Cobalt-chromium peripheral stent Neptun C

with delivery system









A Patient's Guide to Peripheral Artery Stenting

This guidebook is designed to help you and your family understand peripheral artery disease and its treatment with Cobalt-chromium peripheral stent Neptun C with a delivery system.

For your convenience, a glossary of medical terms is included at the end of this booklet. Words that are in bold throughout the text are defined in the glossary.

This booklet is only a guideline. It is not intended to diagnose a medical condition. The treatment of peripheral artery disease may vary according to your individual needs and the doctor's assessment. As with any medical procedure, your doctor is the best source of information and advice.

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INTRODUCTION

This guidebook is designed to help you and your family understand the disease of **peripheral arteries** in your lower limbs and the treatment with a vascular **stent**. If you have any questions as you read, please write them down and discuss them with your doctor.

PERIPHERAL ARTERY DISEASE

Arteries are blood vessels that carry blood away from the heart. Peripheral artery disease involves the build-up of fatty deposits (**plaque**) in the inner lining of arteries in a process called atherosclerosis. This process commonly occurs in arteries throughout the body over time.

PERIPHERAL ARTERIES

The most common locations of peripheral vascular disease are the legs, arms, the neck, and kidneys. The pulse in the legs can be easily palpated in the groin, under the knee, and at the foot.

FUNCTION

Peripheral arteries of the leg (e.g., iliac, femoral, and popliteal arteries) carry oxygen through the legs down to the feet. The proper blood flow is crucial for proper lower limb functioning, especially when walking.

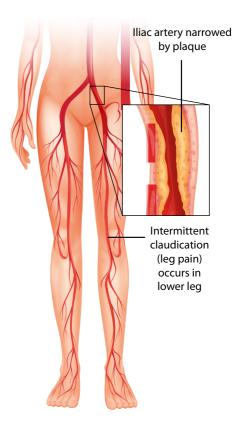


Fig. 1. Leg artery disease atherosclerosis



PERIPHERAL ARTERY STENOSIS

The term stenosis describes a lesion in the artery in which blood flow is partially blocked; a lesion in which the artery is completely blocked is called an occlusion. When the blood flow becomes severely limited, the muscles surrounding the artery do not receive enough oxygen, and you start feeling pain. During the early stages of peripheral artery disease, symptoms are usually rare; however, as the build-up of **plaque** progresses, it blocks the blood flow through the artery to tissues and organs. The symptoms resulting from peripheral artery disease depend on the location and extent of the disease. Over time, symptoms may stabilize or may become worse, requiring intervention to open the blockage.

CAUSES AND RISK FACTORS

The causes of peripheral artery disease are not completely understood, but many factors increasing the likelihood of peripheral artery disease have been identified, such as:

- smoking
- diabetes
- high cholesterol level
- high blood pressure level
- obesity and
- positive family history.

Also, you should remember that atherosclerosis in one vasculature bed (e.g., in coronary arteries) increases the risk of atherosclerosis in the others (e.g., co-existence with peripheral artery disease).

DIAGNOSIS

Depending on the location of the disease, one or more of the following symptoms may be present. You should be screened for peripheral artery **stenosis** if you have:

intermittent claudication (dull pain in the buttocks, thighs, calves, or feet during physical activity such as walking);

numbness or tingling in the leg, foot, or toe;

changes in the skin color (i.e., pale/bluish) or skin temperature in the leg, foot, or toe;

difficulty in feeling the pulse in the groin, under the knee, or on foot;

the appearance of ulcers (sores) on the foot or toe that heal with difficulty



Sometimes, patients are screened for peripheral artery **stenosis** if the doctor knows the patient has vascular disease elsewhere in the body.

The following tests may be performed if peripheral artery disease is suspected.

Ankle-brachial index (ABI) – your doctor may recommend measuring the blood pressure at the arm and the ankle. A value below 0.9 is inappropriate.

Peripheral artery ultrasound, which uses ultrasound waves to produce pictures of the peripheral arteries in the leg.

Peripheral artery angiography is a diagnostic imaging tool that uses a contrast medium and a special X-ray machine to study the condition of arteries and blood flow.

