



Pulmonary Embolism

Pulmonary embolism is a blockage in one of the pulmonary arteries in your lungs. In most cases, pulmonary embolism is caused by blood clots that travel to the lungs from the legs or, rarely, other parts of the body (deep vein thrombosis).

The third most common cardiovascular disease after heart attack and **stroke**.

Pulmonary embolism is a medical emergency. If any of the symptoms below occur, seek immediate medical attention.

SYMPTOMS

Symptoms usually begin suddenly and may include:

depending on how much of your lung is involved, the size of the clots, and whether you have underlying lung or heart disease.

Common signs and symptoms include:

Shortness of breath. This symptom typically appears suddenly and always gets worse with exertion.

Chest pain. You may feel like you're having a heart attack. The pain may become worse when you breathe deeply (pleurisy), cough, eat, bend or stoop. The pain will get worse with exertion but won't go away when you rest.

Cough. The cough may produce bloody or blood-streaked sputum.

Other signs and symptoms that can occur with pulmonary embolism include:

Leg pain or swelling, or both, usually in the calf

Clammy or discolored skin (cyanosis)

Fever

Excessive sweating

Rapid or irregular heartbeat

Lightheadedness or dizziness

Chest pain, often aggravated by coughing or movement

Pain in your back

Excessive sweating

Rapid pulse or breathing

Lightheadedness or passing out

Blue lips or nail beds

If you have recently had a blood clot in a leg or arm, you may experience:

Swelling of the affected leg or arm.

Leg pain or tenderness that may only occur when you are standing or walking.

Increased warmth in the swollen or painful area of the affected leg or arm.

Redness or discoloration of your skin.

Enlargement of superficial veins in the affected leg or arm.

CAUSES

A variety of risk factors contribute to the development of pulmonary embolism:

Surgery, particularly abdominal or orthopaedic surgery, such as hip or knee surgery

Trauma or bone fracture

A long period of bed rest or sitting for a long time, perhaps on an airplane or in a car

Cancer and some cancer treatments, like chemotherapy

Cardiovascular diseases such as atrial fibrillation, heart failure, heart attack or stroke

Pregnancy and the first 6 weeks after giving birth

Birth control pills or hormones taken for symptoms of menopause

Family history of blood clots

Inherited blood disorders that make the blood thick, such as thrombophilia

Inflammatory bowel disease

Auto-immune diseases, such as lupus or antiphospholipid syndrome

Smoking

Obesity

Placement of vein catheters, pacemakers or implantable defibrillator

DIAGNOSIS

SEE A VASCULAR SURGEON

You will be asked questions about symptoms and medical history, including questions about family members. The vascular surgeon will also perform a physical exam.

TESTS MAY BE RECOMMENDED

Chest x-ray

Computerized Tomography Angiogram (CTA)

Echocardiogram (Echo)

Ventilation Perfusion Lung Scanning (VQ Scan)

Ultrasound of your leg veins (Duplex)

Pulmonary Angiography

Blood tests: D-dimer, Troponin, BNP (brain natriuretic peptide - hormone) and arterial blood gas analysis

TREATMENTS

MEDICATION

Blood thinners (anticoagulants). These drugs prevent new clots from forming while your body works to break up the clots. These medication include:

Heparin is a frequently used anticoagulant that can be given through the vein or injected under the skin.

Warfarin is an oral anticoagulant

Novel oral anticoagulants (NOACs) e.g. Eliquis, Xarelto and Pradaxa. These medications work quickly and have fewer interactions with other medications. All

anticoagulants have side effects, with bleeding being the most common.

Clot dissolvers (thrombolytics). While clots usually dissolve on their own, there are medications given through the vein that can dissolve clots quickly. Because these clotbusting drugs can cause sudden and severe bleeding, they usually are reserved for life-threatening situations.

Surgical and other procedures

Clot removal. If you have a very large, life-threatening clot in your lung, your doctor may suggest removing it via a thin, flexible tube (catheter) threaded through your blood vessels.

Vein filter. A catheter can also be used to position a filter in the body's main vein — called the inferior vena cava — that leads from your legs to the right side of your heart. This filter can help keep clots from being carried into your lungs. This procedure is typically reserved for people who can't take anticoagulant drugs or when anticoagulant drugs don't work well enough or fast enough. Some filters can be removed when they are no longer needed.

STAYING HEALTHY

If you have had pulmonary embolism once, you are more likely to have it again. Your vascular surgeon will recommend ways to prevent pulmonary embolisms in the future: Stay active and exercise regularly.

Wear elastic compression stockings, particularly if you need to sit or stand for long periods.

Use anticoagulants (blood thinners) as prescribed. If you become aware of times when you will have limited mobility, like during surgery or prolonged bed rest, discuss with your doctor whether a temporary change in dosage is recommended.

Walk or flex and stretch your legs every hour on long plane or car trips.

If you can't walk - due to bed rest, recovery from surgery or extended travel - move your arms, legs and feet for a few minutes each hour.

Drink plenty of fluids, like water and juice, and avoid excess alcohol and caffeine.

Do not smoke.

Maintain an optimal weight.

Prevention while traveling

The risk of blood clots developing while traveling is low, but increases as travel increases. If you have risk factors for blood clots and you're concerned about traveling, talk with your doctor.

Your doctor might suggest the following to help prevent blood clots during travel:

Drink plenty of fluids. Water is the best liquid for preventing dehydration, which can contribute to the development of blood clots. Avoid alcohol, which contributes to fluid loss.

Take a break from sitting. Move around the airplane cabin once an hour or so. If

you're driving, stop every hour and walk around the car a couple of times. Do a few deep knee bends.

Fidget in your seat. Flex your ankles every 15 to 30 minutes.

Wear support stockings. Your doctor may recommend these to help promote circulation and fluid movement in your legs. Compression stockings are available in a range of stylish colors and textures. There are even devices, called stocking butlers, to help you put on the stockings.