

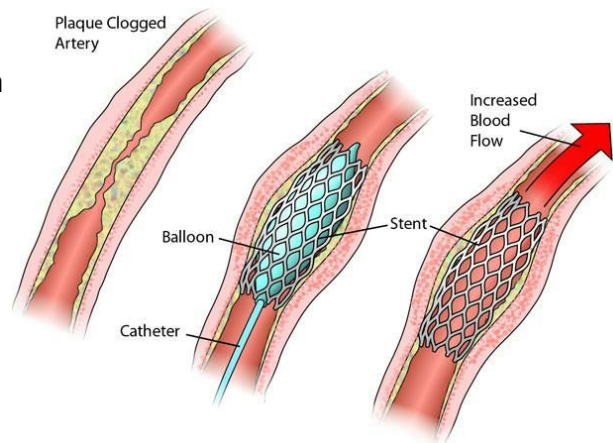
Cardiac Catheterization and Percutaneous Coronary Intervention (PCI)

What is cardiac catheterization?

Cardiac catheterization is a medical procedure that visualizes the blood vessels of the heart to detect narrowing or obstruction in blood vessels that can reduce blood flow. A small hollow tube called a catheter is inserted into a blood vessel in your arm, groin (upper thigh), or neck and threaded to your heart. Once the catheter is in the heart, a special type of dye is injected and allowed to flow through the bloodstream in your heart. Dr. Ben-Zur proceeds to take x-ray pictures of your heart. The dye will make the heart arteries visible on the pictures. This test is called coronary angiography and allows Dr. Ben-Zur to determine the location and degree of blood vessel narrowing or obstruction. If narrowing or obstruction is detected, he will continue with a percutaneous coronary intervention (PCI) procedure to open up the narrowing or obstruction.

What is Percutaneous Coronary Intervention (PCI)?

Percutaneous coronary intervention (PCI) or coronary angioplasty is a procedure that uses a catheter to place a small device, either a balloon or a stent, to open up a blood vessel that has been blocked by plaque. Plaque is a buildup of cholesterol and other inflammatory particles. Imagine placing a deflated balloon in the hole of a donut and slowly inflating it. In blood vessels, the balloon is placed at the site of narrowing and carefully inflated against the blood vessel wall, which gradually expands the wall. This procedure reestablishes blood flow in your vessels so that you can get more oxygen to all areas of your heart.



What types of stents are used in PCI?

A stent may be placed in your blood vessel during a PCI procedure. There are two main stents used: a traditional, bare-metal stent and a drug-eluting stent.

When does a patient need this procedure?

Catheterization and PCI procedures will be considered if there is suspicion that you have a blocked vessel in the heart. Dr. Ben-Zur will determine the need for this procedure based on your symptoms, results of diagnostic tests and current medical condition.

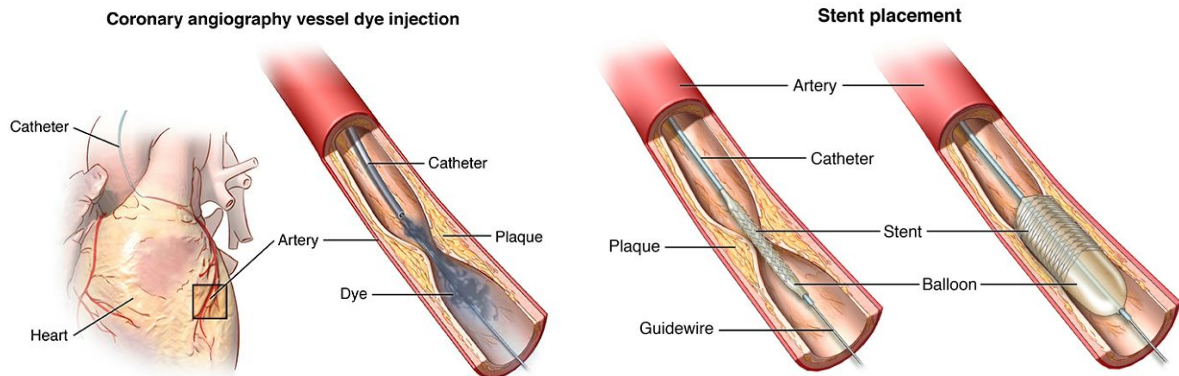
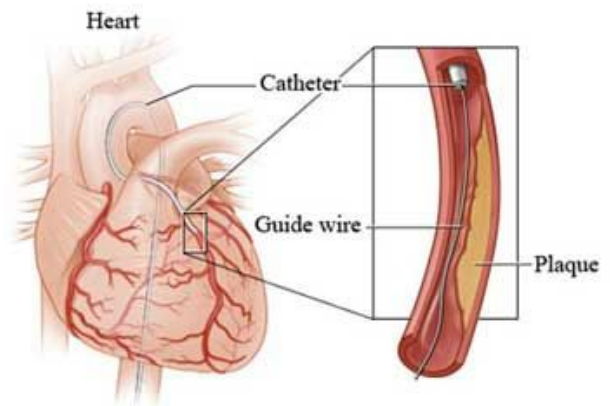
What to expect during the procedure:

