

Oxford Centre for Respiratory Medicine

# Bronchial-Artery Embolisation

Information for patients



This leaflet tells you about the bronchial-artery embolisation procedure. It explains what is involved and what the possible risks are. It is not meant to replace informed discussion between you and your doctor, but can act as a starting point for such a discussion.

Whether you are having a planned bronchial-artery embolisation or an emergency procedure, you should make sure that the procedure has been fully explained to you before you sign the consent form. If you have any questions, please ask the doctor or nurse.

## The Radiology Department

The Radiology Department may also be called the X-ray or Imaging department. It is the facility in the hospital where we carry out radiological examinations of patients, using a range of X-ray equipment such as a CT (computed tomography) scanner, an ultrasound machine and a MRI (magnetic resonance imaging) scanner.

Radiologists are doctors specially trained to interpret (understand) the images produced during these scans and to carry out more complex examinations. They are supported by radiographers who are highly trained to carry out X-rays and other imaging procedures.

## What is a bronchial-artery embolisation?

A bronchial-artery embolisation (BAE) is a procedure where X-rays are used to examine the bronchial arteries (arteries in your lung). This allows the doctor to find the bronchial artery which is bleeding and causing your haemoptysis (coughing up of blood).

Blood vessels (veins and arteries) do not show up on a normal chest X-ray. In order to see the bronchial arteries a special dye is injected into the artery, via the groin, through a fine plastic tube called a catheter. X-rays are then taken immediately afterwards, giving us detailed images (pictures) of the arteries and veins in your lungs. Once we have found the bronchial artery that is bleeding, tiny particles (the size of grains of sand) are injected to clot the vessel and stop the bleeding.

## Why do I need a BAE?

Your doctor has referred you for a BAE because you are coughing up blood (haemoptysis). The aim of a BAE is to stop or control these symptoms.

Haemoptysis usually occurs as a result of bleeding, mainly from the bronchial arteries (90%) and also from the pulmonary arteries (5%). Bleeding is often greater when it comes from the bronchial arteries because of the high pressure in these arteries. For this reason even minor bleeding from the bronchial arteries tends to result in blood loss.

Inflammation of the airways in patients with Cystic Fibrosis or non-CF bronchiectasis may lead to haemoptysis. This inflammation causes enlargement of the bronchial arteries and new vessel formation. These enlarged vessels and highly damaged lung tissue increase the chance of bleeding – especially during a chest infection.

## Who has made the decision?

Before the BAI procedure, a chest X-ray and/or computed tomography (CT) scan may be performed to find the artery that is bleeding.

Your consultant and the radiologist will discuss the results of these scans and let you know if they advise you to have a BAE. You will also have the opportunity for your opinion to be taken into account, and to any ask questions. The doctors will explain the benefits and risks of the procedure to you. If, after discussion with your doctor, you do not want the procedure carried out, you can decide against it.

## Are there any risks involved?

A BAE is a safe procedure, but there is a risk of some complications.

- Minor complications that are common are pain and a burning sensation in the area of the body supplied by the blood vessels that have been blocked. This usually last for only a few days but may persist longer.
- Injury to the bronchial artery with life threatening bleeding – this is rare.

Major complications may occur in 2 to 4% of these procedures.

In some patients the spinal artery is shared with the bronchial artery. If the particles were to flow into the spinal artery it could cause an obstruction in the spinal artery and result in paralysis of the legs and lower part of the body, but this happens very rarely.

You will be given further information by the Radiologist regarding the risks and complications before the procedure and before signing the consent form.

## Are there any alternatives?

If you have coughed up a large amount of blood then an alternative to this procedure is for you to be referred for surgery to remove the part of the lung that is bleeding. Clearly this is a more major and potentially risky procedure and we would not recommend this as the first choice of treatment.

## Who will be doing the BAE?

A BAE is carried out by a specially trained doctor called a radiologist. Radiologists have special expertise in using X-ray and scanning equipment, and also in interpreting the images produced. The Radiologist will look at these images while carrying out the procedure and inject the particles into the arteries to stop the bleeding.

## Where will the procedure take place?

The procedure will normally take place in the Radiology (X-ray) department.

## How do I prepare for a BAE?

You must not drink alcohol for 24 hours before and after the embolisation to avoid any complications from bleeding.

If your procedure is in the morning, you must not eat or drink anything after 06.00 am. If your procedure is in the afternoon, you can have a snack and drink up to 11.00 am, after which you can have sips of water if necessary.

For both morning and afternoon procedures, you should take your usual medication at 06.00 am with a small amount of water. Please do not take Aspirin in the morning. Please bring all your medications with you on the day of the procedure.

