

Risks associated with your anaesthetic

SECTION 6: POST-OPERATIVE CHEST INFECTION

After an anaesthetic and an operation there is a risk that you may develop a chest infection. This article tells you what a chest infection is, what it feels like and how it may affect your recovery. It includes information about what you can do to help prevent yourself from getting a chest infection.

What is a chest infection and why can it happen after surgery?

Chest infections are caused by bacteria or a virus. General anaesthetics affect the normal way that phlegm is moved out of the lungs. Pain from the operation can mean that taking a deep breath or coughing is difficult. As a result of these two things, phlegm can build up in the lungs. Within the phlegm an infection can develop. Pneumonia is a type of chest infection, and you may also hear the name 'lower respiratory tract infection', or 'LRTI'.

What does it feel like?

- ▶ You may feel very unwell and tired.
- ▶ You may have a high temperature.
- ▶ You may have a cough that brings up thick yellow or green sputum (phlegm).
- ▶ It will become harder to breathe, and your breathing may be quite fast.
- ▶ Chest pain can also be a sign of a chest infection.
- ▶ Some patients, especially older people, become confused. This is usually temporary and is likely to improve as the chest infection gets better.

Here are some ways that patients who developed a post-operative chest infection described it:

'I woke up all sweaty with a pain in my back, like a tight band across my back.'

'I thought I was going to cough my lungs up.'

'I was so flat out I didn't even have the energy to eat or wash myself.'

'The nurse said my temperature and heart rate was up, and I could feel the heart racing in my chest. My breathing wasn't right either.'

How do you know if you have a post-operative chest infection?

- ▶ Doctors and physiotherapists listen to your chest with a stethoscope. They can hear extra crackles and wheezes.
- ▶ If you have an X-ray of the chest, the infection can be seen on the X-ray.
- ▶ Blood tests can also show that you have an infection.

- ▶ A sample of your sputum (phlegm) can be sent to the lab to try to identify any bacteria which are causing the infection.
- ▶ Sometimes the heart rate becomes faster and the blood pressure can fall. These are signs of a serious chest infection.

Who is most likely to get a post-operative chest infection?

The following factors make a post-operative chest infection more likely:

- ▶ Increased age (over 50).
- ▶ Certain operations: you are more likely to get a chest infection if your operation is on the abdomen or the chest, or if you are having **major** surgery on the head or neck.¹
- ▶ Having a long-term medical condition – for example, diabetes, kidney disease, asthma or chronic obstructive pulmonary disease.^{2,3}
- ▶ Being very overweight.
- ▶ Being a smoker.⁴
- ▶ Having a weakened immune system. This makes a person less able to fight off bacteria or virus infections. This includes people who have a long-term disease of the immune system or who are on medications at home that suppress their immune system, such as steroids.
- ▶ Being immobile after surgery, and unable to get out of bed, either due to the surgery or due to a pre-existing problem with moving about.

There is a lot of debate about whether the type of anaesthetic makes any difference. There is some evidence that having a regional anaesthetic (for example, a spinal or epidural injection), either with or without a general anaesthetic reduces your risk of a chest infection compared to having a general anaesthetic alone.¹ You can find out

more about these alternatives and whether they may be suitable for you from the booklet 'Anaesthesia Explained' on the Royal College of Anaesthetists' website (www.rcoa.ac.uk).

How likely is it to get a chest infection?

The risk is very variable depending on all the factors listed above. One example is that around 1 in 5 people having major abdominal surgery are likely to get a chest infection, which may be mild or severe. However people with none of the risks above are quite unlikely to get an infection.

How serious is it if I get a chest infection?

If you were previously healthy, you are very likely to recover fully from a post-operative chest infection. But rarely, people who were well before their surgery die from pneumonia afterwards.

If you were not previously healthy and had longstanding lung disease or another long standing illness, then you are more likely to have a serious life threatening post-operative chest infection. However many people with previous lung disease recover after a post-operative chest infection. Your anaesthetist will be able to talk to you about the risks which apply to you.

What can I do to prevent a chest infection?

- ▶ If your General Practitioner has advised you that you have an increased risk of getting influenza (flu), then being immunised against the flu virus (having a flu jab) is a good idea. This may help prevent a chest infection after your surgery. However, this should be done well ahead of your operation, and avoided in the two weeks before your surgery.

