Introduction

In asthmatic airways there is an increased thickness of the muscle called airway smooth muscle that circles the airways. During an asthma attack narrowing of the airways is caused partly by contraction of this excess airway smooth muscle and partly by swelling or inflammation and excess mucous – when this happens you may experience shortness of breath, chest tightness, wheezing and cough.

Asthma treatments include identification and avoidance or reduction of exposure to triggers that cause asthma to worsen and taking regular prescribed medication. Bronchial thermoplasty is a non-drug, minimally invasive bronchoscopic procedure that aims to provide long lasting and improved asthma control for adults with severe asthma. It is an option for adults who continue to have asthma symptoms despite taking inhaled corticosteroids and long acting bronchodilators and possibly even oral or systemic corticosteroids.

What is a bronchial thermoplasty (BT)?

Bronchial thermoplasty is a minimally invasive bronchoscopic procedure for the treatment of severe asthma in adults. It is a bronchoscopy-based procedure that heats the wall of a portion of your airways in a controlled manner. The heat applied to the airway walls is intended to reduce the amount of excessive smooth muscle and limit its ability to contract and narrow the airway.

A complete BT treatment is performed in three visits, scheduled approximately three weeks apart. Each procedure lasts about an hour and is performed in the bronchoscopy department under moderate sedation and local anaesthetic.

What are the benefits of bronchial thermoplasty (BT)?

Bronchial thermoplasty provides an effective add-on therapy to standard asthma treatment and provides improved control of asthma symptoms.

Clinical research studies in patients with asthma who have undergone bronchial thermoplasty have shown:
Patient Information

- reduction in the frequencies of severe asthma attacks
- reduction in emergency room visits for respiratory symptoms
- reduction in the time spent in hospital for respiratory symptoms
- reduction in days lost from work/school or other activities due to asthma symptoms

**Before the procedure**

- You must not eat or drink for at least **four hours** before the test so far as to prevent any vomiting during or after the procedure.
- You should still take your usual medicines with a small amount of water (diabetics will be advised how to manage their diabetes).
- The procedure will be done in the endoscopy department where you will be given a gown to wear and you should remove your watch and glasses if you wear them.
- You may keep your dentures and hearing aids in.
- Your doctor will have prescribed prophylactic prednisolone or an equivalent oral corticosteroid for three days before the procedure and the day of the procedure to minimise post-procedure inflammation.
- You will not need a general anaesthetic but you will be given some medicine to make you feel relaxed or even sleepy during the procedure.

**The procedure**

Bronchial thermoplasty (BT) is performed during bronchoscopy, which is a minimally invasive procedure that is routinely performed by respiratory specialist doctors.

Bronchoscopy allows the doctor to examine and treat the lungs with an instrument called a bronchoscope on one end which is a long flexible tube that has a type of ‘camera’ and light source on one end so as to allow the doctor to see inside the lungs and airways.

Sedation during the procedure may mean that you do not remember much about it. Local anaesthetic is applied to the nasal passages, throat and vocal cords to minimise the discomfort caused by the bronchoscope.

The bronchoscope is passed through the nose or mouth down the airway and positioned in the area to be treated. Then the BT procedure can be undertaken.

A catheter device consisting of a small flexible tube with four expandable wires at the tip is inserted through a standard flexible bronchoscope.
Controlled delivery of heat along the wires to the airway walls reduces the excess airway smooth muscle that is present in patients with asthma and which causes the airways to narrow.

The heat is applied along the length of the airways to be treated. Once the procedure is completed, the bronchoscope and catheter are removed.

**After the procedure**

As with any bronchoscopy you may experience some throat or airway irritation, lung function impairment and discomfort shortly after the procedure. You will be carefully monitored and discharged only after you are stable, have adequate lung function and are able to swallow and take liquids.

We advise you not to eat or drink for about two hours as it is not safe to do so until full sensation has returned. You are also advised not to drive, operate machinery, return to work, drink alcohol or sign any legally binding documents for the next 24 hours. You are also advised to have a responsible adult with you for the next 12 hours as the sedation takes a while to completely wear off.

You will also be reminded to take prednisolone or an equivalent oral corticosteroid the day following your procedure to minimise post procedure inflammation.

**What are the risks of bronchial thermoplasty?**

Bronchoscopy procedures carry a small risk (less than 1 in 1000) of major haemorrhage.

In the period immediately following BT there is an expected increase and worsening of asthma-related respiratory symptoms. These events typically occur within a day of the procedure and resolve on average within seven days with standard care.

There is a small possibility (3.4% per procedure) that the temporary worsening of asthma symptoms after a procedure may result in the patient being admitted to hospital for management of asthma symptoms.
There may be a slight risk to teeth, crowns or dental bridgework; you should tell the nurse if you have any of these.

Other rare complications of bronchoscopic procedures are aspiration pneumonia and adverse reactions to the intravenous sedative drugs.

**Are there any alternatives?**

If you do not wish to undergo bronchial thermoplasty treatment then your usual asthma management will continue with ongoing medical support and review. However, your doctor feels that this is a sensible option for your severe asthma management, aiming to provide long-lasting control of asthma symptoms caused by constriction of excessive airway smooth muscle.

**How to contact us / further information**

If you would like any further information about this procedure, or if any problems arise, you may telephone either:

- Elaine Reid & David Stigwood – Interventional Pulmonology Nurse Specialists on 01223 245151 ask for bleep 156-2197 (Monday to Friday 09:00 to 17:00)
- Sacha Rayner – Interventional Pulmonology Service Administrator – 01223 349189 (Monday to Friday 09:00 to 19:00)
- Post procedure - if you have any urgent concerns, outside of normal working hours, you can contact the Respiratory registrar on-call via the hospital switchboard for advice on 01223 245151

We are now a smoke-free site: smoking will not be allowed anywhere on the hospital site. For advice and support in quitting, contact your GP or the free NHS stop smoking helpline on 0800 169 0 169.

**Other formats:**

If you would like this information in another language, large print or audio, please ask the department where you are being treated, to contact the patient information team: patient.info@addenbrookes.nhs.uk. Please note: We do not currently hold many leaflets in other languages; written translation requests are funded and agreed by the department who has authored the leaflet.

**Document history**

Authors: Elaine Reid
Department: Cambridge University Hospitals NHS Foundation Trust, Hills Road, Cambridge, CB2 0QQ [www.cuh.org.uk](http://www.cuh.org.uk)
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