

Coronary Bypass Graft Surgery

****Coronary Bypass Graft Surgery (Part 1): Understanding Treatment Options****

Narrator

Harry Warholak has lived a life of adventure. He served in Vietnam and owned a Detroit junkyard famous for housing vintage cars. His latest adventure, coronary artery bypass graft surgery, or CABG for short. He's arrived for pre-op testing and will undergo bypass the next day.

A routine physical exam led to the discovery of a blocked artery in Harry's heart.

Harry Warholak, Patient

I did that stress test and that's when they were alerted that something's wrong.

Michael Halkos, MD, Cardiothoracic Surgeon, Emory University

Ultimately, he ended up having the sort of 'gold standard' test which is the cardiac catheterization which takes pictures of all the arteries in the heart. His problem was a complete blockage in the main artery on the front of the heart.

Harry Warholak, Patient

Heart wasn't doing its full time job. I really never had any indication. No palpitations, no other problems.

Narrator

Harry's severely blocked vessel in his heart is due to coronary artery disease. The surgery works by improving or restoring blood flow to the heart. It's the most common open-heart surgery in the United States.

Michael Halkos, MD, Cardiothoracic Surgeon, Emory University

For patients with multi-vessel coronary disease which means multiple blockages in different arteries in the heart, bypass surgery has been shown to be the most effective and durable treatment, both with respect to survival long-term and for relief of symptoms.

So, I'm checking your blood pressure, your pulse and your oxygen saturation.

Narrator

To better understand bypass surgery it's helpful to know what coronary artery disease is. Simply put:

Joe Miller, MD, Cardiologist, Piedmont Heart Institute

I always like to think of coronary artery disease as blockage in a pipe. Sort of like the junk that builds up in your kitchen sink and the pipes in the kitchen sink. Most of the things we know that are bad for us help build this clog in the drain.

Narrator

The coronary arteries are blood vessels that bring oxygen and nutrient-rich blood to the heart muscle. These arteries can become narrowed due to a build-up of fatty materials known as plaque which may restrict blood flow to the heart.

Michael Halkos, MD, Cardiothoracic Surgeon, Emory University

That causes chest tightness or pain. It can happen at rest but frequently occurs with activity and when that does occur and it's due to inadequate blood flow to the heart muscles that's called angina.

Narrator

If the plaque becomes unstable it can crack or rupture.

Michael Halkos, MD, Cardiothoracic Surgeon, Emory University

The process of that plaque rupturing triggers a cascade of blood clots at that site, and that's what causes a heart attack because it interrupts blood flow completely to the artery past that.

Narrator

CABG uses a healthy blood vessel taken from another part of your body and connects it to the other arteries in your heart so blood is bypassed around the narrowed or blocked area. This can eliminate chest discomfort, reduce fatigue and perhaps the need for some medications.

There are two common areas where your surgeon may take blood vessels from, known as bypass grafts. One is the chest.

Michael Halkos, MD, Cardiothoracic Surgeon, Emory University

We take one artery off the chest which is right underneath the ribs and we use that artery to bypass the artery on the front of the heart.

Narrator

It's called the mammary artery.

Michael Halkos, MD, Cardiothoracic Surgeon, Emory University

The other arteries typically are bypassed with vein that's taken from the leg, the saphenous vein. And then that vein can be divided into different pieces to provide bypasses to the other blood vessels in the heart.

Narrator

Bypass surgery is performed by a specialist known as a cardiothoracic surgeon. There are several different types of CABG procedures surgeons can use based on the patient's needs. The most common is traditional bypass surgery.

Michael Halkos, MD, Cardiothoracic Surgeon, Emory University

With traditional bypass surgery it usually involves an incision down the middle of the chest. And we put a retractor in so we can get access to the heart. In this country most of the operations are done with the heart lung machine. And that involves using a machine to do the job of the heart and lungs. So that we can stop the heart, sew the bypasses onto the heart that's quiet and not moving, at the same time protecting it and that allows us to be very precise with sewing those connections onto the heart.

Narrator

Surgeons can do more than one graft with this procedure, which is known as multiple arterial grafting.

Michael Halkos, MD, Cardiothoracic Surgeon, Emory University

After the bypasses are completed the heart is restarted again. Using this technique to do bypass surgery has been associated with excellent 30-day and in-hospital survival and also associated with excellent long-term results of bypass surgery.

