The Aorta
There are two types of blood vessels in the body – arteries and veins. Arteries carry blood rich in oxygen from the heart to all the organs of the body. Veins carry blood back to the heart. The aorta is the largest artery in the body. It is also the most important blood vessel. If there is a problem with your aorta or arteries, the blood flow to the rest of your body is decreased.

There are two types of arterial disease: atherosclerosis and aneurysm.

Atherosclerosis:
With atherosclerosis, the walls of the arteries are narrowed because of plaque build-up. This can form a blockage. This occurs slowly over time. The plaque is made up of fat, cholesterol and calcium deposits. It can result in less blood flow to your legs and other organs.

Surgery can help bypass or remove the blockage. This will increase the blood flow to your legs and other organs. The surgery to bypass the blockage in the lower aorta is called an aortobifemoral bypass. If the blockage is removed, it is called an endarterectomy.

Aneurysm:
An aortic aneurysm is a weakened part of the artery. It looks like a bulge or balloon in the wall of the vessel. It can occur in the part of the aorta that is in the chest or in the abdomen. In the abdomen, it is called an abdominal aortic aneurysm (AAA). If it is in both the chest and abdomen, it is called a thoraco-abdominal aneurysm (TAA). It also can occur in the iliac, femoral or popliteal arteries. If the aneurysm bursts or tears, it can cause life-threatening bleeding.

Blood clots can also form in aneurysms or stick to the wall of the arteries causing atherosclerosis. These blood clots can break off and get stuck in the artery and block blood flow. This is called an embolus.
Risk Factors for Atherosclerosis
- Age
- High blood pressure
- Diabetes
- Smoking
- High cholesterol
- Obesity
- Lack of exercise
- Family history
- Irregular heartbeat, especially atrial fibrillation (a heart condition where the heart chambers quiver and beat ineffectively)

Symptoms of Peripheral Arterial Disease
- Leg pain that is relieved with rest
- Pain at rest, if blockage is severe
- Discolored skin
- Legs are cool to touch
- Loss of hair on toes, feet and legs
- Thick toenails
- Numbness and tingling
- Ulcers
- Male impotence

Symptoms of Aneurysm - you may not have any symptoms but these may be present:
- Back pain
- Abdominal pain
- Chest pain (thoracic aneurysm)
- Pulsating feeling in abdomen
- Discolored feet

Diagnostic Tests
Routine tests will be done to diagnose your blood vessel disease. They may include:
- Computerized Tomography (CT) or Ultrasound: shows that a blood vessel is narrowed or blocked.
- Angiogram: an x-ray that can pinpoint a blockage or aneurysm in your arteries.
- Magnetic Resonance Angiogram (MRA): an imaging technique that uses a strong magnet, radio signal, and a computer to produce pictures of the blood flow from your arteries.
- Ankle Brachial Pressure Index (ABI): The ABI test uses sound waves to measure the blood pressure in your arms and ankles using a small, hand held device called a Doppler. It is done to check for peripheral arterial disease.
Treatment
Treatment to fix a blockage depends on the extent of your disease and your health. Mild disease may improve with:
- Exercise
- Control of risk factors
- Balloon angioplasty or stenting

Surgery can help bypass or remove the blockage. This will increase the blood flow to your legs. If plaque is removed, it is called an endarterectomy. If a blood clot is removed for the artery or bypass graft, it is called an embolectomy or thrombectomy.

Placement of a bypass graft around a blockage is the most common surgery done to improve the blood flow in your leg. A vein from your leg or arm may be used to bypass the blockage or aneurysm. It is called a bypass because the graft will send blood around the blockage. A fabric graft will be used if one of your own veins can’t be used. It is sewn to make the wall of the artery stable.

The Surgery
Surgery to fix an aortic aneurysm or blockage in the aorta or other artery is done under general anesthesia. This means you will be asleep during surgery. This type of surgery takes 3-6 hours. Based on the site of your disease, your surgeon will make an incision into either your chest or your abdomen. If you are having an aortobifemoral bypass, you will have an incision in your abdomen and in each side of your groin.

What to Expect before Surgery
You will not be able to eat or drink anything for at least 6 hours before your surgery. The night before your surgery you may need to have a bowel prep to clear your bowel out for surgery. You will be told whether to do this.

What to Expect during Surgery
Surgical techniques include:
- Endarterectomy or removal of the plaque. The plaque is cut from the blood vessel wall.
- Embolectomy or removal of a blood clot.
- Placement of a bypass graft around a blockage or aneurysm. This is often used to treat arterial disease in the leg. A vein from your leg or arm may be used to bypass the blockage or aneurysm. A fabric graft will be used if one of your own veins can’t be used. It is sewn to make the walls of the aorta stable.