Access to your arteries will be obtained through the femoral artery located in your leg. This is often called percutaneous access. Once access is obtained a sheath will be used to hold the artery open while also inhibiting blood loss. A long, thin hollow tube, known as the “guiding catheter”, is inserted into the artery and travels up to your heart. This catheter has a reservoir of

Sources:

1. <http://www.ebme.co.uk/images/arts/cc/guide.jpg>
2. <http://www.nlm.nih.gov/health/health-topics/topics/cath>
3. <http://www.mayoclinic.org/tests-procedures/cardiac-catheterization/basics/what-you-can-expect/prc-20023050>
4. <https://www.urmc.rochester.edu/Encyclopedia/GetImage.aspx?ImageID=318798>
5. <http://thecardiainstitute.com/wp-content/uploads/2015/03/stent.jpg>

radio-opaque dyes, which allows you to see the dye on x-ray. Once the catheter reaches the target location dye is injected throughout your heart's blood vessels so that Dr. Ben-Zur can detect which blood vessels are blocked. Once the blood vessels are visualized with the x-ray, he can estimate the size of the balloon or balloon/stent catheter and guidewire needed to break up the plaque. From here the guidewire creates a hole in the plaque and the balloon is inflated to push the plaque up against the wall. If a stent is needed it will be implanted at this time. The balloon and guidewire are retracted out of the blood vessel and the sheath is removed from the femoral artery.



What to expect before the procedure:

Before the procedure you will have a pre-procedure appointment. This will include obtaining labs and any necessary imaging as well as any medication adjustments that need to be made for the procedure. This is an additional opportunity to ask any questions that you may have.

On the day of the procedure:

- Do not eat or drink anything after midnight the night before the exam.
- Do not ingest any stimulants for 24 hours BEFORE the test. This includes coffee, tea, and cola drinks.
- Wear loose fitting, comfortable clothing.
- Do not wear necklaces or clothing with metal on it (metal buttons, sequins, brooches, etc.).
- If you have asthma presently or previously, bring your inhaler(s) with you.
- Bring a list of your medications with you.
- Take your usual morning medications with sips of water on the day of your test unless directed by Dr. Ben-Zur.
- Notify Dr. Ben-Zur if you take insulin or diabetic medication as these medications may need to be discontinued or decreased the morning of the procedure.

What are possible complications?

With any procedure there is always a risk of complications. Cardiac catheterization and PCI are common medical procedures. Serious complications are uncommon but may occur. There are risks, benefits, and alternatives of the procedure. Risks include but are not limited to: infection, bleeding, heart attack, stroke, death, neurologic deficit, nerve injury, lymphatic injury, venous thrombosis, pericardial effusion (blood around the heart), pleural effusion (blood around the lungs), pulmonary embolism, hematoma, pain, need for an emergent operation such as emergency coronary artery bypass grafting, possible blood transfusion and its complications, complications associated with anesthesia, drug allergies, vascular perforation, dissection, rupture, thrombosis, distal embolization, arrhythmia (irregular heartbeat), renal insufficiency/failure, dialysis dependence, limb loss, dye allergy, discomfort and bleeding at the catheter insertion site, and radiation exposure. Sometimes chest pain can occur during PCI because the balloon briefly blocks blood supply to the heart.

The risk of complications is higher in patients:

- aged 65 and older
- who have chronic kidney disease
- who are in shock
- who have extensive heart disease and blockages in their coronary (heart) arteries

There are also possible complications after stent placement. Stent restenosis is a problem that can occur after PCI. This results from too much tissue growth within the treated portion of the artery. This can cause the artery to become narrow or blocked again, often within 6 months.

Stents coated with medicine (drug-eluting stents) reduce the growth of scar tissue around the stent. These stents further reduce the risk of restenosis. There are risks and benefits of each type of stent. Please ask us for more information.

Need more information?

We encourage you to ask Dr. Ben-Zur any questions and discuss concerns you have at anytime. Visit our website at www.DrBenZur.com, give us a call at (818) 986-0911, or email us at ubenzurmd@gmail.com. You may also call Dr. Ben-Zur after hours if you have any additional questions that you did not have a chance to ask.