Noncardiac chest pain

Heartburn, not heart attack

When the gripping chest pain came on, you thought it was the “big one” and appropriately called for emergency care. But after extensive testing in the emergency room, your doctor told you your heart is fine.

About 30 percent of people undergoing heart-artery imaging (coronary angiography) for a suspected heart attack aren’t having one. In subsequent testing, many cases of noncardiac chest pain are determined to be caused by a problem of the esophagus — the tube that connects your throat and stomach.

It’s hard to imagine that esophagus pain could be confused with heart attack. But your esophagus and heart are in very close proximity, and they even have a similar nerve supply. Doctors often have no way to distinguish between esophagus pain and heart pain without testing. And since a heart attack is more deadly, the first task is usually to rule out heart trouble.

Still, even when heart trouble is ruled out, diagnosing the true problem can be tricky.

Ambulatory pH testing involves inserting a tube through your nose and down your throat so that a device can be secured to your lower esophagus. The device detects when stomach acid refluxes into your esophagus and transmits that data to a device clipped to your clothing.
Heartburn

It’s estimated that about 60 percent of people with noncardiac chest pain are found to have heartburn as the cause. Heartburn is often a symptom of gastroesophageal reflux disease (GERD), a condition in which digestive acid flows back (refluxes) from the stomach into the esophagus. It can cause a burning sensation that may be accompanied by a sour taste in your mouth.

However, chest pain experienced by those with heartburn or GERD is different from the typical burning sensation, which is why it may be mistaken for a heart attack. It’s unclear why some people with heartburn or GERD experience chest pain. It’s theorized that heartburn may cause muscle spasms in some people, or it may trigger a fight-or-flight stress response.

In the emergency room, you may be given a gastrointestinal cocktail (GI cocktail) — a mixture of antacids and painkillers. This may help you feel better and may help your doctor start to determine the cause of your discomfort.

Your doctor may also want to determine if you have difficulty swallowing (dysphagia). If you don’t, an initial form of diagnosis — and potential treatment — is performing a proton pump inhibitor drug test. This involves taking a proton pump inhibitor (PPI) — such as lansoprazole (Prevacid), omeprazole (Prilosec), and others — usually for a week or more. PPIs are used because they’re generally the most effective drugs for suppressing stomach acid production.

PPIs aren’t very reliable at providing nighttime acid suppression. Thus, if chest pain occurs at night, a PPI may not provide relief even if heartburn is the problem. If the PPI is effective at relieving chest pain, the medication usually is continued.

If a PPI isn’t effective at relieving chest pain, the drug may be discontinued and further diagnostic steps are usually necessary. Even if a PPI doesn’t relieve symptoms, it’s still possible that heartburn is the root, or at least part of the problem.

Ambulatory pH testing is a more direct way to measure what role — if any — stomach acid reflux plays in causing chest pain. The test involves inserting a tube through your nose and down your throat so that a small device can be secured to your lower esophagus. Over 48 hours, this device records when stomach acid refluxes into your esophagus. You’re also typically instructed to record the time and nature of any symptoms you experience so that it can be determined if what you feel correlates with reflux occurs.

Results of ambulatory pH testing may lead in several directions, including diagnosis of:

- **Excess reflux that correlates with chest pain or other symptoms** — This indicates heartburn or GERD. Aggressive GERD treatment is usually implemented. This may include one or more stomach acid-suppressing medications or possibly surgery (fundoplication) to tighten the sphincter muscle that keeps stomach material from going backward into the esophagus.

- **Excess reflux that doesn’t correlate with chest pain or other symptoms** — Additional testing may be done to determine if stomach contents other than acid are making their way into your esophagus and causing symptoms. If they are, an aggressive GERD treatment plan may be recommended. If not, the treatment plan for hypersensitive esophagus — discussed below — is often followed.

- **Normal, minimal amounts of reflux that correlate with chest pain or other symptoms** — This indicates a condition called hypersensitive esophagus. Aggressive GERD treatment is usually implemented.

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Helpful cold remedies

Being sick with a cold virus for a week or two doesn’t mean you have to be miserable. These remedies may help:

- **Fluids** — Drink plenty of liquids. Water, juice, clear broth, or warm water with lemon juice and honey can help loosen congestion.

