What is costochondritis?

Costochondritis is a painful condition of the chest wall. It causes chest pain. People who get chest pain are often frightened they have a heart or lung problem. Fortunately, if the pain is due to costochondritis, there is no need to panic, as it is not a life-threatening condition and it does usually get better on its own with time.

The pain you get if you have costochondritis comes from the protective cage formed by your ribs, and not from the heart or lungs or blood vessels inside your chest. More specifically, it comes from one or more of the joints between your ribs and your breastbone (sternum). These joints have become inflamed if you have costochondritis.

How common is it?

It is hard to be sure exactly how common it is, as lots of people probably have it but don't bother to go to their doctor. It seems to be quite common. Of the people with chest pain going to see their GP, about 1 in 5 have a cause related to the muscles, ribs and joints in their chest wall. (For people attending Accident and Emergency departments, chest pain is more likely to have a more serious cause.)

How does the chest wall work?

To understand costochondritis, you need to know a bit about the way the rib cage is put together. The rib cage is a bony structure that protects the lungs. Bones are hard and solid and they can't bend or move much. Your lungs, however, need to move, so that you can breathe.

When you take a deep breath in, your rib cage expands. (Try it! You will feel and see your rib cage moving.) In order for the ribs to expand, they need something to allow movement. Cartilage allows this. Cartilage is a softer, flexible (but very strong) material found in joints around the body.

Cartilages attach the ribs to the breastbone (sternum) and the breastbone to the collarbones (clavicles). The joints between the ribs and the cartilages are called the costochondral joints. Those between the cartilages and the breastbone are called costosternal joints. Those between the breastbone and the collarbones are called the sternoclavicular joints.

The prefix 'costo' simply means related to the ribs. 'Chondr-' means related to the cartilage and '-itis' means inflammation. So, in costochondritis, there is inflammation in either the costochondral, costosternal or sternoclavicular joints (or a combination). This causes pain, which tends to be worse when you move, or when you press down on the affected part.
What are the common causes of costochondritis?

The basic problem is inflammation but the cause of this is unknown (or idiopathic) for most people. There are some situations that are known to cause inflammation and they include:

- Chest infections of varying types.
- Large physical efforts, like lifting heavy objects or repeated bouts of coughing.
- Accidents which hit the chest, like falls or car accidents.
- Some types of arthritis.

Costochondritis symptoms

- Costochondritis causes chest pain, felt at the front of the chest.
- Typically, it is sharp and stabbing in nature and can be quite severe.
- The pain is worse with movement, exertion and deep breathing.
- Pressure over the affected area also causes sharp pain.
- Some people may feel an aching pain.
- The pain is usually confined (localised) to a small area but it can spread (radiate) to a wider area.
- The pain tends to wax and wane and it can settle with a change of position and quiet, shallow breathing.

The most common sites of pain are close to the breastbone (sternum), at the level of the 4th, 5th and 6th ribs.

Note: without tenderness, the cause of the chest pain is unlikely to be costochondritis. Remember to seek medical advice if you are unsure of the cause of your symptoms (see the section on 'when to see a doctor').

Tietze’s syndrome is similar to costochondritis. The two conditions are often (wrongly) used interchangeably. Tietze’s syndrome is, however, a different condition. It causes similar symptoms, is still due to inflammation but tends to also cause swelling at the costochondral, costosternal or sternoclavicular joints. If you have costochondritis, there is nothing there to actually see.

Bornholm disease is another similar condition. However, it is caused by a viral illness and leads to muscle aches and pains, as well as chest pain. Coxsackievirus B is the usual cause of Bornholm disease (although echo virus and Coxsackievirus A can be responsible). See the separate leaflet called Bornholm Disease for more details.
Who develops costochondritis?

There is no particular person more at risk of costochondritis than any other. It does tend to affect younger people, especially teenagers and young adults. It can affect children. People performing repetitive movements that strain the chest wall, particularly if they are not used to it, as above, might be more at risk of getting this condition. Some studies suggest women tend to be affected more commonly than men.