Narrator

Some doctors use other surgical approaches referred to as minimally invasive or high tech bypass procedures.

Michael Halkos, MD, Cardiothoracic Surgeon, Emory University

The first approach to minimally invasive bypass surgery was the introduction of off pump bypass surgery. And all that means is the bypasses are constructed without the use of the heart-lung

machine. And that of course should be done in centers with expertise in these approaches and surgeons that have a lot of experience with them.

Narrator

Newer minimally invasive bypass procedures differ from traditional bypass in that the chest bone is not opened; instead, several small incisions are made on the left side of the chest between the ribs. It may be referred to as robotic bypass surgery.

Michael Halkos, MD, Cardiothoracic Surgeon, Emory University

Patients want the durability that's associated with bypass surgery understandably but have their downtime very limited so they can get back to normal, have fewer complications and faster recovery. So with minimally invasive bypass surgery we're trying to bridge that divide.

Narrator

A newer high tech procedure is known as hybrid coronary revascularization, or HCR. It combines bypass surgery with the use of stents, which are tiny metal mesh tubes placed in narrowed or weak arteries to open them and restore blood flow.

Michael Halkos, MD, Cardiothoracic Surgeon, Emory University

With the minimally invasive bypass operation, we're providing that long-term durable bypass graft, the left internal mammary artery, to the artery on the front of the heart through small incisions. And then we're using the stents to treat the other arteries.

Narrator

With different options available, how do you know which bypass surgery is best for you?

Michael Halkos, MD, Cardiothoracic Surgeon, Emory University

The best thing for patients to do is to be well informed. And they should have no hesitation asking their cardiologist or their surgeon or their primary care physician what their opinion is regarding the best treatment options for them. It's ok to get second opinions from different doctors in the same specialty.

Narrator

It's normal to feel anxious about having bypass surgery. Hospital procedures vary so be sure to ask your healthcare provider any questions you might have. Surgeries are often scheduled about a month in advance though in more serious cases doctors may perform them right away.

That's what happened with Carol Rosenhaft after tests showed she had four severe blockages.

Carol Rosenhaft, Patient

They immediately admitted me to the hospital and this was Friday and Monday morning, first thing, I had quadruple bypass.

Joe Miller, MD, Cardiologist, Piedmont Heart Institute

But that kind of presentation doesn't happen very often. And most patients have a little time to think about it and prepare and plan for going home after surgery too.

Narrator

To prepare for your surgery you'll have tests done that may include:

- Blood and urine tests
- EKG, or electrocardiogram, to check your heart's electrical impulses
- Chest x-ray

- Cardiac catheterization or angiogram, to look inside your heart a thin tube is threaded through a blood vessel and into your heart to get a series of x-ray pictures.

Before surgery you should make plans for the 4 to 6 weeks needed to recover from your operation.

Joe Miller, MD, Cardiologist, Piedmont Heart Institute

For most patients, the transition to going home is fairly routine. They probably need to plan on being out of work about a month. They may be able to get back into it a little bit after two weeks. The hardest thing for patients is because they're feeling pretty good is they can't get back to driving for about a month because they have to allow the breast bone to heal up just like any other broken bone. If they have the minimally invasive approach, their options to drive is frequently just limited by pain.

Narrator

The results of CABG can last for at least 10 to 15 years or more as long as you take care of yourself and follow your doctor's advice.

Joe Miller, MD, Cardiologist, Piedmont Heart Institute

Modern bypass surgery might last 20 years or even forever for a patient and it's really a restart on life.

*******Coronary Artery Bypass Graft Surgery (Part 2): Avoiding Complications and Readmission*******

Narrator

It's been a week since Harry Warholak was released from the hospital after having coronary artery bypass surgery.

Harry Warholak, Patient

It was successful. I feel great. Everything's working along like they told me so far.

Narrator

Harry had minimally invasive robotic bypass surgery. Patients typically return home three to seven days after their surgery. Hospital stays may be a bit shorter for those who get minimally invasive procedures as Harry did.

Michael Halkos, MD, Cardiothoracic Surgeon, Emory University

He had an excellent outcome. He had a brief period of postoperative atrial fibrillation which is very common. His was less than 12 hours and was easily controlled with medication.

Narrator

A-Fib or atrial fibrillation is an irregular heart beat. It can also be referred to as an arrhythmia. Getting up and moving can help lower the risk of this complication.

