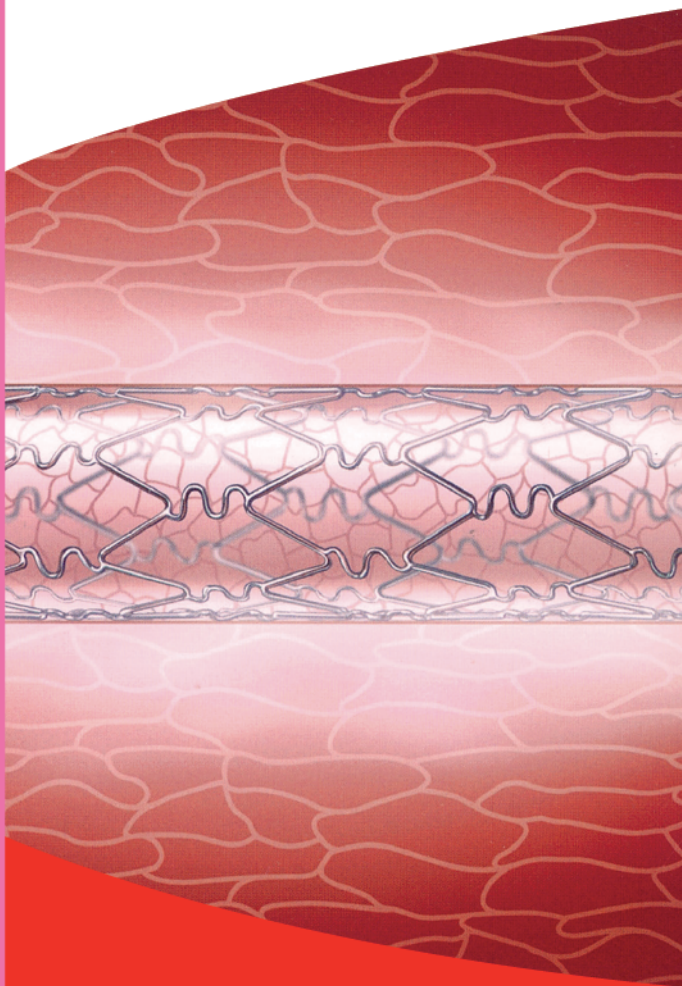


# Coronary Angioplasty



# What is Coronary Angioplasty?

Coronary stenting is a catheter-based procedure in which a stent (small, expandable wire mesh tube) is inserted into the diseased coronary artery to keep it open. Its most common use is in conjunction with balloon angioplasty for the treatment of coronary artery disease.

The stent is immediately inserted after balloon angioplasty is done to keep the narrowed coronary artery open. Stent placement is carried out most of the time after the balloon angioplasty and/or after plaque is removed from an artery.

## Alternatives to coronary stenting

Based on the results of the coronary angiogram and the individual factors of the coronary artery disease, the cardiologist will advise on the most appropriate treatment, which may include:

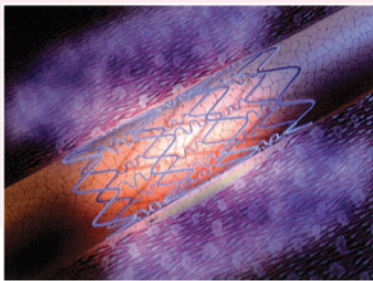
- Medications.
- Percutaneous transluminal coronary angioplasty (PTCA). A procedure in which the physician uses a balloon-tipped catheter to press plaque back against the artery wall to allow for better blood flow in the artery.
- Atherectomy. A catheter is inserted with a device on the tip that cuts away and removes plaque.
- Coronary artery bypass grafting (CABG). A surgical procedure whereby veins from another part of the body (usually the leg) are used to reroute blood flow around a clogged artery that supply blood to the heart. If there are two, three, four or five clogged arteries, patient may require a double, triple, quadruple or quintuple bypass.

## How should I prepare for the procedure?

Before the day of the coronary stenting, patient should discuss their medical history with the physician and inform of any medication currently taking. Certain medications may need to be stopped or reduced. It is also recommended that patients with diabetes consult their physician regarding food and insulin intake, because patient is generally instructed not to eat or drink anything after midnight before the procedure. Individuals should talk to their physician if they have any blood-clotting disorder or an allergic reaction to any of the following:

- Iodine
- Shellfish (e.g. crab or shrimp)
- X-ray contrast media

On the day of the procedure, the patient will be admitted to the hospital. A nurse or physician will explain what is going to happen. You will have to sign a written consent form for the procedure. A small needle or plastic tube will be inserted into a vein, usually in the arm. This will be used to give you fluids and medicine during the procedure.



