

CHAPTER 4

My Stomach's on Fire and I Can't Put It Out

Remember the old Pepto Bismol commercial where a visibly miserable man's belly blows up like a balloon as he bellows, "Indi—gestion," punctuated with a booming burp in the middle? This is how Larry and Louise described their routine post-dining experience. Larry kept a supply of antacid tablets on hand constantly, popping them like candy. Even in light of her other complaints, according to Louise this chronic indigestion was one of the biggest hindrances in her ability to enjoy life. "After all," she said, "what's the fun of gobbling down a scrumptious cheeseburger with all the trimmings when you know the price you're going to pay is a fireball in your chest?"

The Bortons are not alone. About 56 percent of people in Western countries report having experienced symptoms of indigestion at some point, while 36 percent report having symptoms at least once every four to six months. *Dyspepsia*, the clinical term for what is commonly referred to as indigestion or heartburn, causes such painful burning and discomfort in the upper abdominal region that patients like Larry and Louise report worse emotional well-being with indigestion than do people with heart failure, symptomatic heart disease, diabetes, and hypertension.

Based on my own experience with patients, I am convinced the problem of dyspepsia is even more common than is reported. Walk down the medication aisles of your local supermarket or drugstore and you'll see shelves of liquids and tablets intended to neutralize

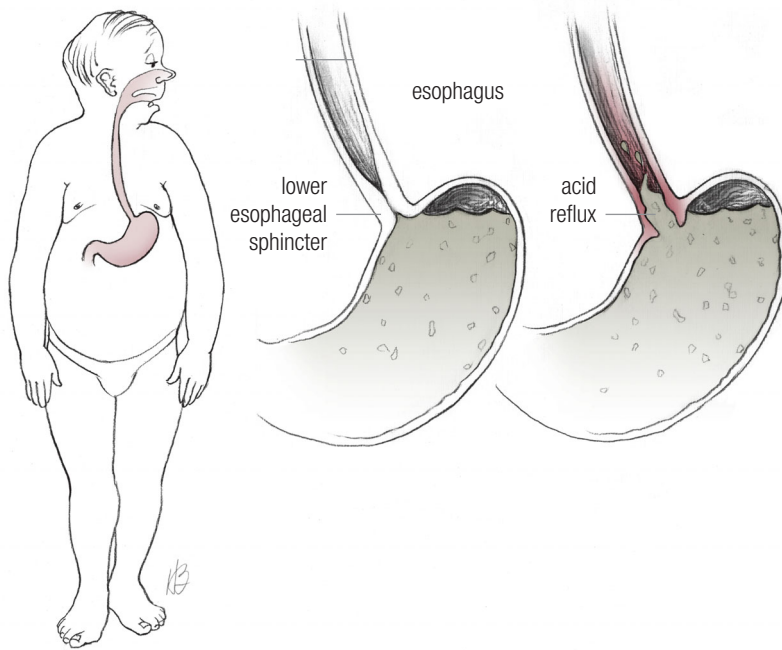
stomach acid and pills to prevent acid production. This class of medication, often referred to as *antiulcerants*, is the second leading category of prescription medication sold in the United States, with annual sales of nearly \$11 billion and an average prescription cost of \$109. Two antacids, Prilosec and Prevacid, ranked second and third in 2001 for raking in the largest sums of money spent on any prescription medication, with sales mounting to over \$7 billion in the United States in that year alone—for just *two* medications. The Bortons, especially Larry, confessed to contributing significantly to the success of these drugs and a host of others in their search for relief from their nearly constant “indi—gestion.”

GERD is the Word

Dr. McDougall, why does it feel like someone’s poured hot lava down my throat almost every time I eat?” Larry inquired. “It’s almost enough to make me not want to eat. I guess you can tell by looking it hasn’t actually stopped me yet.”