Joe Miller, MD, Cardiologist, Piedmont Heart Institute

In the old days we used to put you in bed and let you heal. That is the complete opposite of what we want for patients today. For most patients we want them up and moving in the first 24 hours after surgery, really in the first 18 hours after surgery.

Narrator

In the hospital, the health care team will watch for a-Fib and other possible complications such as pneumonia, bed sores or infection.

To reduce the chance of pneumonia nurses will encourage deep-breathing and coughing exercises to speed lung recovery. This may be somewhat painful or uncomfortable, but it's important to work through these exercises.

Wound care following surgery is important to avoid infection and bleeding.

Compression stockings may be recommended to reduce swelling in the legs and ankles, especially if a vein graft has been taken from the leg.

Memory loss and confusion or problems concentrating might occur in some people following heart surgery. These side effects can improve with time.

In addition to preventing complications, the healthcare team makes sure patients can do certain things before sending them home.

Michael Halkos, MD, Cardiothoracic Surgeon, Emory University

They have to walk without assistance. They have to be able to eat, use the restroom, keep liquids down and have pain controlled with pills.

After going home it's important for patients to follow the health care team's recommendations for activity, diet and medications.

Joe Miller, MD, Cardiologist, Piedmont Heart Institute

They should read the list they're sent home with and it's good to have another set of eyes read that list also. These lists and suggestions are not just things we make up at a whim. These are created by large medical societies with reviews and committees that have studied thousands of patients and we really have a good idea of what works.

Narrator

Having support at home is also crucial, as Harry has found.

Harry Warholak, Patient

My wife's been a miracle through this thing, helping me with stuff. Making sure I do the right thing.

Narrator

Doing the right thing can reduce the odds of having to go back into the hospital.

Michael Halkos, MD, Cardiothoracic Surgeon, Emory University

Hospital readmissions after heart surgery typically occur in 8 to 12-percent of patients. And most commonly they can occur for very simple reasons like fever, atrial fibrillation, heart failure related symptoms or just a failure to do well at home in general.

Narrator

Readmissions are most likely to occur during the first 30 days after surgery. Some common reasons for being readmitted include:

- Activity intolerance, that is an unwillingness to "get moving" due to fear or discomfort
- Chest and leg discomfort
- Decreased endurance
- Lack of energy and
- Tiredness

Another possible cause is the build-up of body fluids, which walking can help prevent.

Joe Miller, MD, Cardiologist, Piedmont Heart Institute

We want to watch out for quick accumulation of fluid, but if they notify us quickly we can generally take care of that for them over the phone and really minimize the chances of them coming back into the hospital which is what we don't want to happen.

Narrator

It's also important to let your doctor know if you experience:

- Signs of infection such as increasing redness or drainage at the incision sites
- Fever
- Chills
- Increased fatigue
- Shortness of breath
- Swollen ankles or abdomen
- Weight gain over 5 pounds in a few days
- Or change in your heart rate or rhythm

Be sure to know when to schedule follow-up appointments and cardiac rehabilitation. Following your healthcare team's instructions after CABG surgery will help you get better faster, and get back to your life and normal activities.

Harry Warholak, Patient

Here's a few pictures of the famous GM cars that we had at my salvage yard in Michigan.

Narrator

Harry's goal is to make it to a car show for a speaking engagement on vintage cars in less than a month.

Michael Halkos, MD, Cardiothoracic Surgeon, Emory University

He has essentially resumed almost all of his normal pre-operative activities. I told him he can go tomorrow.

*******Coronary Artery Bypass Graft Surgery (Part 3): Recovery and Cardiac Rehabilitation*******

Narrator

It's not unusual to feel apprehensive about leaving the security of the hospital after bypass surgery. Be assured that your doctor wouldn't release you unless you were ready. Since you are not allowed to drive for at least a month after your procedure, you'll need the support of family or friends.

Joe Miller, MD, Cardiologist, Piedmont Heart Institute

I think for most patients when they go home that first 24 hours is a real shock. They've had so much done for them while they're in the hospital that they're extremely tired when they have to do things on their own. But in the next 48 hours we really want them to start doing more and more on their own.

Narrator

Setting up a routine for home will help your recovery. Be sure to:

- Wake up at a normal and consistent hour
- Bathe or shower if possible
- Dress in regular clothes during the day
- Take naps or rest times in the morning or midafternoon or after activity

Your doctor will provide directions about diet and other lifestyle measures. It's important to follow them.

