PROCEDURE

Angioplasty and stent placement - peripheral arteries

Peripheral angioplasty opens a narrowed artery with a balloon, sometimes adding a stent.

PURPOSE
Improve blood flow through a narrowed or blocked peripheral artery

PROCEDURE TYPE
Therapeutic, minimally invasive image-guided catheter procedure

WHERE IT IS DONE
Catheterisation laboratory or interventional radiology suite

ANAESTHESIA
Local anaesthetic, often with moderate sedation

HOW LONG IT TAKES
About 30 minutes to 3 hours

PREPARATION
Fasting, blood tests, and review of blood-thinning medicines

RECOVERY
Same day or overnight; no driving for at least 24 hours

MAIN RISKS
Bleeding, artery injury, blood clots, kidney injury

RESULTS
Blood flow improvement assessed immediately

Overview

Peripheral angioplasty is a minimally invasive procedure that opens a narrowed or blocked artery outside the heart, usually an artery supplying a leg.

Using X-ray guidance, a doctor passes a catheter through an artery, commonly from the groin or wrist, to the narrowing. A small balloon is inflated to widen the artery. A mesh tube called a stent may be left in place to help keep it open, but not every angioplasty requires one.

Angioplasty treats a specific narrowing, not peripheral artery disease throughout the body. Medicines, exercise, smoking cessation, and control of blood pressure, cholesterol and diabetes usually remain important.

Why the procedure is performed

The aim is to improve blood flow when poor circulation causes significant symptoms or threatens a limb. Reasons include:

Likely benefit depends on the location, length and severity of the blockage, other available arteries, your overall health and your treatment goals.

- Walking pain that limits daily life despite exercise and medicines
- Foot or leg pain at rest
- Sores or wounds that are not healing
- Tissue damage from severely reduced circulation
- A sudden artery blockage needing urgent treatment
- Narrowing that threatens a previous bypass or stent

Who should and should not have it

Angioplasty may be suitable when a narrowing can be reached safely and restoring blood flow is expected to relieve symptoms, support wound healing or protect a limb.

Mild symptoms may be managed with exercise, medicines and risk-factor treatment. Long or heavily calcified blockages may be better treated with bypass surgery or another technique.

Treatment may be delayed or avoided if you have active infection, uncontrolled bleeding or a condition that makes lying still unsafe. Kidney impairment needs careful planning because contrast dye can worsen kidney function. Tell the team about any previous serious contrast reaction or possible pregnancy because the procedure uses contrast and radiation.

A stent usually requires antiplatelet medicines to prevent clotting. Angioplasty may be unsuitable if you cannot take them safely, although the balance of risks may differ in an emergency.

How to prepare

Follow your facility's instructions, which may vary with the artery treated, your medicines and the planned anaesthesia.

You may need to stop eating for several hours. Instructions for clear fluids may differ from those for food.

Tell the team about all medicines, supplements and allergies, especially anticoagulants and antiplatelet medicines. Do not stop blood-thinning medicines unless instructed.

Blood tests may check kidney function, blood counts and clotting. Report kidney disease, diabetes, a bleeding disorder, a previous contrast reaction or any chance of pregnancy.

Arrange transport home. You must not drive after sedation and may need an adult to stay with you for the first night.

What happens during the procedure

You lie on an X-ray table while your heart rate, blood pressure and oxygen level are monitored.

The access site is cleaned and numbed with local anaesthetic. Moderate sedation may make you relaxed and drowsy while still able to respond.

The doctor places a sheath into the artery, then guides a catheter and wire to the blockage. Contrast dye makes the artery visible on X-rays and may cause brief warmth.

A balloon is inflated across the narrowing. You may feel temporary pressure or discomfort. If needed, a stent is expanded against the artery wall. Some balloons and stents are coated with medicine to reduce repeat narrowing.

After checking blood flow, the doctor removes the equipment and seals the puncture site with pressure or a closure device.

Recovery and what to expect afterward

Mild soreness and bruising are common. Pain should improve, not intensify; report pain that is difficult to control before discharge.

