

# Angioplasty: Uses and Indications

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## Abstract

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inserted at the time of ballooning to make sure the vessel remains open, and therefore the balloon is then deflated and withdrawn.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

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## Introduction

Angioplasty requires an access vessel, typically the femoral or arteria radialis or vena femoralis, to allow access to the system for the wires and catheters used. If no access vessel of sufficient size and quality is out there, angioplasty is contraindicated. A little vessel diameter, the presence of posterior calcification, occlusion, hematoma, or an earlier placement of a bypass origin, may make access to the system too difficult.

Percutaneous transluminal coronary angioplasty (PTCA) is contraindicated in patients with left main arteria coronaria disease, thanks to the danger of spasm of the left main arteria coronaria during the procedure. Also, PTCA isn't recommended if there's but 70% stenosis of the coronary arteries, because the stenosis it's not deemed to be hemodynamically significant below this level.

## Risks and complications

Relative to surgery, angioplasty may be a lower-risk option for the treatment of the conditions that it's used, but there are unique and potentially dangerous risks and complications related to angioplasty:

- Embolization, or the launching of debris into the bloodstream
- Bleeding from over-inflation of a balloon catheter or the utilization of an inappropriately large or stiff balloon, or the presence of a calcified target vessel.
- Hematoma or pseudoaneurysm formation at the access site
- Radiation-induced injuries (burns) from the X-rays used
- Contrast-induced renal injury

- Cerebral Hyperperfusion Syndrome resulting in stroke may be a serious complication of arteria carotis angioplasty with stenting.

Angioplasty can also provide a less durable treatment for atherosclerosis and be more susceptible to restenosis relative to vascular bypass or arteria coronaria bypass grafting. Drug-eluting balloon angioplasty has significantly less restenosis, late lumen loss and target lesion revascularization at both short term and midterm follow-up compared to uncoated balloon angioplasty for femoropopliteal arterial occlusive disease. Although angioplasty of the femoropopliteal artery with paclitaxel-coated stents and balloons significantly reduces rates of vessel restenosis and target lesion revascularization, it had been also found to possess increased risk of death.

After angioplasty, most patients are monitored overnight within the hospital, but if there are not any complications, patients are sent home the subsequent day.

The catheter site is checked for bleeding and swelling and therefore the pulse and vital sign are monitored to detect late rupture and hemorrhage. Post-procedure protocol also involves monitoring urinary output, cardiac symptoms, pain and other signs of systemic problems. Usually, patients receive medication which will relax them to guard the arteries against spasms. Patients are typically ready to walk within two to 6 hours following the procedure and return to their normal routine by the subsequent week.

Angioplasty recovery consists of avoiding physical activity for several days after the procedure. Patients are advised to avoid work and strenuous activities for every week. Patients will be got

to avoid physical stress or prolonged sport activities for a maximum of fortnight after a fragile balloon angioplasty.

After the initial two-week recovery phase, most angioplasty patients can begin to securely return to low-level exercise. As a precaution, all structured exercise should be cleared by a cardiologist before commencing. Exercise-based rehabilitation following percutaneous coronary intervention has shown improvement in recurrent angina, total exercise time, ST-segment decline, and maximum exercise tolerance.

Patients with stents are usually prescribed dual antiplatelet therapy (DAPT) which consists of a P2Y12 inhibitor, like clopidogrel, which is taken at an equivalent time as aspirin (aspirin). Dual antiplatelet therapy (DAPT) is suggested for 1 month following bare metal stent placement, for 3 months

following a second-generation drug-eluting stent placement, and for 6–12 months following a primary generation drug-eluting stent placement.

DAPT's antiplatelet properties are intended to stop blood clots, however they also increase the danger of bleeding, so it's important to think about each patient's preferences, cardiac conditions, and bleeding risk when determining the duration of DAPT treatment. Another important consideration is that concomitant use of Clopidogrel and Proton Pump Inhibitors following coronary angiography is related to significantly higher adverse cardiovascular complications like major adverse cardiovascular events (MACE), stent thrombosis and myocardial infarct

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