Joe Miller, MD, Cardiologist, Piedmont Heart Institute

When patients go home they get the standard list which includes sodium and salt restriction, increasing physical activity, lowering cholesterol, and maintaining their medications on a daily basis.

Narrator

Make sure you're clear on what medications you should take. They may be different than what you took before surgery.

Joe Miller, MD, Cardiologist, Piedmont Healthcare

Patients go home from bypass surgery, they are going to go home with a whole list of medications which may be new for them. And, so part of that time period is getting adjusted and used to these medications. Several of these medications lower cholesterol and work on long-term risk factors, some of them might be short-term and just help with fluid build up and accumulation and preventing that from happening.

Narrator

Don't use any over-the-counter pain relievers like aspirin or ibuprofen or vitamin and herbal supplements without checking first with your doctor. Before leaving the hospital, check with your doctor on when you should have staples or stitches removed. Also be sure to schedule an appointment with your personal or family doctor. Find out what activities you can and should do, such as walking.

It's been a key part of Harry Warholak's recovery.

Harry Warholak, Patient

I love to walk. Walking's been good. I've been walking more and more every day.

Narrator

- Begin with short walks lasting 5-10 minutes.
- Gradually build up to at least 40 minutes 3 to 4 days a week.
- Walk at a comfortable pace that allows you to hold a conversation.
- Let your doctor know if you experience chest pain while walking.

Nikki McGlamery, Nurse, Gwinnett Medical Center

After your bypass surgery you should avoid extreme temperatures during exercise. You shouldn't go outside to walk whenever the temperature is very cold nor should you go outside whenever it's hot and humid. During those times you'll want to exercise inside.

Narrator

In addition to walking, you should be able to do light work around the house, visit friends, and go to the theater, restaurants, stores, and your place of worship. Ask your doctor about when you can resume sexual activity.

Joe Miller, MD, Cardiologist, Piedmont Healthcare

Patients are uncomfortable discussing this with us, but it's something most clinicians are very comfortable with talking about because we get asked about it so much and not only that there's science around it, and for most patients once they can walk one flight of stairs without being uncomfortable it's safe for them to return to normal sexual activity.

Narrator

Cardiac rehabilitation is a key part of recovery. Many hospitals have rehab facilities or they can advise you on finding a local cardiac rehab program, as can your doctor. To choose a rehab facility that's right for you or a loved one, you should ask:

- Is the facility accredited?
- What type of rehabilitation does it specialize in?
- Are there board-certified staff members available at all times?

- Who develops the treatment plan?
- Will the staff work with your caregivers to help you continue your rehabilitation safely at home?
- What will and will not be covered by your health insurance?

Joe Miller, MD, Cardiologist, Piedmont Heart Institute

One of the greatest benefits about cardiac rehab especially for patients who are enrolled fairly early into their recovery is that they have ongoing monitoring 3 times a week by trained staff, they're watching for fluid retention, they're watching for irregular heart rhythms and we know that adds comfort both to the patient but also to the clinician.

Narrator

Participating in cardiac rehabilitation can improve stamina and strength, helping patients return to their usual activities. In addition, it can lessen the emotional effects of heart disease, which may include stress and depression.

Joe Miller, MD, Cardiologist, Piedmont Heart Institute

About 30% of patients actually have some form of temporary clinical depression and it's just that first wake up call that there's something wrong with them physically.

Narrator

If feelings of depression last for more than two or three weeks, tell your doctor. Cardiac rehab also helps you prevent a return to the hospital.

What's more, by controlling risk factors such as high blood pressure, abnormal cholesterol levels, excess weight, diabetes, smoking, and lack of physical activity, cardiac rehab helps lower the risk of future heart problems.

Nikki McGlamery, Nurse, Gwinnett Medical Center

It helps you to increase your level of activity so that you can get through your activities of daily living more comfortably. It's important to participate in these programs so that you heal more quickly.

Narrator

Coronary artery bypass surgery is a reset. It can lead to a longer life and a return to activities that may have been limited in the past.

Joe Miller, MD, Cardiologist, Piedmont Heart Institute

I think a lot of it is up to the patient. The patient really needs to be willing to make the lifestyle changes.

Narrator

Carol Rosenhaft has done just that since her bypass surgery, going through cardiac rehab and following all her doctor's instructions.

Carol Rosenhaft, Patient

I have a perfectly normal life, which I wouldn't have had. Bypass saved my life!

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