The incision is then closed with staples or stitches. A dressing is put over your closed incision.
What to Expect after Surgery
After surgery you may be moved to an intensive care unit (ICU) or to an intermediate care unit (IMC). We will closely watch your heart rate, blood pressure, and blood oxygen level. If you are moved to an ICU, you will be moved to a standard hospital room 1-3 days after surgery.

When you wake up you will have some tubes and lines attached to you.

- **Breathing Tube:** You may have this at first to help you breathe. It will be taken out when you can breathe on your own.
- **Intravenous Line (IV):** This will be in your arm or neck for medicine and fluids.
- **Arterial Line:** This is in the artery in your wrist and is used to measure your blood pressure and draw blood.
- **Foley catheter:** This is a catheter that will be in your bladder to drain urine.
- **Other tubes or lines:** You may have other drains either in your stomach, your incision, or your spine. You will be given medicine to help manage your pain.

You may have blood tests, x-rays, ultrasounds or other procedures. You may also need to wear compression stockings. They help prevent blood clots in your legs. You will not be able to eat or drink for a few days. You will slowly be able to eat more each day. As you recover, you will work with nurses and physical therapists to get your strength back.

Most patients who have this surgery can go home within 5-7 days.

Wound Care
Your incision is closed with stitches or staples. You will receive instructions before you are discharged home.

- You may get it wet in the shower.
- Do not swim or take tub baths until okayed by your doctor.
- You may clean the incision gently with mild soap and water. Do not scrub the incision. Rinse it and pat dry.
- Do not use any lotions, alcohol or powders until told by your doctor.
- Most incisions can be left open to air except for incisions in the groin. These should be covered with a dry gauze dressing. Be sure your incision is dry before you apply the gauze.

At your first clinic visit after discharge, your staples or stitches may be removed. Small pieces of tape called Steri-Strips® may be placed to keep your incision closed.

- You may shower with the Steri-Strips® in place. Allow the water to
flow gently over the area. Do not rub. Gently pat dry.

- After 2-3 days, they will begin to curl up at the ends.
- With time, they will fall off on their own.
- Do not swim or take tub baths until your doctor says it’s okay.

**Activity**

When you go home you should be able to do most of your basic daily routines. You will need to give yourself time for rest. You will tire easily. You may feel weaker. This is normal. Your strength and energy level will increase as your body heals.

Walking is good for you. Start slowly and increase your distance a little bit each day. This will help you become stronger. Walking also helps prevent constipation and blood clots. If your legs swell, raise your legs when sitting.

You will have some restrictions. For the first few weeks after surgery:

- Do not lift more than 10 pounds during the first 6 weeks at home. This includes groceries, pets and children. One gallon of milk weighs about 8 pounds.
- Do not drive until your doctor says it is okay. Do not drive while taking narcotic pain medicine.
- Do not play contact sports or do exercise other than walking until your doctor approves.
- Ask your doctor at your first clinic visit when you may return to work and resume sexual activity.
- If you had an aortobifemoral bypass, you should not sit for longer than 1 hour at a time. Be sure to elevate your legs when sitting.

**Pain**

It is normal to have some pain at your incision. You may also have pain in your belly, chest, back or groin. The pain will decrease as the incision heals. You should take the pain medicine prescribed by your doctor. As time passes, you should need less pain medicine. You may then wish to use an over-the-counter pain medicine but talk to your doctor before starting this. It may interfere with other medicines you are taking. Do not drive while taking narcotic pain medicine.

Narcotic pain medicine can make you constipated. Use over-the-counter stool softeners (Senna/Docusate) as needed. Drink plenty of fluids and eat high fiber foods. Fruits and vegetables (prunes, raisins, apples, oranges, potatoes, spinach and carrots) and whole grain breads or rice have fiber. Staying active also helps prevent constipation.

**Diet**

You may have loss of appetite and even lose weight. You should still try to eat because a healthy diet helps your body heal. You may want to eat small amounts of food several times a day instead of eating three large meals.

You should also drink enough fluid to stay hydrated. Dehydration can make you feel more tired and weak. Drink at least 8 to 10 eight-ounce glasses of fluid each day. Water and milk are good options. Limit the amount of drinks with caffeine (soda, coffee) because they can dehydrate you.