## Can I bring a relative or friend?

Yes, but for reasons of safety they may not be able to accompany you into the X-ray room.

## What happens when you arrive

If you are having a booked (planned) procedure you will be asked to go to the Respiratory Day Case Unit so that we can prepare you. Sometimes you will be asked to report directly to X-ray.

You may be seen by one of the physiotherapists who will assess your chest. If there are any secretions present which are compromising your breathing, then you will be given some gentle physiotherapy to help clear these before the procedure. If you are still actively bleeding then you will not be given physiotherapy exercises.

You will be asked to put on a hospital gown. The procedure is carried out through the large artery (the femoral artery) in the groin and so we may ask you to shave the skin around the area. The nurse can do this for you if you are unable to do it yourself.

You will have a needle put into a vein in your arm so that the radiologist can give you a sedative to help you relax or to give you painkillers during the procedure.

A porter will take you to the X-ray Department.

If you have any allergies, you **must** let the radiologist know. If you have previously reacted to intravenous contrast medium (the dye used for kidney X-rays and CT scans), you must also tell the radiologist about this.

## What happens during a BAE?



You will lie on the X-ray table, generally flat on your back. You may have a monitoring device attached to your chest and finger, and may be given oxygen through small tubes in your nose.

The radiologist will keep everything as sterile as possible, and will wear a theatre gown and operating gloves. The skin near the point of insertion, usually the groin, will be cleaned with antiseptic, and then the rest of your body will be covered with a theatre towel.

The skin and deeper tissues over the artery will be numbed with local anaesthetic, and then a needle will be inserted into the artery. Once the radiologist is satisfied that this is in the correct position, a guide wire is placed through the needle, and into the artery. Then the needle is taken out allowing a fine plastic tube called a catheter to be placed over the wire and into the artery.

The radiologist uses the X-ray equipment to make sure that the



catheter and the wire are moved into the right position. The dye is then injected through the catheter and X-rays are taken. We will ask you to hold your breath while each X-ray is taken.

The radiologist will then inject small particles into the bleeding blood vessel, which stops the bleeding.

At the end, the radiologist will remove the catheter and a single stitch will be used to close the entry site.

## Will it hurt?

Some discomfort may be felt in the skin and deeper tissues during the injection of the local anaesthetic. After this, the procedure should not be painful. There will be a nurse, or another member of clinical staff, standing nearby looking after you. If the procedure does become uncomfortable we can give you a painkiller through the needle in your arm. As the dye, or contrast medium, passes around your body, you may get a warm feeling, which some people can find a little unpleasant.

## How long will it take?

Every patient's situation is different, and it is not always easy to predict how complex or how straightforward the procedure will be. Often, several blood vessels have to be embolized for the best treatment of your condition. The procedure may take anywhere between 2 and 4 hours to perform. Sometimes it is necessary to complete the procedure in a second session.

## What happens afterwards?

At the end of the procedure the nurse will apply pressure to the wound, usually in your groin, for approximately 10 minutes after the catheter is removed.

You will then be taken to your ward on a bed where you will rest for 4 hours. You will not be able to get up to go to the toilet during these 4 hours (the nurse can bring you a bedpan or urinal). For the first hour you will be nursed flat with one pillow. To avoid bleeding from the groin site, it is important that you do not bend your leg during this time. The nurses on the ward will check your peripheral and foot pulses as well as your blood pressure to detect any restriction in blood flow to the lower limbs caused by the procedure.

They will also check your groin site to make sure there is no bleeding from it. The groin site will be covered with a plaster that may be removed after 24 hours. The stitch used to close the entry site will dissolve.

You may eat and drink. It is important to drink plenty of fluid as this will help to flush the contrast dye through your kidneys.

If you perform regular physiotherapy to clear your chest, the physiotherapist will assess you and restart an appropriate airway clearance regime.

## How to contact us / Further information

Some of your questions should have been answered by this leaflet, but remember that this is only a starting point for discussion about your treatment with the doctors looking after you.

CF & Bronchiectasis Team	<b>01865 225713</b>
Louise Simpson (Dr Boardman's Secretary)	<b>01865 235744</b>
Angio Suite or Intervention Room	<b>01865 235759</b>
Sarah Jayne Holt (Radiographer)	<b>01865 235759</b>
Geoffrey Harris Ward	<b>01865 225732 or 857294</b>

## Appointment arrangements:

Date: .....

Time: .....

If you need an interpreter or need a document in another language, large print, Braille or audio version, please call **01865 221473** or email **PALSJR@orh.nhs.uk**

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