- **Saltwater gargle** — To relieve a sore or scratchy throat, gargle with 1/4 to 1/2 teaspoon salt dissolved in an 8-ounce glass of warm water.

- **Saline nasal drops and sprays** — These nonprescription products combat stuffiness and congestion. Unlike nasal decongestants, saline drops and sprays used over the long term don’t cause symptoms to get worse once use is discontinued (rebound effect).

- **Nasal decongestants** — Limiting use of nasal decongestant products — such as Afrin and 4-Way — to no more than three consecutive days generally provides symptom relief without the rebound effect.

- **Chicken soup** — The soothing qualities of a steaming bowl of soup may be due to its possible mucus-thinning and anti-inflammatory effects.

What doesn’t work? Worth noting are antibiotics, which destroy bacteria, but are no help against cold viruses. As for zinc, a recent analysis had mixed results and stopped short of recommending it until more research is done. Zinc-containing nasal gels or sprays have been associated with permanent loss of smell.
Treating high blood pressure

Welcome to the club — you’re the last in your coffee klatch to be diagnosed with high blood pressure. As several warned you, it’s fairly common as you age, and it’s something you shouldn’t let slide just because you don’t feel sick.

Blood pressure is determined by the amount of blood your heart pumps and the amount of resistance to blood flow in your arteries. So the more blood your heart pumps and the narrower your arteries, the higher your blood pressure. High blood pressure (hypertension) typically develops over many years. Most people with high blood pressure have no symptoms. However, left uncontrolled, high blood pressure puts you at risk of serious health problems, including heart attack and stroke.

Getting on top of the problem typically includes dietary changes, stepped-up activity and loss of excess weight. But if those measures aren’t enough, your doctor can determine which medications or combinations of drugs can help you.

Choices in life matter

Lifestyle changes can help you control and prevent high blood pressure. Make your diet heart healthy by trying the Dietary Approaches to Stop Hypertension (DASH) diet. This emphasizes fruits, vegetables, whole grains and low-fat dairy foods (see our June 2011 article). Eat less saturated fat and total fat. And make a point to lower the amount of sodium in your diet. Set a goal of 1,500 milligrams (mg) a day, which is appropriate for people 51 or older, and individuals of any age who are black or...
who have hypertension, diabetes or chronic kidney disease. Otherwise healthy people can aim for no more than 2,300 mg a day.

Become more physically active, aiming for at least 30 minutes of daily physical activity. Increased activity can help lower your blood pressure and control your weight. If you’re overweight, losing as little as 10 pounds can reduce blood pressure. Look for ways you might reduce stress in your life. Practice coping techniques, such as progressive muscle relaxation and deep breathing. Get plenty of sleep.

If you drink alcohol, do so in moderation. For healthy adults that means up to one drink a day for women and everyone older than age 65, and no more than two drinks a day for younger men. Alcohol can raise your blood pressure, even if you’re healthy. If you smoke, stop. Tobacco injures blood vessel walls and speeds up the process of hardening of the arteries.

**Stepping it up with drugs**

Although lifestyle changes can go a long way toward controlling high blood pressure, often these changes alone aren’t enough. In addition to lifestyle changes, your doctor may recommend one or more medications to lower your blood pressure.

To determine which category of medication to prescribe, your doctor factors in how high your blood pressure is as well as any other medical problems you may have. A combination of low-dose medications may be prescribed rather than larger doses of a single drug. Often, two or more blood pressure drugs work better than one. However, finding the most effective medication — or combination of drugs — is sometimes a matter of trying several different approaches.

Among the medications that may be considered are:

- **Thiazide diuretics** — Diuretics, sometimes called water pills, act on your kidneys to help your body eliminate sodium and water, which reduces blood volume. These are often the first — but not the only — choice in high blood pressure medications.

- **Angiotensin-converting enzyme (ACE) inhibitors** — These help relax blood vessels. Essentially, ACE inhibitors block the formation of a protein produced by the body (angiotensin II) that narrows blood vessels.

- **Angiotensin II receptor blockers (ARBs)** — These help relax blood vessels in a different manner. ARBs block the action — not the formation — of the same blood vessel-narrowing protein produced by the body.

- **Direct renin inhibitors** — Your kidneys produce an enzyme called renin that starts a chain of chemical steps that increases blood pressure. The medication aliskiren (Tekturna) blocks renin activity.