- ▶ Smokers are more likely to get a chest infection after an operation. Giving up smoking, even a few days or weeks before coming into hospital, will allow the damaged linings of your airways to begin to repair. This reduces your risk of getting an infection.⁴ However you will gain the most if you can give up smoking at least two months before your operation.¹
- ▶ You are more likely to be successful in giving up smoking if you use a stop smoking support service. Your GP or hospital clinic can help you find your nearest provider of this service or the NHS Stop Smoking Service is available at <http://smokefree.nhs.uk>.
- ▶ Your anaesthetist will consider whether a certain anaesthetic technique will help prevent a chest infection. You may be offered a local or regional anaesthetic. These are injections which numb an area of the body, meaning that you do not need a full general anaesthetic for the surgery. This is only possible for certain types of operations. You can find out more about this in the booklet 'Anaesthesia Explained' on the Royal College of Anaesthetists' website (www.rcoa.ac.uk).
- ▶ Your doctors and nurses will be ready to help make your pain relief as good as possible by adjusting your pain relief medicines if necessary. This will enable you to breathe deeply and cough more easily, which will help prevent or clear any infection. The anaesthetist will talk to you about a plan for pain relief. Local or regional anaesthetics can be used together with a general anaesthetic, to give better pain relief after the operation.
- ▶ Reminding yourself to breathe deeply after your operation and to cough at regular intervals helps prevent a chest infection.

It also helps to clear an infection more quickly by getting rid of phlegm.

- ▶ A physiotherapist may work with you after your surgery to prevent or treat a chest infection. He/she is an important member of the healthcare team who will teach you how to breathe and cough more effectively to keep your chest clear.

What is the treatment for a post-operative chest infection?

You will require oxygen which is given through a facemask or through small plastic tubes that sit just inside your nostrils (sometimes called nasal prongs, or nasal specs). The flow of oxygen can be quite noisy and can make your mouth and nose dry.

You may be given intravenous fluids (a 'drip' into a vein) to prevent dehydration. This will help thin the phlegm in your lungs and make it easier to cough up. A cannula is inserted into a vein in your hand or arm. This is a thin plastic tube which is inserted using a needle, and the needle is then discarded. The cannula will be replaced every 48 hours or so. You will also be encouraged to drink plenty, if your recent operation allows this.

Antibiotics can also be given through the cannula into a vein. For mild infections, tablet antibiotics may be given. Antibiotics kill bacteria or slow down their growth. There are many types and doctors try to choose the one most likely to be effective in each type of infection. Antibiotics have a lot of side effects and your doctors should tell you what to expect when they are prescribed.

Pain from your operation, and other pains such as headache, will be treated with pain relief medicines. It is important that you tell your doctors and nurses about your pain, so they can help you.

Occasionally, the physiotherapist, nurse or doctor will ask you to use oxygen under pressure by breathing through a mouth piece (like a snorkel) or through a tight fitting mask which covers the mouth and/or nose. This helps to expand the lungs better.

If your chest infection is very severe, you may need help with your breathing. This is done in an intensive care unit. You are heavily sedated while a tube is inserted through your mouth or nose into the trachea (windpipe). A ventilator (breathing machine) is used until your condition improves. Admission to an intensive care unit with a post-operative chest infection is very serious and some people do not survive.

What does getting a chest infection mean for my recovery?

If you get a post-operative chest infection, your discharge from hospital will be delayed by days or weeks.⁵ Chest infections can have many complications. Fluid can build up in the lungs or infection can spread in the bloodstream to affect other organs in your body. Specific treatment is given for these on the ward or in the intensive care unit. If you are admitted to the intensive care unit, your recovery is likely to be very slow indeed.

Most people who get a post-operative chest infection go on to make a full recovery without long-term effects.

Some comments from patients:

'My breathing meant I had to stay in bed, I couldn't walk, I couldn't eat because when I took the mask off, my breathing got harder and the oxygen levels in my blood dropped very low.'

'My brother who had near enough the same type of surgery was out in a week but I was in just over a month.'

'I didn't expect it to be as bad as it was. I thought the antibiotics into my vein would clear me right up but I had to have three different types and the last one affected my kidneys which made me even sicker.'

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References

1. Conde M, Lawrence V. Postoperative pulmonary infections. *Clinical Evidence* (BMJ Publishing Group) 2008;**9**:2201–2218.
2. Sachdev G, Napolitano LM. Postoperative pulmonary complications: pneumonia and acute respiratory failure. *Surg Clin North Am* 2012;**92**:321–344.
3. McAlister FA et al. Accuracy of the preoperative assessment in predicting pulmonary risk after non-thoracic surgery. *Am J Respir Crit Care Med* 2003;**167**:741–744.
4. Hawn MT et al. The attributable risk of smoking on surgical complications. *Ann Surg* 2011;**254**:914–920.
5. Thompson DA et al. Clinical and economic outcomes of hospital acquired pneumonia in intra-abdominal surgery patients. *Ann Surg* 2006;**243**:547–552.



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