Vascular Injury in Trauma

The vascular system is made up of vessels that carry blood throughout the body. Arteries and veins carry this blood to and from the heart and carry oxygen to all parts of the body.

In this type of injury, there is damage to blood vessels as they are torn or cut by

- piercing or crushing injuries, such as a gunshot wound or stab wound.
- blunt trauma that results in bone fractures or joint dislocation.

When there is not enough blood supply, the blood vessels, nerves, and muscles can quickly become permanently damaged and die.

What are symptoms of blood vessel damage?

- Bruising, swelling, active bleeding.
- Pain.
- Numbness, tingling in that arm or leg.
- Cannot move the arm or leg.
- Cool, pale skin.

What tests will be done?

Blood vessel studies such as arteriogram, CT angiogram, venogram are used to find the injury to your arteries or veins. Contrast dye is injected through an IV so the blood vessels can be seen when an X-ray or CT scan is taken.

Ultrasound can be done to look at the blood vessels and see how well the blood is flowing through them.

Ankle/brachial index (ABI) & pulse volume recording (PVR) are screening tests that assess how much blood is flowing to the legs. They also find out if there are any blockages.
What is the treatment?

**Immediately:** Your injured limb will be closely watched for further injury. As soon as possible, the limb should be immobilized and placed in the correct position by a doctor. Raising the limb can reduce swelling and improve blood flow. If caused by bone fractures, the bone will be placed in alignment with traction or an external fixator to help improve blood flow.

**In the hospital:** You will be given fluids or blood to replace what was lost. You may be given antibiotics and a tetanus shot to prevent infection. An anticoagulant, such as heparin or enoxaparin, may be given to prevent a blood clot from forming. Surgery may be done to repair any damaged blood vessels. Your fingers or toes will be checked often for color, temperature, feeling, and circulation. Early rehabilitation of the limb is vital once it is stabilized. This will prevent loss of muscle tone and strength. You will work with staff from physical and occupational therapy.

What are the complications?

- **Shock** can occur when too much blood is lost. It may be treated by giving fluids and blood through an IV.
- If your **nerves have been injured**, you could lose some or all feeling and function. This type of injury requires physical therapy, along with a chance of surgery.
- Symptoms of a **blood clot** include swelling, change in temperature, numbness or tingling, and pain in your arm or leg. This can be life threatening if the clot comes loose in the blood vessel and travels to your lungs.
- **Compartment syndrome** is caused by increased pressure inside your arm or leg from bleeding or swelling, or a tight dressing. Your nerves, blood vessels, and muscles can be damaged if the pressure is not released. Your caregivers will closely watch the circulation, feeling, and movement of your arm or leg. Treatment includes raising your arm or leg. You may also have the pressure released by the surgeon making an incision called a **fasciotomy**.

When should I call the doctor after I go home?

- Severe or constant pain not relieved by medicine and raising the limb.
- Your hand or foot becomes cold, pale, numb, blue, or cannot move.
- Swelling, weakness, numbness, or tingling in your arm or leg.
- If you have had surgery, check your wounds for signs and symptoms of infection which include increased pain, swelling, redness, drainage, or foul odor.
Phone Numbers

Patients of the Vascular Clinic at the West Clinic call (608)263-8915.

Patients of the Orthopedic Clinic call (608)263-7540.

Patients of the Trauma Clinic call (608)263-7502.

After hours, nights, weekends and holidays, this will give you the paging operator. Ask for the resident on call for your clinic. Leave your name and phone number with the area code. The doctor will call you back.

If you live out of the area, please call 1-800-323-8942 and ask for your clinic.