- **Calcium channel blockers** — These help relax the muscle cells in the walls of your blood vessels, causing them to open. Some also slow your heart rate. Among blacks and older adults, calcium channel blockers and diuretics may work better than do ACE inhibitors or ARBs. If you’re a grapefruit lover, be aware that grapefruit juice interacts with some calcium channel blockers by increasing blood levels of the medication and your risk of side effects. Talk to your doctor or pharmacist if you’re concerned about possible interactions.

- **Beta blockers** — These cause your heart to beat slower and with less force, and some open your blood vessels. Beta blockers are typically prescribed following a heart attack. They may also be prescribed if you have atrial fibrillation, angina or heart failure that’s well managed.

There’s growing consensus that beta blockers shouldn’t be used as initial drug treatment — particularly in people older than 60 — because they provide less protection from stroke than do other choices.

Home blood pressure monitoring can help you keep closer tabs on your blood pressure, show if medication is working, and even alert you and your doctor to potential complications. Once your blood pressure is under control, you may be able to make fewer visits to your doctor if you monitor your blood pressure at home.

Sometimes, blood pressure goals aren’t met even with combinations of the above medications. If that’s the case, your doctor may consider other types of medications, including:

- **Alpha blockers** — These block the hormone norepinephrine from causing muscle cells in the walls of blood vessels to contract. Consequently, use of these drugs opens blood vessels.

- **Alpha-beta blockers** — In addition to relaxing blood vessel walls, these drugs also reduce your heart rate, which reduces the amount of blood that must be pumped through the vessels.

- **Central-acting agents** — These medications prevent your brain from signaling your nervous system to increase your heart rate and narrow your blood vessels.

- **Vasodilators** — These work directly on the muscle cells in the walls of your arteries, to prevent your arteries from narrowing.

If your blood pressure remains stubbornly high despite taking at least three different types of high blood pressure drugs — one of which should be a diuretic — you may have resistant hypertension.

In that case, your doctor may refer you to a hypertension specialist for an evaluation to identify what’s behind your persistently high blood pressure.
Chronic leg wounds

Biologic dressings and healing

When you were a child, cuts, scrapes and scabs on your knees were par for the course. You never gave a thought to the fact that your skin would heal and that life would go on.

But for some older adults, leg or foot wounds (skin ulcers) can be caused by problems related to varicose leg veins or narrowed arteries that supply blood to the legs. Skin ulcers also can result from diminished circulation or nerve damage due to diabetes or other diseases.

Skin ulcers usually respond to conservative care. However, occasionally if a wound isn’t healing or is particularly deep, more-intensive measures may be needed. A deep wound is one that extends below the skin’s thin, outermost layer (epidermis) and all the way through the deeper and thicker layer of skin tissue called the dermis.

Biologic dressings are increasingly being used as a potent and convenient option for difficult-to-heal wounds that might otherwise result in amputation.

These products not only cover and protect a deep wound but also provide stability and structure to the healing of the deep tissue, allowing skin to eventually heal. In addition, they may stimulate production and activation of natural growth factors.

Looking for cover

The most basic biologic wound dressing is a skin graft. Skin grafts can be obtained by cutting away a piece of skin from another part of your body. An obvious disadvantage is the need to create a new wound to obtain the skin graft that will heal the previous one.

Newer biologic skin ulcer dressings are often called skin substitutes. They enable healing without the need for a skin graft. However, they are expensive and are used only in certain situations.

In addition to good nutrition, several factors need to be considered before skin grafts or substitutes are used. Among them:

- **Wound bed preparation** — Extensive cleaning to remove bacteria and old skin and other material is key to wound preparation.
- **Caring for the wound** — If the wound is on the bottom of your foot, a critical factor to success is keeping weight and pressure off your foot because walking on the wound will shear off the wound-dressing material. Wounds covered with a skin substitute also need to be properly dressed with additional bandaging.
- **Control of underlying problems** — Successful wound healing depends on control of conditions, such as diabetes, rheumatoid arthritis, peripheral arterial disease, poor veins, infections, blood problems and swelling (edema).
- **Medications** — Many drugs can hinder wound healing. Your doctor may advise you to stop taking certain medications for a period of time to allow a wound to heal.