I explained to Larry that like almost half of all cases of indigestion, his was most likely caused by the retrograde, or backward, flow of stomach contents up into the esophagus—a condition called *gastroesophageal reflux disease* or *GERD*. Because these stomach contents contain acids and other digestive juices, they can cause tissue damage and the resulting symptoms of discomfort. This condition is often described as a burning sensation behind the breastbone that radiates up toward the throat and is worsened by a meal or by lying down. Not surprisingly, these same feelings are often confused with those typical of a heart attack.

Diagnosis is usually made based upon the patient’s description of symptoms. Further evaluation commonly includes looking into the esophagus through a tube known as an endoscope, although this extensive procedure (*gastroesophageal endoscopy*) fails to uncover evidence of disease in a significant percentage of people experiencing GERD symptoms. Larry and Louise were relieved to learn that I was not in a hurry to proceed with this sort of invasive investigation but that I could say with confidence that their indiges-



The control valve at the top of the stomach can become ineffective, allowing stomach acid to splash up into the esophagus. Acid burns everything it touches.

tion was due to GERD—a condition that could be dealt with in a simple, painless manner.

LES and Reflux

Louise was curious. “Why doesn’t the stomach just contain the acid rather than spurting it back up into the esophagus? It’s not supposed to work like that, is it?”

“Certainly not, Louise,” I assured her. “The stomach only squirts acid back into the esophagus because of a malfunction of the *lower esophageal sphincter*.”

“Huh?”

“The lower esophageal sphincter, we’ll call it the LES, acts as a natural anti-reflux barrier, a gate if you will, at the opening

between the stomach and esophagus. It relaxes when we swallow to allow food or liquid to pass through into the stomach and then returns immediately to a closed position. When the LES relaxes at inappropriate times, like between meals, harmful digestive acids flow back into the esophagus from the stomach, making us feel like someone's poured hot lava down our throats, as Larry mentioned earlier."

Causes of LES Dysfunction

Now that the Bortons understood the process of reflux, Larry wanted to know what he'd done to offend his LES and cause it to go on strike.

"There are two general reasons the LES may fail to function properly," I pointed out. "Structural damage from constipation, and temporary weakening—both related to . . ."

"Diet," chanted Larry and Louise simultaneously. They were beginning to get the message.

Constipation Does More Than Cause Worry

First let's look at the relationship between diet, constipation, and reflux. At least one well-respected researcher of gastrointestinal diseases from Yale University believes that more than 90 percent of GERD cases found in Western populations are a direct result of constipation. Severe straining to evacuate a hard, constipated stool causes the stomach to be pushed from its normal position in the abdominal cavity up into the chest. As a result of all that physical effort, the natural opening in the muscular diaphragm through which the esophagus passes is widened, creating a *hiatus (hiatal) hernia*. Eventually, part of the stomach lies in the chest cavity. With each inhalation of breath, negative pressures are exerted on the stomach, pulling acid up into the esophagus.

Extra pounds of abdominal fat can mechanically force the stomach into the chest cavity and its contents up into the esophagus. Restrictions caused by wearing tight clothing can produce similar

effects. The immediate solution may be as simple as loosening your belt. Long-term relief of upward pressure on the stomach comes from permanent fat loss—best accomplished by following the same diet Larry and Louise are already adopting for their long list of intestinal troubles.

Larry bobbed his head emphatically, “That’s me, Doc! So how do I get unstuck?”

I told him that one option would be to live with my colleague’s mother who asked every other day as he was growing up, “Honey, have you had a bowel movement?” and dispensed generous doses of foul-tasting laxatives or, heaven forbid, an enema in response to an unfavorable reply. However, the healthier and more pleasant option would be to eat a diet rich in fiber and to avoid consumption of dairy products, which cause constipation by paralyzing the muscles of the bowels. Dietary fiber, which creates a bulkier, softer stool, is only present in plant foods. The meat-and-dairy-based, highly refined Western diet provides 8–14 grams of fiber daily, whereas a healthful diet based on starches, vegetables, and fruits packs a powerful 40–100 grams of dietary fiber. Mom was right. Eat your roughage.

