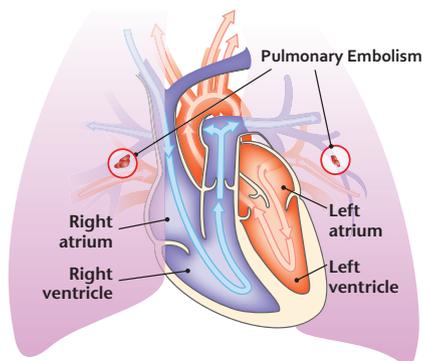


Acute Treatment of Pulmonary Embolism

Part 2

A pulmonary embolism (PE) is a blood clot that forms in the blood vessels in the lungs and prevents normal blood flow in that area. Sometimes, pulmonary embolism is caused by a blood clot in the leg, called a deep vein thrombosis (DVT), breaking free and moving into the lung. If you have a PE, you will need some type of treatment. Having a PE also puts you at a higher risk for future blood clots.



This fact sheet will discuss acute (immediate) treatment of pulmonary embolism. The ATS Patient Information Series fact sheet 'Pulmonary Embolism' Part 1 explains what a pulmonary embolism is and who is at risk for them. ATS Patient Information Series fact sheet 'Long term treatment and prevention of PE' Part 3 gives information on how to prevent blood clots in the lungs and various blood thinners that are available for patients who need longer term treatment.

What are the usual treatments for Pulmonary Embolism?

Almost everyone who has a PE will need to be treated with a blood thinner (anticoagulation therapy). Sometimes, a person will need to be started on either an injection or an IV infusion and later be switched to a pill. These blood thinners do not dissolve or break up the clot; they prevent the clot from getting bigger while the body slowly dissolves the clot on its own. How long treatment is needed depends on why the clot formed and other risk factors.

If the PE is large and causing severe symptoms, special medications called thrombolytics can be used to break up and dissolve the clot. In rare and special circumstances, a person may need to undergo surgery to remove the clot (embolectomy).

What are common blood thinner medicines?

Once a blood clot is diagnosed, injectable blood thinners are usually started. The two most common are heparin and enoxaparin. Heparin is given as a continuous infusion, and enoxaparin is given as an injection under the skin once or twice a day. After the IV blood thinners have had enough time to work, your healthcare provider will start blood thinner pills

What medicines are used to break up big clots?

Sometimes, a person has a clot that is causing severe symptoms such as heart failure and a medicine is needed to try to break it up (called thrombolysis). Medicines to break up clots are given either through an IV into the body (systemic) or more directly in the area of the clot (local):

Systemic—Tissue Plasminogen Activator (tPA, alteplase)

When there is a severe or life threatening blood clot, a clot busting medication is given right away through an intravenous (IV) catheter. The medicine does have an increased risk of bleeding, including bleeding in the brain. Older people and people with multiple medical problems have a greater risk of bleeding. However, if a person is having serious compromise of heart function and blood pressure, this can be life-saving. Your healthcare provider can discuss the possible risks and benefits of this treatment.

Local—see Figure 1

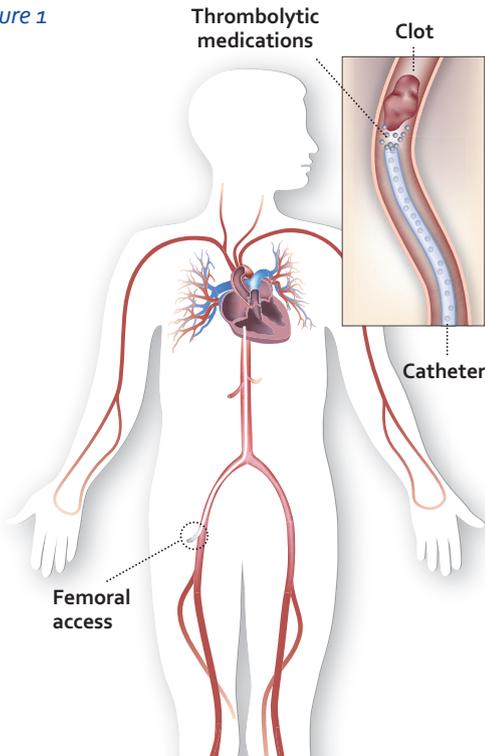
Clot busting medications like alteplase can at times be given directly into the area of the clot by placing a long catheter into a vein from either the neck or the groin (Figure 1). A specialist (expert radiologist or cardiologist) does this procedure. The risk of bleeding is lower than with systemic treatment but this approach is not always possible. The local placement of the clot buster medication is usually considered when a person is not too sick from the blood clot. Your healthcare provider can discuss the risks and benefits of this approach.

