

Angioplasty

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Angioplasty, also known as **balloon angioplasty** and **percutaneous transluminal angioplasty (PTA)**, is a minimally invasive, endovascular procedure to widen narrowed or obstructed arteries or veins, typically to treat arterial atherosclerosis. A deflated balloon attached to a catheter (a balloon catheter) is passed over a guide-wire into the narrowed vessel and then inflated to a fixed size. The balloon forces expansion of the blood vessel and the surrounding muscular wall, allowing an improved blood flow. A stent may be inserted at the time of ballooning to ensure the vessel remains open, and the balloon is then deflated and withdrawn. Angioplasty has come to include all manner of vascular interventions that are typically performed percutaneously.

Types of Angioplasties:

Peripheral angioplasty

Peripheral angioplasty refers to the use of a balloon to open a blood vessel outside the coronary arteries. It is commonly done to treat atherosclerotic narrowings of the abdomen, leg and renal arteries caused by peripheral artery disease. Often, peripheral angioplasty is used in conjunction with guide wire, peripheral stenting and an atherectomy.

Carotid angioplasty

Main article: Carotid artery stenting

Carotid artery stenosis is treated with angioplasty in a procedure called carotid stenting for patients at high-risk for carotid endarterectomy.

Renal artery angioplasty

Atherosclerotic obstruction of the renal artery can be treated with angioplasty with or without stenting of the renal artery. Renal artery stenosis can lead to hypertension and loss of renal function.

Venous angioplasty

Angioplasty is occasionally used to treat venous stenosis, such as stenosis of the subclavian vein caused by thoracic outlet syndrome.

Technique

Access to the vascular system is typically gained percutaneously (through the skin, without a large surgical incision). An introducer sheath is inserted into blood vessel via the Seldinger technique. Fluoroscopic guidance and radiopaque contrast dye are used to guide angled wires and catheters to the region of the body to be treated. To treat a narrowing in a blood vessel, a wire is passed through the stenosis in the vessel and a balloon on a catheter is passed over the wire and into the desired position. The positioning is verified by fluoroscopy and the balloon is inflated using water mixed with contrast dye to 75 to 500 times normal blood pressure (6 to 20 atmospheres). A stent may or may not also be placed.

At the conclusion of the procedure, the balloons, wires and catheters are removed and the vessel puncture site is treated either with direct pressure or a vascular closure device.

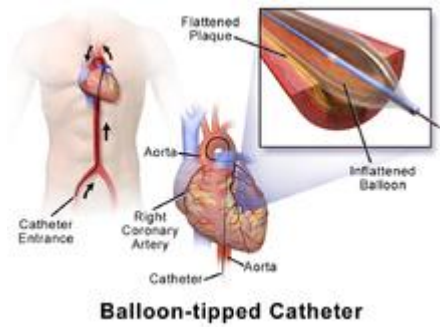
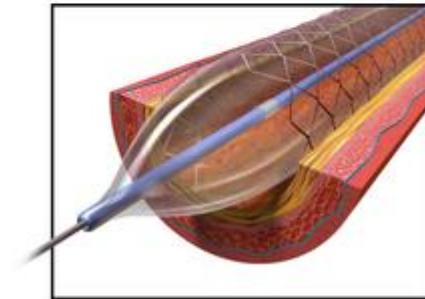
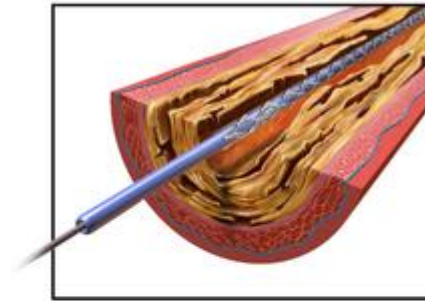
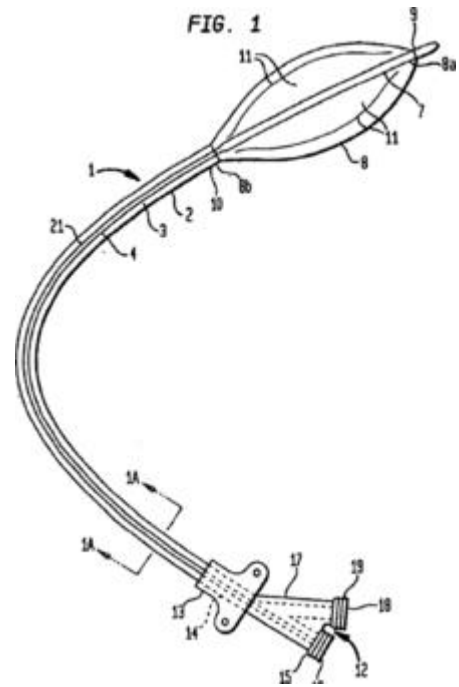


Diagram of a balloon catheter

Balloon-tipped catheter.



Balloon inflated with stent



Recovery

After angioplasty, most patients are monitored overnight in the hospital, but if there are no complications, patients are sent home the following day.

The catheter site is checked for bleeding and swelling and the heart rate and blood pressure is monitored. Usually, patients receive medication that will relax them to protect the arteries against spasms. Patients are typically able to walk within two to six hours following the procedure and return to their normal routine by the following week.

Angioplasty recovery consists of avoiding physical activity for several days after the procedure. Patients are advised to avoid any type of lifting, or other strenuous physical activity for a week. Patients will need to avoid physical stress or prolonged sport activities for a maximum of two weeks after a delicate balloon angioplasty.

Patients who experience swelling, bleeding or pain at the insertion site, develop fever, feel faint or weak, notice a change in temperature or color in the arm or leg that was used or have shortness of breath or chest pain should immediately seek medical advice.