Short-Term LES Dysfunction: Just a Bite Away

In addition to long-term damage to the LES from years of constipation, there is also short-term (transient) LES dysfunction that occurs with consumption of certain foods. Most of these foods are believed to cause heartburn by decreasing the strength of the lower esophageal sphincter and increasing the number of relaxations of this sphincter. If you’re like Larry and Louise and millions of others who consume the typical Western diet, what I have to share might not be welcome news. But, like Larry and Louise, you deserve to know which foods are making you miserable—even if they are your favorites—so that you can feel better. Grab a hankie. And remember, this is for your own good.

High-Fat Diet

As long as thirty years ago, a high-fat diet was recognized as a cause of acidity, heartburn, and belching. After a three-year period of observation, one doctor reported that a diet with no added fat cured 425 of 532 patients who were found to be fat-intolerant. More recently, studies at the University of Virginia Health Sciences Center confirmed that fat causes heartburn, with other research demonstrating that the reflux of acid back into the esophagus becomes progressively worse over the next three hours after eating a meal high in fat.

This same group of researchers from Virginia found another way to produce reflux. By inflating balloons that had been inserted in people's stomachs, the researchers produced an increase in the rate of LES relaxations. Adding their two findings together, their overall conclusion was that large fatty meals, which overdistend the stomach, are a major cause of heartburn. Did we really need researchers to tell us a supersized meal at Dottie's Deep-Fried Paradise equals a bad case of heartburn?

Coffee

Coffee (sorry, even decaf) causes indigestion by reducing LES function, though the effects of decaf are somewhat milder. Both regular and decaf cause the stomach to generate large amounts of acid—thus, chemicals in the coffee bean other than the caffeine itself are the acid-producing agents. However, recent studies suggest that LES dysfunction and gastroesophageal reflux, rather than acid production, are responsible for most of the heartburn symptoms caused by coffee. For relief, coffee drinkers must switch to beverages like herbal tea or one of the popular grain drinks rather than decaf. But the news isn't all bad for you lifelong java lovers—although there is considerably more indigestion among coffee drinkers, there is no increased risk of stomach or duodenal ulcers.

Cigarettes and Alcohol

Both cigarette smoking and alcohol can compromise LES function and cause indigestion. Most of the distress from alcoholic beverages

comes from irritation of the stomach lining and the production of acid. Wine and beer cause much more stomach distress than do distilled spirits, like whiskey and vodka.

Onions

Onions significantly increase all measures of indigestion and have been found to be a potent and long-lasting cause of reflux in heartburn patients.

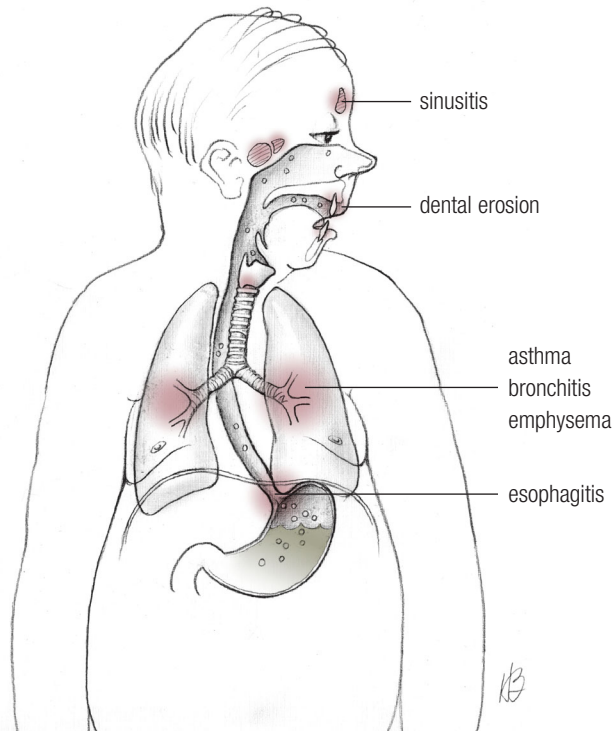
If you can't live without onions, no problem—simply cook them. Cooking onions destroys substances that are the cause of indigestion. The same holds true for green peppers, cucumbers, and radishes, which most often cause indigestion when consumed raw.

