Embolism Encyclopedia Article

Embolism

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Embolism

An embolism results from the sudden blockage (occlusion) of an artery. In most cases, the blockage results from a **blood** clot traveling in the blood stream. When clots break away form their site of formation, they travel through the **circulatory system** until they reach a vessel, usually a small arteriole or capillary with a small enough diameter to prohibit further passage.

A broken clot obstructing circulation is termed an embolus. Clots that develop with blood vessels are termed thrombic clots or a thrombus. Once the clot breaks free, it is properly termed an emboli. In addition to blood clots, other material including air bubbles, clumps of **fat**, and other plaque matter.

Clots that break free from the left side of the **heart**, aorta, or large **arteries** usually form an embolism in a small artery or arteriole. Clots that originate in the right side of the heart, or in the venous system, flow to the **lungs** and form a pulmonary embolism.

For short periods, a functioning lung on the opposite side helps to compensate for any blockage in the **pulmonary circulation** until the clot can be removed.

Initial thrombus formation can be induced by trauma or disease processes that disturb the endothelium lining the blood vessel. Clots can also form when blood pressure and flow decrease to levels that do not permit the efficient removal of protoclots or microclots normally formed by thrombin and other coagulant agents. At sufficient flow and blood pressure, microclots are normally filtered out by the **liver**, but in cases of diminished flow, microclots and circulating coagulants may lead to clotting within blood vessels. The danger of clotting due to reduced flow, especially in the legs, is often increased in post-surgical patients who are immobilized for long periods.

The ultimate danger in an embolism is the deprivation of oxygenated blood to **tissue** normally served by the blocked vessel. The different tissues in the body have varying abilities to withstand oxygen deprivation. In some cases, **collateral circulation** can develop to compensate for blocked vessels and prevent significant tissue **death** and **necrosis**. In high oxygen demand tissue, such as neural tissue, arterial blockage usually leads to cell death and severe tissue compromise. In addition to the initial site of blockage, once an embolus forms it provides a site for future clotting. Accordingly, it is not unusual for an embolism to increase in size and further impair blood flow as time passes.