You can usually eat and drink when fully awake. Fluids may help clear the contrast, but follow any restriction prescribed for heart or kidney disease.

You may need to lie flat for several hours after groin access. At home, avoid heavy lifting and strenuous activity for the period in your discharge instructions. Gentle walking is often encouraged once the access site has settled.

Do not drive for at least 24 hours after sedation, or longer if pain, limited movement or your instructions make driving unsafe. Desk-based work may be possible within several days, while physical work may require longer.

Risks and possible complications

Bleeding, bruising or a collection of blood may develop at the access site. Less commonly, the artery may be damaged and require treatment.

Other possible complications include:

Serious complications are uncommon in most planned procedures. Risk depends on the artery treated, blockage severity, kidney function and other health conditions.

- A blood clot or artery blockage
- Debris reducing circulation downstream
- Repeat narrowing in the treated area or stent
- Contrast-related kidney injury or an allergic-like reaction
- Infection, nerve or tissue damage
- Sedation complications
- Emergency surgery, limb loss, heart attack, stroke or death

Results and follow up

The doctor can usually see immediately whether blood flow has improved. Warmer skin, better walking or wound healing may develop over days or weeks.

Follow-up may include an examination, limb blood pressure measurements, an ankle-brachial index or Doppler ultrasound to assess blood flow and detect repeat narrowing.

Take antiplatelet and other cardiovascular medicines exactly as prescribed. Never stop an antiplatelet medicine after stent placement without consulting the treating team, because a clot could form inside the stent.

Long-term care may include structured walking, cholesterol treatment, blood pressure and diabetes management, wound care and smoking cessation. Keep any stent information card you receive.

Alternatives

Stable symptoms may be treated with structured exercise and medicines, although improvement can take time and the blockage is not directly opened.

Bypass surgery creates a route around the blockage and may be more durable for some

complex blockages, but requires an operation and longer recovery. Endarterectomy removes plaque through an incision and is useful in selected locations.

For sudden blockage, alternatives include clot-dissolving treatment, catheter-based clot removal or open surgery.

Choosing no procedure may be reasonable for mild symptoms or limited expected benefit. However, severe rest pain, wounds or tissue damage may not improve without restored blood flow.

When to call your healthcare team

Contact the treating team promptly for increasing redness, warmth or drainage at the puncture site; fever; worsening pain; a growing lump; new difficulty walking; returning symptoms; or a worsening wound.

Seek emergency help for:

Routine bruising and mild tenderness are different from these warning signs.

- Bleeding that does not stop after firm pressure
- A rapidly expanding or very painful swelling
- A limb that suddenly becomes cold, pale, blue, numb or weak
- Sudden severe limb pain
- Chest pain, severe shortness of breath or fainting
- Sudden facial drooping, speech difficulty or one-sided weakness

Common questions

Will I be asleep?

Usually not. Local anaesthetic numbs the access site, and moderate sedation often makes you sleepy. General anaesthesia is used for selected procedures.

Can I drive home?

No. Arrange transport and avoid driving for at least 24 hours after sedation or for any longer period advised.

How painful is it?

The numbing injection may sting. Balloon inflation can cause pressure, and mild soreness may

follow. Report severe or worsening pain.

When will I know if it worked?

Blood flow is assessed immediately. Improvements in walking, rest pain or wound healing may become clearer over days or weeks.

Does the stent stay in permanently?

Yes. It is designed to remain in the artery and usually cannot be felt.

Can the artery narrow again?

Yes. Repeat narrowing can occur after balloon treatment or stenting. Follow-up testing is important, particularly if symptoms return.

Sources

- 2024 ACC/AHA Guideline for the Management of Lower Extremity Peripheral Artery Disease , American Heart Association and American College of Cardiology
- Peripheral arterial disease: diagnosis and management , National Institute for Health and Care Excellence
- Angioplasty and Vascular Stenting , Radiological Society of North America and American College of Radiology
- Angioplasty and stenting , Cardiovascular and Interventional Radiological Society of Europe