TREATMENT OPTIONS

Treatment of peripheral artery disease aims to improve physical activity, improve quality of life and prevent leg amputation. First, it is important to inform your doctor about your entire medical history. Then, follow your doctor's recommendations. These may vary greatly depending on your case and may include:

MEDICATION

Your doctor may prescribe medications to help you reduce your cholesterol, lower blood pressure, manage your diabetes, or help you stop smoking. You may also be prescribed an antiplatelet or anticoagulant medication.

If pharmacotherapy is insufficient to manage your disease, one of the following interventional options, which consist of restoration or widening of the artery, may be recommended.

SURGICAL PROCEDURE

Peripheral artery disease may be treated with conventional surgery. However, **vascular bypass surgery** is an open surgery operation. You are usually put to sleep for this procedure using general anesthesia. The doctor reroutes the blood flow by attaching an artificial graft (or one of your own veins) above and below the blockage (occlusion).

MINIMALLY INVASIVE ENDOVASCULAR PROCEDURE

Conventional balloon angioplasty or artery stenting are endovascular treatment options which means they are performed through a blood vessel, mostly under the local anesthetic. During this procedure interventional radiologist, angiologist, or vascular surgeon opens up a narrowed or blocked artery to improve blood flow. A small incision is made in your groin or arm, and small tubes or catheters containing the medical devices used for the procedure are introduced to the peripheral artery in your leg. A balloon catheter is then inflated to open the blockage. If the result is not satisfactory, the **stent** (a small wire tube) is introduced. The **stent** is placed at the area of your blockage. The stent holds the artery open to allow normal blood flow to the rest of the leg.





COBALT-CHROMIUM PERIPHERAL STENT NEPTUN C WITH DELIVERY SYSTEM

The peripheral stent Neptun C manufactured by Balton Company is made of cobalt-chromium alloy. The outline of the stent was obtained by means of laser working. A stent is placed inside the deliv-

ery system for passage into the body to the peripheral arteries. After balloon inflation, the stent opens up, taking the form of a cylinder. Thanks to its properties, it restores the desired shape of the lumen of the vessel.



Fig. 2. Neptun C stent



PREPARING FOR YOUR PROCEDURE

Cobalt-chromium peripheral stent NEPTUN C is indicated for the treatment of atherosclerotic lesions in **peripheral arteries**. In other words, the device can be used to help open a blocked area of the **peripheral arteries** of the leg.

The device should not be used:

- If you cannot take aspirin or bloodthinning medications (also called antiplatelets or anticoagulants).
- If you have hypersensitivity to cobalt-chromium or contrast medium
- If the physician decides that the blockage or vascular anatomy will not allow proper placement of the stent.

Upon admission to the hospital, you may undergo tests such as angiography, peripheral artery ultrasound, and blood tests. Remember to tell your doctor about all the medications you are currently taking and any allergies you may have. In addition, you may be asked not to drink or eat from midnight before the procedure.

Your doctor should have discussed the procedure in detail with you and explained the possible risks and potential benefits of the device. Please do not hesitate to ask any questions. As with

any intervention, the **angioplasty** and stenting procedure involves some risks. These risks are uncommon but are important to be aware of.

CONTRAINDICATIONS

- Insufficient blood flow below the potential stent implant spot.
- Impossibility of passing a guidewire or balloon catheter through the stenosis or occlusion site.
- Hypercoagulability reported in anamnesis.
- Possibility of closing collateral circulation vessels with a stent.
- Extremely heavily calcified atherosclerotic plaque, which could damage the stent.
- Fresh thrombus.
- Contraindications to taking antithrombotic medicines (e.g., active bleeding from the digestive tract, recent hemorrhagic stroke).
- Allergy to contrast medium and cobalt-chromium.
- Pregnant women or during lactation.





