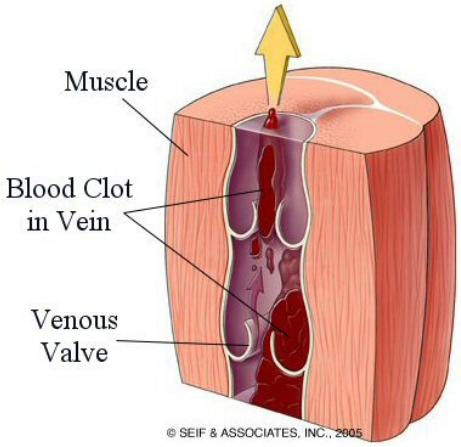
Pulmonary Embolus (PE)

A pulmonary (*lung*) embolus (PE) is a blood clot that has traveled from another place in the body to the lung. Most clots come from deep veins in the legs or pelvis. PE is a dangerous and potentially life-threatening condition that can be treated if identified.

CAUSES

Blood clots form in a vein for different reasons. Usually several things cause blood clots. They include:



- The flow of blood slows down.
- The inside of the vein is damaged in some way.
- The person has a condition that makes the blood clot more easily. These conditions may include:
  - Older age (especially over 75 years old).
  - Having a history of blood clots.
  - Having major or lengthy surgery. Hip surgery is particularly high-risk.
  - Breaking a hip or leg.
  - Sitting or lying still for a long time.
  - Cancer or cancer treatment.
  - Having a long, thin tube (*catheter*) placed inside a vein during a medical procedure.
  - Being overweight (*obese*).
  - Pregnancy and childbirth.
  - Medicines with estrogen.
  - Smoking.
  - Other circulation or heart problems.

SYMPTOMS

The symptoms of a PE usually start suddenly and include:

- Shortness of breath.
- Coughing.
- Coughing up blood or blood-tinged mucus (*phlegm*).
- Chest pain. Pain is often worse with deep breaths.
- Rapid heartbeat.

DIAGNOSIS

If a PE is suspected, your caregiver will take a medical history and carry out a physical exam. Your caregiver will check for the risk factors listed above. Tests that also may be required include:

- Blood tests, including studies of the clotting properties of your blood.
- Imaging tests. Ultrasound, CT, MRI, and other tests can all be used to see if you have clots in your legs or lungs. If you have a clot in your legs and have breathing or chest problems, your caregiver may conclude that you have a clot in your lungs. Further lung tests may not be needed.
- An EKG can look for heart strain from blood clots in the lungs.

PREVENTION

- Exercise the legs regularly. Take a brisk 30 minute walk every day.
- Maintain a weight that is appropriate for your height.
- Avoid sitting or lying in bed for long periods of time without moving your legs.
- Women, particularly those over the age of 35, should consider the risks and benefits of taking estrogen medicines, including birth control pills.
- **Do not** smoke, especially if you take estrogen medicines.

- Long-distance travel can increase your risk. You should exercise your legs by walking or pumping the muscles every hour.
- In hospital prevention:
  - Your caregiver will assess your need for preventive PE care (*prophylaxis*) when you are admitted to the hospital. If you are having surgery, your surgeon will assess you the day of or day after surgery.
  - Prevention may include medical and nonmedical measures.

TREATMENT

- The most common treatment for a PE is blood thinning (*anticoagulant*) medicine, which reduces the blood's tendency to clot. Anticoagulants can stop new blood clots from forming and old ones from growing. They cannot dissolve existing clots. Your body does this by itself over time. Anticoagulants can be given by mouth, by intravenous (IV) access, or by injection. Your caregiver will determine the best program for you.
- Less commonly, clot-dissolving drugs (*thrombolytics*) are used to dissolve a PE. They carry a high risk of bleeding, so they are used mainly in severe cases.
- Very rarely, a blood clot in the leg needs to be removed surgically.
- If you are unable to take anticoagulants, your caregiver may arrange for you to have a filter placed in a main vein in your belly (*abdomen*). This filter prevents clots from traveling to your lungs.

HOME CARE INSTRUCTIONS

- Take all medicines prescribed by your caregiver. Follow the directions carefully.
  - You will most likely continue taking anticoagulants after you leave the hospital. Your caregiver will advise you on the length of treatment (usually 3 to 6 months, sometimes for life).
  - Taking too much or too little of an anticoagulant is dangerous. While taking this type of medicine, you will need to have regular blood tests to be sure the dose is correct. The dose can change for many reasons. It is **critically important** that you take this medicine exactly as prescribed and that you have blood tests exactly as directed.
  - Many foods can interfere with anticoagulants. These include foods high in vitamin K, such as spinach, kale, broccoli, cabbage, collard and turnip greens, Brussels sprouts, peas, cauliflower, seaweed, parsley, beef and pork liver, green tea, and soybean oil. Your caregiver should discuss limits on these foods with you or you should arrange a visit with a dietician to answer your questions.
  - Many medicines can interfere with anticoagulants. **You must tell your caregiver about any and all medicines you take. This includes all vitamins and supplements.** Be especially cautious with aspirin and anti-inflammatory medicines. Ask your caregiver before taking these.
  - Anticoagulants can have side effects, mostly excessive bruising or bleeding. You will need to hold pressure over cuts for longer than usual. Avoid alcoholic drinks or consume only very small amounts while taking this medicine.
- If you are taking an anticoagulant:
  - Wear a medical alert bracelet.
  - Notify your dentist or other caregivers before procedures.
  - Avoid contact sports.
- Ask your caregiver how soon you can go back to normal activities. Not being active can lead to new clots. Ask for a list of what you should and should not do.
- Exercise your lower leg muscles. This is important while traveling.
- You may need to wear compression stockings. These are tight elastic stockings that apply pressure to the lower legs. This can help keep the blood in the legs from clotting.
- If you are a smoker, you should quit.
- Learn as much as you can about pulmonary embolisms.

SEEK MEDICAL CARE IF:

- You notice a rapid heartbeat.
- You feel weaker or more tired than usual.
- You feel faint.

- You notice increased bruising.
- Your symptoms are not getting better in the time expected.
- You are having side effects of medicine.
- You have an oral temperature above 102° F (38.9° C).
- You discover other family members with blood clots. This may require further testing for inherited diseases or conditions.

SEEK IMMEDIATE MEDICAL CARE IF:

- You have chest pain.
- You have trouble breathing.
- You have new or increased swelling or pain in one leg.
- You cough up blood.
- You notice blood in vomit, in a bowel movement, or in urine.
- You have an oral temperature above 102° F (38.9° C), not controlled by medicine.

You may have another PE. A blood clot in the lungs is a medical emergency. **Call your local emergency services (911 in U.S.)** to get to the nearest hospital or clinic. **Do not** drive yourself.

MAKE SURE YOU:

- Understand these instructions.
- Will watch your condition.
- Will get help right away if you are not doing well or get worse.

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