People with fibromyalgia tend to develop costochondritis more often than others. Fibromyalgia is a long-term (chronic) condition that causes widespread body pains and fatigue. See the separate leaflet called Fibromyalgia for more details.

When should I see a doctor?

It can be very difficult to know when to see a doctor if you have chest pain, and how urgently. On the one hand you don't want to waste your own time, or that of your doctor if you have pulled a muscle. On the other hand you know you need to get on with it if you are having a heart attack, or other life-threatening problem. With chest pain, it makes sense to err on the side of caution if you are unsure.

If you feel unwell, breathless, dizzy, or sweaty, or if your chest pain is very severe or spreading to your jaw or left arm then treat it as an emergency. Call 999/112/911 for an emergency ambulance.

If you have a pain in your chest which gets worse as you move your chest wall, and hurts when you press on it then it is likely to be a chest wall cause, such as costochondritis. If you feel generally well, and the pain does not need painkillers, or can be managed with over-the-counter painkillers then you do not necessarily need to see a doctor. Even if you are fairly sure you have costochondritis, if the pain is severe or getting worse rather than better over time then see your doctor.

If you are young and generally healthy, it is more likely that you have a non-serious chest wall pain. Costochondritis is an example of a condition that can cause chest wall pain that is not serious. Because the pain caused by costochondritis can be quite severe at times, many people with it become very anxious and worried that it may be due to something more serious.

If you have other symptoms in addition to the pain then see a doctor. This would include if you have:

- A cough.
- A high temperature (fever).
- Breathlessness.
- Blood in the mucus you cough up (sputum).
- Pain which spreads to other parts of the body.
- A rash.
- A feeling of having a "thumping heart" (palpitations).
- Dizziness.
- Difficulty swallowing.
- Started to get heartburn or indigestion.

Also see your doctor if the pain gets worse as you exert yourself (for example, on walking up a hill) rather than as you twist your chest around. Pain on exertion is more likely to be due to angina.

See the separate leaflet called Chest Pain for more information about the different causes of chest pain.

Costochondritis treatment

Treatment is not always needed. Sometimes it helps just to be reassured there is no serious cause for the chest pain. Worry can make the pain worse. (Indeed, anxiety is a common cause of chest pain.)

When treatment is needed for costochondritis, all that is normally required are painkillers and anti-inflammatory medications. Often, just simple painkillers such as paracetamol or codeine are needed. Ibuprofen is an anti-inflammatory medication - also called a non-steroidal anti-inflammatory drug (NSAID) - that is often effective for costochondritis. Other NSAIDs are available on prescription, such as naproxen.

With or without treatment, most people with costochondritis get better gradually over time. It is unusual for it to last more than two months.

For severe cases of costochondritis not responding to painkillers and anti-inflammatory medication, injections of steroids or local anaesthetic medicines may be used.

In extreme cases, an intercostal nerve block can be performed (usually by a doctor specialising in acute pain and/or anaesthetics). This involves injection of a local anaesthetic medicine around the painful ribs, to block the nearby intercostal nerve. The intercostal nerves transmit the painful sensation in costochondritis. This sort of injection temporarily disrupts nerve impulses to stop the pain. Nerve blocks can last several weeks or months. In repeated, severe cases of costochondritis, a series of these injections can be given to permanently destroy the nerve causing the pain.
Non-medicinal measures can be tried for relief of pain in costochondritis. Examples of such techniques include:

- Heat pads.
- Ice application.
- Transcutaneous electrical nerve stimulation (TENS).
- Acupuncture.
- Gentle stretching exercises.
- Avoidance of sports or activities that worsen the pain.
- Physiotherapy or chiropractic therapy.

What is the outlook?

The outlook for costochondritis is generally very good. Most cases are mild and settle quickly - most within 6-8 weeks. This happens with or without simple medications. In nearly all cases, the condition has completely gone within a year. Occasionally, if you are unlucky, it lasts longer. Costochondritis may return; however, this is unlikely.

Further reading & references

- Chest Pain; NICE CKS, April 2015 (UK access only)

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