Turning to substitutes

Among the many products on the market, Mayo Clinic wound care experts have had particular success with the following:

- **Apligraf** — The bottom layer of this product is made of a mesh-like matrix of bovine connective tissues (collagen). This gives support and structure to the product and gives the healing skin dermis a spongy scaffold on which to form. As the dermis of the skin ulcer heals, the bovine collagen dissolves. The bovine collagen is covered by a layer of donor human skin cells. Sometimes this speeds epidermis healing, but more often the skin cells don’t survive and you have to wait for your own epidermis cells to grow over the wound.
- **Dermagraft** — This also uses human skin cells, but they are seeded into a single layer of synthetic mesh material, along with various growth factors and proteins that promote healing. The mesh material is placed on a wound and then dissolves as it’s replaced by dermis. Epidermis cells grow from the wound edges to cover the wound.
- **PriMatrix** — This is a mesh material made of a type of fetal bovine collagen. It’s particularly potent in stimulating rapid skin cell growth. After it’s applied, blood soaks into the sponge-like dressing, seeding it with your own human growth factors. Over time, blood vessels and skin tissue grow into the dressing and the collagen dissolves. Epidermis cells grow from the wound edges to cover the wound.
- **MatriStem** — This is made from collagen obtained from pig bladders. It comes either in a sheet form or as a granular powder. MatriStem promotes dermis healing, which allows your own epidermal skin cells to grow over the top for wound closure. When the collagen dissolves in this product or the others discussed above, a fresh application of the dressing may be applied one or more times to further advance the healing process.
- **Integra** — This is a bovine collagen layer covered by a top layer of silicone that acts as a temporary epidermis. The collagen supports new blood vessel and dermis growth. Once the dermis has filled in, the silicone layer is removed. A skin graft — or one of the biologic wound dressings discussed earlier — is placed on the wound for final healing.
Graves' disease

Thyroid in overdrive

Losing weight without trying — who knew that was even possible, especially since you’re eating more than usual. You’re wondering if something’s seriously wrong.

A number of conditions can cause weight loss, but an overactive thyroid (hyperthyroidism) is one of the most common. And more often than not, hyperthyroidism is caused by Graves' disease.

Graves' disease prompts the thyroid gland to overproduce thyroid hormones. Because thyroid hormones affect a number of functions, the effect of Graves' disease can be wide ranging and can significantly influence your overall well-being. However, once identified, Graves’ disease generally responds well to treatment.

Misguided battles

Your thyroid gland is at the base of your neck, above your breastbone. Thyroid function is normally regulated by a hormone released by a tiny gland within the brain (pituitary gland). For reasons that aren’t well understood, Graves’ disease results when your body’s disease-fighting immune system malfunctions and produces an antibody — thyrotropin receptor antibody (TRAb) — that mimics the action of the regulatory pituitary hormone. TRAb overrides normal thyroid regulation, stimulating thyroid tissue directly. The result is overproduction of thyroid hormones.

Although Graves’ disease can occur at any age, it’s more common among women and before age 40. Other risk factors include a family history of the disease or having other immune system disorders, such as type 1 diabetes or rheumatoid arthritis. Stressful life events, illness or pregnancy may trigger the disease if you’re genetically susceptible. Cigarette smoking is another risk factor — the more cigarettes smoked, the greater the risk.

Signs and symptoms of Graves’ disease vary and may include irritability, fatigue, difficulty sleeping, a rapid or irregular heartbeat, a fine tremor in your fingers or hands, heat sensitivity, increased perspiration or moist skin, frequent bowel movements or diarrhea, and weight loss despite normal eating habits.

Menstrual cycle changes may occur, and men may experience erectile dysfunction or reduced interest in sex. Some people experience irritated or bulging eyes (Graves’ ophthalmopathy). Although uncommon, some develop thick or red skin on the shins or tops of the feet (thyroid dermopathy).

Weight loss and depression are experienced more often among older adults with Graves’ disease. Also, cardiovascular concerns — particularly atrial fibrillation — are more common in adults older than 50.

Diagnosis and treatment

If hyperthyroidism is suspected, blood tests can determine your level of thyroid-stimulating hormone (TSH) — the pituitary hormone that normally stimulates the thyroid gland — and levels of thyroid hormones.

Treatment choices for Graves’ disease depend on your age, overall health, severity of your hyperthyroidism and, often, on your own preference. If Graves' ophthalmopathy is suspected, an ophthalmologist may be consulted.