Chocolate

Chocolate syrup (even low-fat syrup) produces immediate and sustained decreases in LES pressure that can lead to symptomatic reflux. Approximately 40 percent of people surveyed had symptoms of heartburn after eating chocolate. Dark chocolate, with its high fat content (50 percent fat), may cause an even greater fall in LES pressure and more heartburn than regular chocolate.

Fruit Juices

Many people experience sour stomach and burning indigestion as a result of drinking citrus juices such as grapefruit or orange juice. Citrus fruits, as well as tomatoes and spicy foods, cause most of their distress by direct irritation of the tissues of the esophagus and stomach rather than by lowering LES pressure. Surprisingly, acid is not the cause of heartburn from citrus foods, since neutralized orange juice also produces heartburn. In addition, whole fruit rarely causes digestive distress, so it is thought that the heartburn effects of fruit juice must somehow result from the disruption of the whole-fruit fibers and other protective substances in the process of turning fruit into juice.



Stomach acid is caustic to the tissues of the teeth, throat, sinuses, and lungs—causing dental erosions, hoarseness, coughing, drainage, and asthma. Keep the acid in your stomach with simple changes, especially a better diet.

Acid Damage from the Teeth to the Lungs

You may be as shocked as the Bortons were to learn that the consequences of reflux extended beyond the pain and discomfort itself, as if that weren't enough. Gastroesophageal reflux disease can also cause conditions as serious as deep ulcers and cancer (adenocarcinoma of the esophagus), in addition to erosion of the teeth and even asthma.

In response to continuous reflux of stomach acids into the mouth, the enamel of the teeth breaks down (erodes), leaving permanent damage to this protective layer of the teeth. One study of individuals with dental erosions found that 83 percent had evidence of GERD. This relationship was confirmed when 40–70 percent of people with GERD were found to have erosions. The worse the reflux, the more likely that dental erosion has taken place.

Acid that is refluxed up into the back of the throat can then be inhaled into the bronchial (airway) tubes and burn them, causing constriction, swelling, and the production of large amounts of mucus. Between 34 and 89 percent of asthmatics have GERD, while 75 percent of children with asthma experience GERD. Patients with asthma caused by GERD commonly complain of heartburn, regurgitation, and difficulty swallowing, with worsening of symptoms following meals and after lying down. Even with the absence of reflux-related symptoms, following a healthful diet that reduces the chance of reflux, raising the head of the bed by four to six inches,

Reflux Causes Many Common Health Problems

DAMAGE TO THE MOUTH AND SINUSES

- Dental erosions
- Mouth ulcers
- Loss of taste
- Mouth pain
- Sinusitis
- Otitis media in children
- Ear pain and inflammation

DAMAGE TO AIRWAYS

- Asthma
- Chronic cough
- Bronchitis
- Emphysema
- Pneumonia
- Laryngitis
- Chronic hoarseness
- Throat inflammation
- Vocal cord ulcers
- Noncardiac chest pain

and using antacids (as a last resort) will help most people find relief from asthma, as well as many other breathing problems, and reduce their need for asthma medications.

Top Three Ways to Get Heartburn: And the Winners Are . . .

Knowing the Bortons' affinity for fast food, I decided to speak their language. I shared with them the findings of investigators looking into the causes of heartburn who took on the challenge of finding the top three meals guaranteed to cause indigestion. Their three winners (or losers, if you're on the heartburn-suffering end) were:

1. A *McDonald's Quarter Pounder*, a small order of fries, and an 8-ounce chocolate milkshake.
2. A *McDonald's Sausage Biscuit with Egg*, one slice of cheese, 30 grams of raw onion, and 8 ounces of Borden's Dutch Chocolate Milk.
3. An 8-ounce *Wendy's Chili* and 8 ounces of red wine (not from Wendy's, of course).