POTENTIAL ADVERSE EFFECTS

Adverse reactions (in alphabetic order), which may result from this procedure include:

- Allergic reaction or hypersensitivity to administered anticoagulation or antiplatelet drugs, anesthesia, contrast agent, or stent materials)
- Cardiac arrhythmias
- Cardiac failure/shock
- Death
- Fever
- Stent fracture or stent loss
- Hypotension/hypertension
- Infection
- Lower limb artery complications
 - abrupt closure
 - dissection
 - embolism (air, atherosclerotic plaque, thrombotic material, or device)
 - perforation
 - restenosis
 - spasm
 - thrombosis (acute, subacute, late, very late)
- Myocardial infarction
- Nausea and vomiting
- Pain

- Palpitations, dizziness, syncope
- Renal insufficiency/failure
- Stroke/TIA
- Vascular access complications which may require blood transfusion or vessel repair:
 - bleeding (ecchymosis, hematoma, hemorrhage, retroperitoneal hemorrhage)
 - embolism (air, atherosclerotic plaque, thrombotic material, or device)
 - peripheral ischemia
 - peripheral nerve injury
 - pseudoaneurysm, dissection, perforation, arteriovenous fistula



STENT IMPLANTATION PROCEDURE

The **peripheral artery** stenting is a procedure performed in the catheterization laboratory or a radiology suite. You will enter the room equipped with special instruments and will be lying on the X-ray table. You will be covered with sterile sheets, and the area of catheter insertion will be shaved and washed with antiseptic solution to prevent infection.

During the procedure, you will be awake, and medical and nursing staff will be monitoring you closely. First, a local anesthetic will be injected through the skin into the groin or arm (it depends

on the decision of your operator). When the medication takes effect, you should only feel dull pressure where the operator is working with the catheter. Next, the operator will insert a fine tube (introducer) into the artery. It will provide a passageway through which the doctor can insert catheters with necessary devices and a contrast medium. A contrast medium injected throw the catheter will allow seeing the area of blockage in your artery. The operator may insert a balloon to prepare the artery for **stent** implantation.



Fig. 3. Catheterization laboratory



Then the stent is advanced into the **peripheral artery** on a delivery system and deployed to the blocked area of the artery. The stent will be placed in the proper position in your artery.

The delivery system is withdrawn from your body. Once again, the doctor may insert the balloon to ensure the stent is in full contact with the artery wall. The Neptun C stent stays in place permanently, holding the artery open. The introducer is usually removed at the end of the procedure, but if the physician feels necessary, the introducer may be temporarily left in place.

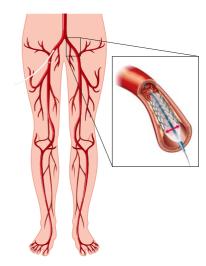
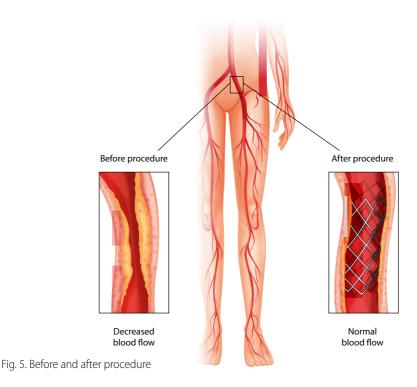


Fig. 4. Stent implantation





AFTER YOUR PROCEDURE

Once the procedure is finished, you will be moved to the special care unit, where you will be closely monitored by hospital staff. Your heart rhythm and blood pressure will be monitored continuously.

If the groin were used as an access site for the procedure, you would have to lie flat in bed and not move your leg for up to six hours, and a sandbag may be placed over the puncture site to keep pressure on it. In some cases, the puncture site may be closed with a closure device that will be described to you by your doctor.

If access to the procedure were through the arm, it would be stitched closed, and you may be allowed to sit up afterward.

Once you return to the ward, you will have regular observations of your con-

scious level, heart rate, blood pressure, puncture site, and pulses in your feet. You may also have a drip to make sure you are not getting dehydrated. When the drip is removed, you should drink around 2 liters of water to help to wash out the contrast (dye) used during the procedure.

Notify hospital staff if you feel anything disturbing like trouble with seeing, swallowing, feeling lightheaded or dizzy, weakness, tingling, or numbness in limbs, face, or side of your body.

Mostly after 1 - 3 days after the procedure, you will be allowed to go home. Before you leave the hospital, your doctor will give you information on medications, diet, and physical activity.

YOUR RECOVERY

You will be informed when you can resume regular activity and return to work. You should avoid strenuous activities like lifting for at least a week. Remember to take all prescribed medications as your doctor tells you to do. Notify your doctor if these medications cause unpleasant reactions.

