

# CEREBROVASCULAR SURGERY



## **The Surgical Clinic, P.L.L.C.**

General, Vascular, Thoracic & Laparoscopic Surgery  
Critical Care & Surgical Oncology

Patient's Name \_\_\_\_\_

## **Introduction**

This booklet is designed for patients who need surgery on their carotid or vertebral arteries. It gives a basic explanation of the blood vessel system and discusses the risk factors, symptoms of artery disease and types of surgery. In addition, we have included a description of your care before and after surgery and after you get home. If you have additional questions after reading this booklet, please feel free to call your doctor's office.

## **The Vascular System**

Another name for this system might be the transportation system, as it transports oxygen and nutrients to all parts of the body. The vascular system is made up of the heart and blood vessels which provide circulation to our bodies. The primary purpose of this system is to transport food and oxygen to the body's cells and organs. The heart pumps the blood through a large, continuous system of blood vessels that act as rivers and streams of the body.

The vessels are divided into two types, arteries and veins. The arteries carry the blood (with oxygen already in it) away from the heart to the body's tissues. The arteries have strong walls made up of three layers. The veins return the blood to the heart for a fresh supply of oxygen. This "double circuit," when free of disease, provides a continuous blood supply to all parts of the body to keep us healthy. Now, let's examine the vascular system of the head and neck.

## **Anatomy of Carotid/Vertebral Circulation**

As you can see, there are four main arteries that provide the blood supply to the brain – a right and left carotid artery and a right and left vertebral artery. These arteries begin as branches from the heart that continue up the neck to the brain. The carotid artery further divides into two branches (called the internal and external) that furnish blood to the front portion of the brain, while the vertebral arteries supply blood to the posterior (back) part of the brain.

### **What is Artery Disease?**

The main cause of blocked arteries is atherosclerosis or “hardening of the arteries.” Normally, the inner lining of an artery is smooth, allowing the constant passage of blood. However, over the years, the inner lining of arteries in some people become thickened and rough by a buildup of fatty substances or cholesterol. This buildup, called plaque, may be compared to rust in a pipe. It may cause the artery to become smaller in diameter or in some cases to close off completely. Atherosclerosis may occur in any artery but it is most commonly noted in the arteries of the heart, neck and legs.

## What Causes Blockages?

Most experts believe that atherosclerosis is caused or influenced by several different factors. These include:

1. **Smoking** - Smoking constricts (narrows) your blood vessels. It also makes the blood more prone to clot formation. If you smoke, it is very important that you attempt to quit smoking.
2. **Diabetes** - Disease of the smaller arteries is frequently seen in patients who have diabetes.
3. **Heredity** - People who have a family history of high blood pressure, stroke, heart disease, etc. are more likely to experience these problems than people without a family history.
4. **High cholesterol levels** - People who have high lipid and cholesterol levels in the blood are more likely to have artery disease. This is often related to one's diet.
5. **Hypertension** - High blood pressure can speed up the development of blocked arteries.
6. **Stress** - People who are in stressful situations or who have inadequate means of coping with stress are more likely to have artery disease.

## **Signs and Symptoms of Artery Disease in the Neck**

1. Numbness or weakness in arms or legs.
2. Difficulty with speech.
3. Vision problems, especially loss of vision in one eye.

## **Before Surgery**

1. You will have a visit from an anesthesiologist, the doctor who will put you to sleep. He will answer any questions you may have about your anesthesia.
2. You may have supper, but you should have nothing to eat or drink from midnight until after your surgery.
3. You will be asked to sign a consent form for your operation. This is a routine procedure and gives permission for the doctors to perform your surgery.
4. You will be told what you should do about your medications.
5. You should take one aspirin a day prior to surgery, on the day of surgery and each day thereafter. A baby aspirin is sufficient.

## **The Day of Surgery**

1. The nurse will ask you to remove all jewelry, dentures, personal items, etc. before going to surgery.
2. Surgery personnel will help you onto a stretcher and take you to a holding area outside the operating rooms. A nurse will start an IV in your arm to give you fluids and medicine through your veins as needed.
3. You will be taken from the holding area to an operating room. Your family will be told where they should wait during surgery.
4. After surgery, the physician will discuss the operation with your family as you are taken to the recovery room.

## **Risks**

The most common risks include:

- ◆ Bleeding, possibly leading to blood transfusion
- ◆ Clotting
- ◆ Infection
- ◆ Stroke
- ◆ Death
- ◆ Problems with anesthesia
- ◆ Drooping eyelid
- ◆ Nerve injury in neck

You may also experience the following:

- ◆ Hoarseness
- ◆ Numbness or weakness of face or tongue
- ◆ Earache
- ◆ Headache
- ◆ Difficulty swallowing

If present, these should disappear after a period of time.