Given these results, it appears that the fast food industry and the antacid industry are a match made in heaven.

Medications for the Treatment of GERD

As a dues-paying member of our "pill for every problem" society, Larry asked, "How about the 'purple pill' and some of the other drugs I hear about all day on TV and in magazines? Can't I still take those?"

The answer for Larry and Louise is yes. However, because of their costs, side effects, and failure to address the root of the problem, medications should only be used as a last resort. They may help you feel better temporarily, but you remain sick nonetheless.

Medications May Be Causing Your LES Dysfunction

- Calcium channel blockers (blood pressure pills)
- Meperidine (Demerol)
- Morphine
- Dopamine
- Beta-adrenergic antagonists
- Diazepam (Valium)
- Barbiturates
- Theophylline (for asthma)
- Progesterone

There are several classes of medications that offer some relief from GERD and indigestion. Liquid and tablet antacids, H₂ receptor antagonists (see sidebar, below), and proton pump inhibitors all reduce the amount of acid in the stomach. Some agents, such as bethanecol (Edronax), increase the LES pressure, thereby reducing the incidence of reflux. Alginic acid (Protacid) forms a protective foam barrier, and sucralfate (Carafate) buffers some of the acid.

All medications can cause side effects, but the pills you swallow to stop the production of stomach acid are the most troublesome. H₂ receptor antagonists may cause mental changes,

A Few Examples of . . .**LIQUID AND TABLET ANTACIDS**

- Tums
- Roloids
- Mylanta
- Maalox

H₂ RECEPTOR ANTAGONISTS

- Cimetidine (Tagamet)
- Ranitidine (Zantac)
- Famotidine (Pepcid)
- Nizatidine (Axid)

PROTON PUMP INHIBITORS

- Lansoprazole (Prevacid)
- Omeprazole ((Prilosec)

increased estrogen activity (which can cause enlarged breasts in men), and interference with the body's metabolism of other medications. In addition, there is some concern that H₂ receptor antagonists and proton pump inhibitors may cause stomach cancer with long-term use.

The Bortons Put Out the Flames

After our initial visit, Larry and Louise went home committed to following my recommendations—a diet based on cooked starches with the addition of fruits and vegetables. Looking for immediate relief, they kept their portions of raw food small, avoiding fruit juices, onions, green peppers, radishes, and cucumbers. Larry cut way back on his flaming Louisiana Hot Sauce. Results occurred almost immediately, and they were able to throw away their antacids. Larry even called to tell me how much he was enjoying his meals now that he didn't have a final course of heartburn to look forward to. Louise began trying new recipes and looking forward to cooking because she knew the reward would be a delicious meal with no painful price tag attached.

SUMMARY SHEET *from Dr. McDougall*

- *GERD results from an incompetent lower esophageal sphincter (LES). Years of unhealthy eating have caused sphincter malfunction.*
- *A plant-based diet, low in fat and high in fiber, is ideal for the health of this first part of the intestine—esophagus and stomach.*
- *People with very sensitive stomachs must avoid raw onions, green peppers, cucumbers, radishes, fruit juices, and hot spices.*
- *Eat small meals frequently to prevent overdistending your stomach and reduce the tendency to reflux.*
- *Lose weight if you are obese, and wear loose clothing to reduce reflux.*
- *Coffee, even decaf, is one of the most common causes of stomach distress.*
- *Decaffeinated coffee causes almost as much GERD and indigestion as regular—switch to water, cereal beverages, or herbal teas.*
- *Raise the head of the bed four to six inches to allow gravity to keep the contents in your stomach while prone (wedges specifically designed for elevating the upper body and extra pillows will not help—they only bend you at the middle).*
- *Stop all unnecessary medications that may be causing GERD and indigestion.*
- *Antacid medications should be used only as a last resort.*
- *Many health problems, from sinusitis to asthma, can be relieved by stopping acid reflux.*

