestinal Endoscopy* 11/95.

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