The goal of treatment is to decrease the production of thyroid hormones. Three treatment options for Graves’ disease are:

- **Radioactive iodine (radioiodine) therapy** — This destroys the thyroid gland’s ability to make thyroid hormone, and is a permanent way to treat hyperthyroidism. Radioiodine is given by mouth, typically in one dose. The thyroid needs iodine to produce hormones, so it readily absorbs the radioiodine. Over weeks to several months, the gland shrinks due to the radiation and symptoms gradually subside. The treatment causes the thyroid to become underactive (hypothyroidism), so thyroid hormone replacement therapy is necessary for the rest of your life — generally a pill taken daily.

- **Anti-thyroid medications** — These decrease how much thyroid hormone is made. Methimazole (Tapazole) is the drug most commonly used. It typically brings the thyroid’s function back to normal within several weeks. Anti-thyroid medication may be taken for a year or two. If the anti-thyroid drugs cause the disease to go into remission, more treatment may not be required. However, a return of the disease is fairly common. For older adults or people with heart problems, anti-thyroid medication may be given before radioiodine to help control hyperthyroid symptoms.

- **Thyroid removal (thyroidectomy)** — If an experienced thyroid surgeon is available and you prefer, surgical removal of the thyroid may be an option. Although it’s very effective, this treatment is used the least often.
Second opinion

Q: I’ve heard that there’s a high-dose flu shot available. Is it better for older adults than the regular flu shot? Should I ask for the high-dose shot?

A: The vaccine you’re referring to is called Fluzone High Dose. This vaccine is licensed for use in adults 65 and older.

Like other flu vaccines, Fluzone High Dose is made up of the three flu strains most likely to cause the flu during the upcoming season. However, the high-dose vaccine contains four times as much flu virus antigen — the part of the vaccine that stimulates your immune system to produce virus-fighting antibodies — as does standard flu vaccines.

Older adults produce lower levels of antibodies in response to a standard flu shot than do younger adults. Those who receive a high-dose flu vaccine develop higher levels of antibodies when compared with those who receive standard flu vaccines.

However, whether these higher antibody levels actually translate into fewer cases of the flu in this age group remains unknown. Studies are under way to evaluate the new vaccine’s effectiveness at preventing the flu, but results from these studies won’t be available until 2014.

The main downside of the high-dose vaccine is increased, but short-lived, local reactions such as redness and pain at the site of the injection. The high-dose vaccine is also more expensive than the standard vaccine.

Until more information is available on the effectiveness of this vaccine, experts aren’t recommending one type of flu vaccine over the other. For most older adults, what’s important is getting your flu vaccine each year.

Q: It seems as if my doctor and I have tried just about everything for my chronic constipation. Is there anything new that might be of help?

A: Your experience confirms that chronic constipation can be a challenging problem to manage. Chronic constipation is characterized by infrequent bowel movements with hard stools and straining, bloating and abdominal discomfort. Chronic constipation can sometimes be a symptom of irritable bowel syndrome (IBS).

Women and older adults are at particular risk, and it’s been estimated that about half of the people who have chronic constipation aren’t completely satisfied with their treatment plan.

Thankfully, fresh avenues of research have produced new drugs that may help tackle chronic constipation. One of these drugs — lubiprostone (Amitiza) — is one of just a few drugs approved by the Food and Drug Administration (FDA) specifically for chronic constipation. It’s also the only drug approved for use in people who have constipation caused by IBS.

Lubiprostone stimulates increased water secretion in the bowel, moistening and softening stool. Studies have shown that it increases bowel movement frequency and also helps relieve abdominal discomfort. In one study, side effects including nausea, diarrhea and headache caused about 5 percent of those who were taking the drug to stop.

Linaclotide is another drug in development that increases fluid secretion in the bowel, but it does so with a different mechanism from that of lubiprostone.

Linaclotide is in the late stages of seeking approval from the FDA. It appears to work as well as lubiprostone in increasing bowel movement frequency and reducing abdominal discomfort, with diarrhea reported as a side effect.

Have a question or comment?

We appreciate every letter sent to Second Opinion but cannot publish an answer to each question or respond to requests for consultation on individual medical conditions. Editorial comments can be directed to:

Managing Editor, Mayo Clinic Health Letter, 200 First St. SW, Rochester, MN 55905, or send email to HealthLetter@Mayo.edu

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