## **Carotid Endarterectomy Surgery**

1. Medication will be given in your IV to put you to sleep. After you are asleep, the anesthesiologist will place a breathing tube down your throat.
2. The doctor will clean your neck with antiseptic solution. He then makes an incision which begins at your ear lobe and continues toward the front of the neck.
3. He will clamp the artery at the top and bottom, then make an opening into the artery, and possibly insert a tiny plastic tube called a shunt. He then removes (peels out) the blockage. A small patch may be sewn on the artery at this point, if your doctor feels this is necessary. The shunt is removed as the artery is closed. The clamps are removed and the neck incision is closed. A small dressing is placed over the incision.
4. When you are awake enough, the breathing tube will be removed and you will be taken to the recovery room.

## OTHER PROCEDURES

### **Subclavian-Carotid Transposition**

If your symptoms warrant and the arteriogram shows evidence of a blockage or narrowing in your subclavian artery, your doctor may recommend this procedure. The subclavian artery, (as shown in the picture), begins at the heart and supplies blood to the right and left arms. In order to provide an improved blood flow to the affected area, the subclavian artery is disconnected from its origin and reconnected to the carotid artery which is nearby. The incision is horizontal and is located just above the collarbone.

The general routine and nursing care after the operation is the same as for carotid endarterectomy surgery. The risks for this procedure remain the same; however, you may experience a slight drooping of the eyelid or a change in the pupil size on the operative side. This is not uncommon and should improve with time.

### **Vertebral-Carotid Transposition**

If you have a narrowing of the vertebral artery (the artery that supplies blood to the back of the brain), you doctor may recommend this procedure. The vertebral artery is detached from its origin on the subclavian artery and reconnected directly to the carotid artery. This allows an improved blood flow through the vertebral artery. The incision is horizontal and is located just above the collarbone on the operative side.

The general routine and nursing care after surgery is the same as that for carotid endarterectomy surgery. The risks for this procedure remain the same; however,

you may experience a slight drooping of the eyelid or a change in the pupil size on the operative side. This is not uncommon and should improve with time.

## **After Surgery**

1. You will go to the recovery room. Oxygen may be given to you by way of a mask for a period of time. After a few hours in the recovery room, you will be transferred to a surgical unit. Your family can stay with you in this room. You will be allowed to start drinking fluids later in the day.
2. On the day after surgery, you will progress from a liquid to a regular diet and your IV will be discontinued. The nurses will assist you to walk in the hall.
3. After this operation, you can expect to stay in the hospital a total of 1-2 days. During this time, you may experience one of the following: hoarseness, headache or earache. If you feel the need for pain medication, be sure to ask the nurse for this.
4. Your doctor will tell you when to return for an office visit. Call the office and make an appointment.

## After You Go Home

1. **Activity** - Physical exercise is very important. You should walk everyday in your home, yard, mall, etc., gradually increasing the distance you cover. You may drive when the soreness in your neck has decreased and you can turn your head easily.
2. **Bathing** - You may take a daily bath or shower with soap and water. Wash incisions gently. Men may shave in the usual manner but very lightly over the area of the incision. If there are Steri-Strips on your incision, they may be removed in three to four weeks or when the edges loosen.
3. **Diet** - There are numerous theories about the relationship between diet and “plaque” buildup in arteries. If you would like more information on this subject, please ask your doctor.
4. **Medication** - Unless otherwise directed, continue the same medicines you were taking before coming into the hospital. Do not drive while taking prescription pain medication. You may take Tylenol as directed for mild pain.
5. **Tobacco** should be stopped. If you need help doing this, check with your doctor.
6. **Call your doctor if these develop:**
  - ◆ Excessive drainage from incision (more than 1 tablespoon)
  - ◆ Fever
  - ◆ Weakness of arm or leg
  - ◆ Vision problems
  - ◆ Difficulty talking or swallowing
  - ◆ Severe headache not relieved by pain medication
7. Don't worry about:
  - ◆ Slight dizziness
  - ◆ Mild headache
  - ◆ Numbness around incision
  - ◆ Mild swelling around incision

**Patient's Name:** \_\_\_\_\_

**Date of Surgery:** \_\_\_\_\_

**Name of Surgery:** \_\_\_\_\_

**Additional Information:** \_\_\_\_\_

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