To help yourself stay healthy in the future, you should pay attention to a healthy diet and exercise. It will be easier and safer if you get help from a professional dietician and physiotherapist. In addition, it is extremely important to avoid smoking. If you need help quitting, please notify your healthcare provider.

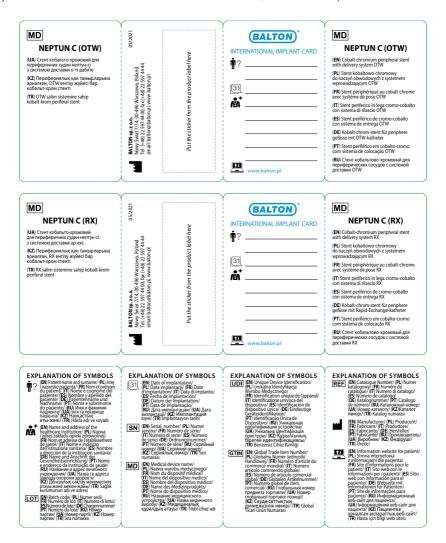




PATIENT IMPLANT CARD

Be sure your doctor gives you a completed Patient Implant Card that you can keep as a record of your procedure. Carry the card with you always and show it to any doctors or health care workers who

may be treating you. The card will have the date of the **stent** procedure, the location of the **stent** in your body, the name of the doctor who performed the procedure, and other important information.



SAFETY DURING MAGNETIC RESONANCE IMAGING (MRI)

If you require MRI after peripheral artery stenting, tell your health care providers that you have a stent.

MRI SAFETY INFORMATION:

A patient with this device can be safely scanned in an MRI system meeting the following conditions:

- Static magnetic field of 3.0 T or 1.5 T
- Maximum spatial field gradient of 1900 gauss/cm (19 T/m)
- Maximum MRI system reported, whole body averaged specific absorption rate (SAR) of 1.0 W/kg

CONCLUSION

You have a very important role to play to ensure that your **stent** implantation is successful. You must cooperate with your doctor and follow through with your responsibilities as part of the patient/medical team. You will need to see the doctor who implanted your stent for routine follow-up examinations. During these visits, your doctor will monitor your progress and evaluate your medications, the status of your disease, and how the stent is working for you. If you have any questions or concerns, please contact your doctor to discuss them.



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GLOSSARY	
Term	Definition
Angiogram	A procedure in which contrast medium is injected into the arteries to diagnose a narrowing or blockage of the artery.
Angioplasty	A procedure whereby a balloon dilation catheter is passed through the blood vessel to the blocked area of an artery. Once the balloon on the tip of the catheter is inflated, the blocked area in the artery is opened. It is also called PTA (Percutaneous Transluminal Angioplasty).
Anticoagulant	A medicine that slows or prevents the clotting of blood.
Atherosclerosis	The process of fatty deposits and/or calcium build-up (plaque) on the inside of the arteries.
Balloon Catheter	A long tube that passes through your arteries with a tiny balloon on its tip. The balloon is inflated after it is in place to open a blockage and press the stent against the artery wall.
Peripheral Arteries	Arteries are vessels that carry blood away from the heart. The most common locations of peripheral vascular disease are in the legs, arms, neck, and kidneys.
Catheter	A long hollow tube used to introduce a device, drug, or contrast medium into a blood vessel.



GLOSSARY	
Catheterization	A procedure that involves passing a tube (catheter) through blood vessels and injecting a contrast medium to detect blockages.
Cholesterol	A substance that circulates in the blood and when deposited in the artery, plays a role in forming blockages. Cholesterol originates in foods that is rich in animal fat.
Embolic material	Small clots or pieces of plaque that travel in the bloodstream and lodge in a blood vessel, blocking blood flow.
MRI (Magnetic Resonance Imaging)	A diagnostic test that uses magnetic waves to obtain images of the inside of your body.
Plaque	An accumulation or build-up of fatty deposits, calcium and/or cell debris in an artery that leads to narrowing of the artery.

The recurrence of a narrowing or blockage

An expandable, metallic, tubular-shaped device

A narrowing in your arteries caused by plaque

in an artery after treatment.

a vessel.

that provides structural support for

build-up, which restricts blood flow.

A non-invasive test using sound waves to

determine the presence of arterial narrowing.



Ultrasound

Restenosis

Stent

Stenosis

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