all about
Percutaneous Transluminal Angioplasty (PTA)
Treatment of narrowing of the leg or pelvic arteries under Fluoroscopy

Investigations has shown that narrowing of blood vessels are the cause of circulatory problems in your legs or pelvic area.

Percutaneous transluminal angioplasty (PTA) allows the doctor to dilate narrowed or blocked blood vessels under X-ray and possibly keep them open with a stent. You will be informed about the procedure and possible risks and consequences of the proposed action and of alternative methods, so you can decide and agree to the treatment.

Why do I have to undergo this procedure?

Angioplasty is often used to surgically repair damaged or diseased blood vessels.

It is most often used to treat peripheral arterial disease (PAD), which is another name for hardening of the arteries supplying blood to your limbs or to organs in your body other than your heart.

Angioplasty can also be used to treat narrowed areas in your veins, which are blood vessels that drain blood out of your limbs or organs and return the blood to your lungs and heart.

Your arteries are normally smooth and unobstructed on the inside, but as you age, plaque can build up in the walls of your arteries. Cholesterol, calcium, and fibrous tissue make up this plaque. As more plaque builds up, your arteries can narrow and stiffen. This process is called atherosclerosis, or hardening of the arteries. Eventually, enough plaque builds up to reduce blood flow through your arteries causing pain or damage to the part of the body that the artery supplies.

Surgical Bypass is another alternative to angioplasty but requires an open operation under General Anaesthesia and longer hospital stay. Your Doctor will discuss the pros and cons of each and advise you accordingly.

What happens during the procedure?

Before the insertion, the nurse will clean your skin and shave any hair in the immediate area. This is done to reduce your risk of infection. Your doctor numbs your skin with local anaesthesia and then makes a small cut or puncture to reach the artery below. Although you may be given some mild sedation, your doctor will usually want you to stay alert to follow instructions and describe your sensations during the procedure. The doctor then inserts a thin hollow needle into an artery or a vein in the groin, elbow, or in the armpit. Through this needle under X-ray, a wire followed by a very thin plastic tube (catheter) is advanced to the narrowed vessel. The doctor then injects a dye (contrast) into your arteries to visualise the blockage. This is called an Angiogram.
During X-ray, a deflated balloon is positioned across the narrowing or blockage. The balloon is inflated to press the plaque against the vessel wall and this may last between 1 to 5 minutes. Occasionally, this may be repeated. Your artery may stretch and your blood flow through the artery stops when the balloon is pushing your artery open. This may cause pain. However, the pain should go away when your doctor deflates the balloon and normal blood flow resumes. Do tell your doctor if you experience any symptoms during angioplasty.

After angioplasty, your doctor will sometimes need to use a stent to brace the artery open to prevent re-occlusion (or closing).

A stent is a tiny mesh tube that looks like a small spring, and comes in a variety of sizes. The stent remains in place to support the walls of your artery. Your artery walls grow over the stent, preventing it from moving. Although stents help prop open your arteries, scar tissue sometimes can eventually form around stents and cause restenosis or reblockage.

A new type of stent is coated with drugs. These drugs may help prevent scar tissue from forming inside a stent. Studies have shown that these new stents may be more likely to prevent restenosis than ordinary, non-coated stents.

During all these procedures, blood thinners will be used to prevent clots in your arteries/veins. Other medications may also be used to relax your blood vessels.

During this time, you may experience a brief warm sensation. This is normal. You should try to lie very still during the injection to prevent blurring of the pictures. During the test, we may ask you to hold your breath for about 5 to 15 seconds.

Depending on circumstances, the following therapies can be used to open the blockage:

- an inflatable balloon to dilate the constriction (angioplasty)
- a stent (an inert metal which is expanded to act like a scaffolding to keep the blood vessel wide open)
- a cutting device to remove the artheroma or debris that is causing the blockage (arterectomy)
- a rotary instrument to remove blood clots
- a laser source to fragment the artheroma
- ‘clot busters’ which are used to dissolve blood clots (thrombolysis)

The most common therapy is Angioplasty with or without supplementary Stenting.
At the end of the procedure, dye is again injected through the catheter to see the results of the therapy. Further treatment during the same setting or at another time may be required to achieve a satisfactory result.

A typical procedure normally lasts 1 to 2 hours. However, in complex cases, the procedure may stretch longer.

At the end of the procedure, the doctor will remove the wires and balloons from the injection site. He may do the following:

- Apply a compress on the injection site for 10-15 minutes which may cause some discomfort. After compression, you must lie still in a flat bed for 6-24 hours to prevent bleeding at the injection site.

- He may use a device to artificially close the injection hole in the artery (closure device eg Angioseal, Proglide, Starclose) which will allow you to move around after 2 hours.

What happens after the procedure?

Usually, you need to stay in bed for 2 to 24 hours after your angioplasty depending whether a closure device was used. If your doctor inserted the catheters through an artery in your groin, you may have to hold your leg straight for a few hours. If your arm was used, then you will need to hold it still to minimise the risk of bleeding. During this time, you will be closely monitored for any complications by your doctor and nurses.