What if a person cannot take a blood thinner?

Some people are not able to take blood thinners because of a high risk of bleeding. In these cases, placement of an inferior vena cava (IVC) filter may be considered. See Figure 2.

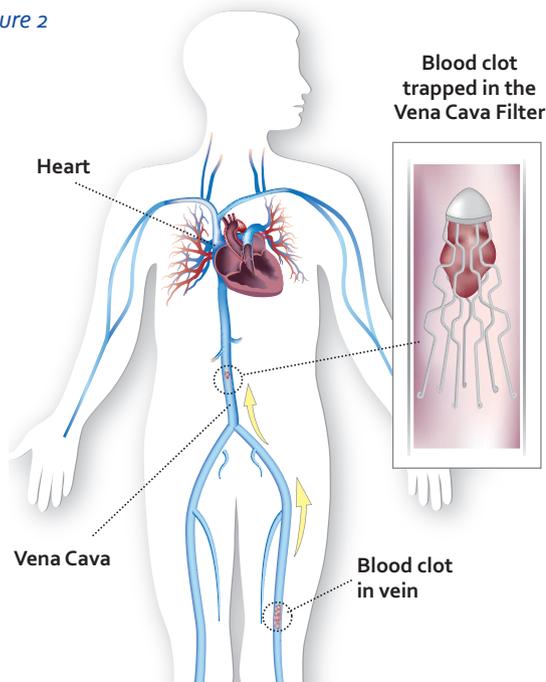
The filter is placed in the inferior vena cava (the major vein coming up from the lower body) to prevent blood clots from going from the legs up to the lungs.

Figure 1



It is estimated that 70% of the clots that go to the lungs come from leg (as DVT) and travel to the lung. A specialist (an interventional radiologist) places this filter. However, the filter can also be a source for new clot formation, so the filter should be removed in a timely manner when it is no longer needed. Your healthcare provider will help you decide if a filter is the best choice for you.

Figure 2



Embolectomy

Rarely, in the case of a life-threatening clot, surgery is done to remove the blood clot (embolectomy). This may require use of special critical life support measures such as extracorporeal membrane oxygenation (ECMO). You can learn more about ECMO at www.thoracic.org/patients.

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Rx Action Steps

If you are at risk of blood clots, talk to your healthcare provider about ways you can help prevent getting a DVT or PE.

- ✓ If you are on a blood thinner, always take it as prescribed. To keep a good level, take it at the same time of day and do not skip doses. Follow advice about avoiding foods that can affect the blood level.
- ✓ Get blood tests done as advised to monitor blood thinner levels.
- ✓ Stopping a blood thinner on your own can lead to another serious blood clot. If you are concerned about your treatment, talk to your healthcare provider.
- ✓ Watch for signs and symptoms of a blood clot or abnormal bleeding or bruising. Call your healthcare provider right away, if you are having any problems.

Healthcare Provider’s Contact Number:

For More Information

American Thoracic Society

- www.thoracic.org/patients/
 - PE part 1 (Introduction)
 - PE part 3 (Long Term Treatment)

National Heart, Lung and Blood Institute

- <https://www.nhlbi.nih.gov/health-topics/pulmonary-embolism>

Center of Disease Control

- <https://www.cdc.gov/ncbddd/dvt/index.html>

Clot Connect

- <http://www.clotconnect.org/healthcare-professionals/patient-handouts>

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