Eat a heart healthy diet:

- **Eat less saturated fat.** Eat less fatty meats, fried foods, butter and whole milk dairy products. Eat more fish, chicken, turkey and veal and less beef, lamb and pork.
- **Limit eating organ meats** (liver, kidneys, etc) to once a month.
- **Use polyunsaturated oils**, such as canola, safflower, soybean, sunflower, sesame and cottonseed oils.
- **Drink skim milk** instead of whole milk.
- **Eat sherbet or Italian ice** instead of ice cream.
- **Eat less trans fats**. Eat fewer sweets such as donuts, cookies, and desserts.
- **Eat fewer carbohydrates**. Eat less sugars and sweetened drinks.
- **Eat less salt**. Eat less processed foods. Do not add extra salt to your food.
- **Eat less cholesterol**. Eat less egg yolks and shrimp.

**Antibiotics**

If you have an artificial graft, you will need antibiotics before any future surgery. You will also need them before certain dental procedures, and other invasive procedures (colonoscopy, etc.). Tell your dentist or doctor about your artificial graft so you can get antibiotics. This may prevent a graft infection.

**Leg Swelling**

As you become more active, your legs may swell. If this happens, raise your legs when you sit. Your doctor may want you to wear anti-embolism stockings or ace bandages when you go home. These help reduce swelling and return blood to the heart. Apply them before walking. If you wear ace bandages, they should be wrapped snugly from toe to knee. Your nurse will show you how to wrap them. Remove them when you go to bed.

You may need to wear stockings or ace wraps for the first 2 weeks, or until the swelling is gone. If you are still having swelling, keep wearing them for support. Ask your doctor when you can stop wearing them.

Do not wear clothes that constrict your legs or feet such as tight socks or garters. Buy shoes that fit well to prevent pressure sores or swelling in your feet. Wear socks with your shoes to prevent blisters.

**Leg and Foot Care**

To help prevent foot problems, follow these guidelines:

- Look at your legs and feet daily. If you can’t see them, have someone else check them. Let your doctor know if you see any sores, scratches, cracks, blisters or reddened areas.
- Wash your legs and feet daily with mild soap and water. Do not soak your feet. Dry them well.
- Put lotion on dry skin daily. Do not put lotion between your toes.
- Avoid soaking your feet for long periods. It dries out your skin. Always check the temperature of the water with your hand or elbow instead of your foot.
- Let a doctor or nurse clip your toenails or show you how to clip them.
- Wear shoes that fit well.
- Wear white cotton or wool socks.
- Check shoes and socks for stones, sharp things, or holes.
- Protect your feet from extreme heat and cold.
- Avoid walking barefoot.
- Do not use heating pads or heat lamps on your feet or legs.
- See a podiatrist if you need corns, calluses or ingrown toenails removed.
Smoking
Try to quit smoking. Smoking delays wound healing, and can decrease blood flow, shrink arteries, and raise your blood pressure. If you’d like help quitting, call the Quit Line: 1-800-QUITNOW (784-8669)

Follow Up
You will be seen in the Vascular Surgery Clinic about 2 weeks after you go home. If you still have staples or stitches, they may be removed at this visit.

When to Call the Doctor
- An increase in redness or warmth at the site of your incision.
- Red streaks on your skin that extend from the incision.
- Bulging or swelling at the incision.
- New drainage or bleeding from your incision. Call if drainage is cloudy, yellow, green or foul-smelling.
- Open spots between the stitches or staples where the skin is pulling apart.
- If you notice the skin along the incision is getting darker or turning black.
- Sudden increase in pain that is not relieved by your pain medicine.
- A temperature of more than 101.5°F (38.5°C) by mouth for two readings taken 4 hours apart.
- A new onset of weakness or numbness in your legs or feet.
- Cold or discolored legs.
- Numbness, tingling or loss of movement in your legs.
- Sudden increase in tenderness or swelling in your leg.

Phone Numbers
Vascular Surgery Clinic at (608) 263-8915 from 8:00 am to 5:00 pm Monday through Friday.

After hours, your call will be answered by a paging operator. Ask for the Vascular Surgery doctor on call. Give your name and phone number with area code. The doctor will call you back.

If you live out of the area, call 1-800-323-8942.

References

Dehydration. www.medicinenet.com
Constipation. www.medicinenet.com

Your health care team may have given you this information as a part of your care. If so, please use it and call if you have any questions. If this information was not given to you as a part of your care, please check with your doctor. This is not medical advice. This is not to be used for diagnosis or treatment of any medical condition. Because each person’s health needs are different, you should talk with your doctor or others on your health care team when using this information. If you have an emergency, please call 911. Copyright © 10/2016 University of Wisconsin Hospitals and Clinics Authority. All rights reserved. Produced by the Department of Nursing. HF#7571