## What happens during the procedure?

- The patient lie down on a table under an x-ray camera.
- You may be given a mild sedative but remain awake and relaxed during the procedure.
- Once the patient is comfortable, heart monitoring begins and an arterial access is established. The area where the short tube (for arterial access) is to be inserted is sterilely prepped and local anaesthesia is given.
- The procedure can be performed via the femoral artery in the groin, the brachial artery in the arm or the radial artery in the wrist.
- The injection of the local anesthesia may result in a brief moment of minimal discomfort. This is normal and should be no cause for concern.
- A catheter is advanced through the short tube to the heart and is positioned near the origin of the coronary artery.
- An anticoagulant is then administered through the catheter to prevent blood clot formation within the artery during the procedure.
- The cardiologist will inject dye (contrast medium) through the catheter. The dye can be seen on a special x-ray equipment and serves as a road map for the procedure.
- The cardiologist may ask the patient to perform tasks such as coughing, turning the head, taking a deep breath or not to speak for a while. Throughout the procedure, blood pressure will be monitored.
- Stenting is then performed. Equipped with a premounted stent, a balloon-tipped catheter is advanced to the target area. The balloon is inflated for several seconds, expanding the stent, which adheres to the wall of the artery.
- The balloon catheter is removed while the stent remains permanently fixed to the artery. Approximately four to six weeks after the stent implantation, it will become completely covered by a thin layer of arterial tissue.

## After the stenting procedure

Once the procedure is completed, the patient will be transferred to a cardiac recovery room. He or she may feel groggy from the sedative. Patient may feel bruised and sore over the insertion site.

If the groin area was used as the point of catheter insertion, instructions will be given to patient for complete rest in bed and keep affected leg straight. The physician may use one of the two techniques for removal of the sheath that was placed at the initiation of the procedure. The traditional technique is to wait until the effects of the anticoagulant have weaned off (four to six hours) and then apply pressure after the sheath is removed from the femoral artery. Another technique allows the sheath to be removed immediately after the procedure through the use of vascular closure device that seal or stitch the femoral artery.

If the wrist or arm was used as the point of catheter insertion, patient does not need to stay in bed. Throughout the post-procedure monitoring, the point of catheter entrance is constantly observe for bleeding, swelling or inflammation. Vital signs are continuously monitored during this period. Usually the patient is required to stay overnight for further observation.

## Post-stenting instructions

- Post procedure day one or two, patient is encouraged to drink plenty of fluids to prevent dehydration and to help flush the dye that was used during the procedure, out of the body through excretion.
- Exercise and exertion. Refrain from lifting heavy objects and engaging in strenuous exercise or sexual activity for 24 hours after the procedure.
- Care of the incision area. Bruising and soreness is possible and normal. Undue pain, swelling or inflammation may require medical attention.
- Medications. Anti-platelet medications (e.g., aspirin) to prevent or minimize blood clot formation within the stent will be prescribed.

# Benefits & Risks of Coronary Angioplasty

## BENEFITS

Stenting can improve blood circulation, with potential benefits such as the following:

- Reduced chest pain, pressure or discomfort.
- May reduce the shortness of breath (dyspnea).
- Lower risk of heart attack.
- May reduce the risk of the artery re-closing.
- Nearly no risk of sudden vessel closures (which occur in about 5% of patients who underwent balloon angioplasty without stent implantation, within the first 24 hours of the procedure).

## RISKS

- There is a small chance that the stent may damage the vessel when implanted, sometimes causing a tear on the artery. However, statistics have shown that this generally does not affect long-term prognosis.
- Approximately 20 percent of stents re-narrow within six months of placement. The risk of restenosis is higher in patients with diabetes and “high-risk” patients with acute coronary syndromes.
- Ongoing attempts to prevent restenosis include the development of stents coated with a chemotherapeutic drug (e.g., sirolimus), which is released into the wall of the artery. Approved by the U.S. Food and Drug Administration in April 2003, drug coated stents have shown to minimize restenosis.
- An uncommon complication of stent placement is subacute thrombosis. This is when platelets aggregate and form a blood clot within the stent, potentially causing closing of the stent and a heart attack. It can occur with both drug-eluting and “bare metal” stenting. To reduce this risk, medications such as aspirin and other antiplatelet drugs may be prescribed.



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