If you notice any unusual symptoms after your procedure, you should tell your doctor or nurse immediately. These symptoms include fever, shortness of breath, leg or back pain that lingers or gets worse, an arm or a leg that turns blue or feels cold, and bleeding, swelling, pain or numbness around your injection site.

After the procedure, you should drink plenty of water for 2 days to help flush the contrast dye out of your body. You can usually shower 24 hours after your procedure.

Your doctor will prescribe aspirin or other medications that thin your blood. These medications will help prevent clots from forming on your stent. Your doctor will usually see you the next day to explain the results and make sure you have not developed any complications.

It is important that you STOP SMOKING and take all your prescribed medications to prevent the blockages from reforming i.e. restenosis. This may happen very soon in some cases. Your doctor will advise you accordingly.

You may be scheduled for more ultrasound scans after the procedure. This is to detect restenosis. Depending on circumstances, your doctor may recommend a repeat angioplasty.
Are there complications?

Severe complications arising from angioplasty are rare. However, no medical intervention is entirely free of risks. Despite the utmost care, known medical complications may occur requiring immediate treatment and may even be life-threatening. These include:

- Pain and bruising at the puncture site, which are harmless and usually disappear on their own without treatment. Life-threatening bleeding is uncommon but may require emergency surgery.

- Rarely, one might experience allergic reactions to the contrast agent, the local anesthetic or possibly medications, which may result in nausea, itching or skin rash. These usually resolve by themselves and require no treatment. Severe allergic reactions with swelling in the windpipe causing respiratory problems, convulsions, or cardiac failure are rare. These will require intensive medical care and may cause permanent organ damage.

- Rare blood infections which may require treatment with antibiotics and/or intensive care.

- Rare bleeding or injury of the blood vessels through the catheter or other instruments which may require immediate vascular surgery.

- Rare formation of blood clots or thrombosis in the treated vascular segment after therapy. This may be due to the detachment of plaques or pre-existing blood clots/fat particles, causing vascular occlusion (embolism) and require immediate intensive care or surgical treatment. This may result in stroke or a worsening of blood supply to the affected limb resulting in limb loss. This is particularly true in heavily pre-damaged vessels. Blood-thinning or blood dissolving drugs may help in these cases but may cause an increased risk of bleeding in the brain or intestines.

- An uncommon worsening of your kidney function which is usually temporary but may be permanent and may even require dialysis. Diabetics and patients with pre-existing kidney problems are at a higher risk.

The procedure is performed under fluoroscopy. The radiation dose is low so that even long or repeated treatment and the inevitable exposure of the genital organs are generally safe.

In the case of pregnancy, there is a risk of injury to the unborn child through the X-rays. Please tell the medical staff if there is an existing or suspected pregnancy!
Changi General Hospital has an Ask-a-CGH Nurse Service on our Internet website. This service is an additional avenue for you to ask questions about health-related concerns. The service is provided by our team of experienced nurses, in consultation with our medical specialists and paramedical staff. This service is not intended to substitute medical advice or consultation.

To use this service, go to our website at [http://www.cgh.com.sg](http://www.cgh.com.sg) and click “Ask-a-CGH Nurse” to submit your question. You will hear from us within three working days.

### Interactive Patient Guide www.cgh.com.sg/ipg

CGH is pleased to introduce the Interactive Patient Guide (IPG) - Singapore’s first online alternative to health education system.

Developed by our team of clinical specialists, IPG provides an exciting multimedia alternative to health-related information.

IPG features a list of common medical conditions, treatments, procedures, post-procedures and aftercare through videos and printable text.

The video clips allow you to see exactly how a procedure is carried out or details of a health condition. For greater convenience, print-friendly versions are also available so that you can print and read at your own pace. With IPG on the Internet, you can explore it anytime you want, in the comfort of your own home and even share it with your family and friends.

To use this service, go to our website at [http://www.cgh.com.sg](http://www.cgh.com.sg) and click “Ask-a-CGH Nurse” to submit your question. You will hear from us within three working days.

### Questions

The risk of complications depends on your physical condition and any previous illnesses. Please help us assess your risk:

1. Have you ever had PTA performed?
   - no
   - yes

2. If so, when, why and in what area of the body? Did you encounter problems?
   - no
   - yes

3. Have you ever had any allergies? Allergic to foods?
   - no
   - yes

4. Have you ever had Vascular Surgery? Briefly when and what?
   - no
   - yes

5. Do you have Diabetes?
   - no
   - yes

6. Do you have any kidney problems?
   - no
   - yes

7. Do you have a bleeding problem or blood clotting problem?
   - no
   - yes

8. Are you on blood Thinners eg Warfarin/Coumadin?
   - no
   - yes

9. Is there a chance you may be pregnant?
   - no
   - yes

Your doctor will personally take the consent for the procedure from you and address any other concerns you may have.

I have read the above and have answered the questions to the best of my abilities.

Name

Signature & Date
For appointments and enquiries, please call the CGH Appointment Centre at Tel: (65) 6850 3333

**CGH Appointment Centre operating hours:**
8.30 am to 8.00 pm (Monday to Friday)
8.30 am to 12.30 pm (Saturday & Sunday)
Closed on Public Holidays

For more information, please visit http://www.cgh.com.sg