

Takotsubo Syndrome

Takotsubo syndrome or stress-induced cardiomyopathy

- Takotsubo is a condition which affects the heart muscle, giving the left ventricle a distinctive shape.
- It is thought to be brought on by extremely stressful events, and affects how the heart works.
- It is usually a temporary condition, and once treated most people recover within a few weeks.

What is Takotsubo syndrome?

Takotsubo (or 'TTS') causes the heart to balloon (become enlarged) and weakened, and so it works less well than normal. This can lead to symptoms such as chest pain that can feel like a heart attack.

Who gets it?

It tends to affect women more than men, and is most common in women over 50 years of age (possibly after the menopause). It is thought to affect around 2,500 people in the UK each year. It is not thought to be genetic, and so does not run in families (unlike some other types of cardiomyopathy).

Why 'Takotsubo'?

This condition was first described in Japan in 1990. Takotsubo is the name of a Japanese octopus trap, which is a similar shape to a heart with this condition. This happens because the left ventricle of the heart (the main pumping chamber) becomes weakened, particularly at the tip, and appears enlarged.

What causes it?

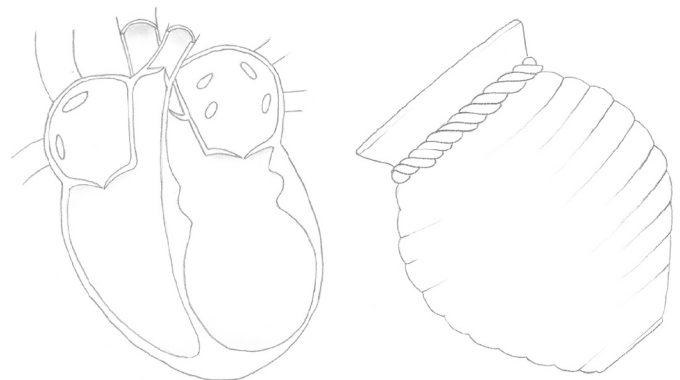
Although the exact cause of the condition is not known, there can be many triggers. For most people there is an identifiable trigger, which might be a physical (such as an illness or extreme pain) or emotionally stressful event (death of a loved one) or a strong emotional event. It is not the trigger which causes TTS but our body's response to these events that cause an excess of catecholamines (chemical messengers), such as adrenalin (a hormone which is released due to extreme stress), which affects the shape of the heart and causes weakening of the pumping of the heart. As it is often caused by stress, it is also known as 'stress-induced cardiomyopathy'. It

is also possible that events causing positive emotions may also trigger the condition in some people, and in some cases it develops following acute brain injury. In around 30% of cases there is no obvious trigger.

What are the symptoms?

Many people seek medical help because it feels like they are having a heart attack. Most people are initially treated for a heart attack until tests can diagnose the true cause.

A representation of the shape of the left ventricle in a heart with TTS (left), and a Japanese octopus trap (right).



Others may see their doctor because they are experiencing shortness of breath, and a few because they lose consciousness. Typically, symptoms start just after the stressful event, and can include any of the following:

- sudden, intense chest pain;
- shortness of breath - caused by the heart not being able to pump properly which causes fluid to build up in the lungs; and
- arrhythmia (abnormal heart rhythms) - where the heart beats either too fast or too slow, or may beat irregularly.



How is it diagnosed?

This condition is usually diagnosed when:

- the heart muscle, and the pumping action of the heart, is found to be weakened;
- the cause is shown to not be a heart attack (from a blocked artery);
- the heart has the typical Takotsubo shape (with narrowing at the middle and base of the heart and ballooning at the tip); and
- when any other conditions that could explain the symptoms have been ruled-out.

Usually several tests are done in hospital to confirm the diagnosis. These include the following.

- **ECG (electrocardiogram)** – to look at how electrical impulses are conducted in the heart. This condition commonly causes a similar ECG to a heart attack.
- **Blood test** – to look for chemicals in the blood that show the heart muscle is damaged.
- **Echo (echocardiogram)** – to look at the structure and function of the heart muscle and valves, using ultrasound. This condition affects the function of the heart and causes it to balloon (giving it the typical 'octopus pot' shape).
- **Cardiac MRI (a type of scan)** – to look at the structure and function of the heart when an echo has not given clear results. It can also be used to rule-out other conditions that may affect how the heart works (such as viral infections).
- **Coronary angiogram** – to look at the blood supply to the heart (through the coronary arteries – which supply the heart muscle with blood), and check whether the arteries are not narrowed or blocked (such as in a heart attack).
- **Urine tests** – to look at levels of hormones, including adrenalin. This is done because, rarely, the condition is caused by an adrenal gland tumour (which increases adrenalin levels). These tumours are usually removed by surgery.

How is it treated and managed?

Although the heart usually recovers, symptoms and any heart abnormalities need to be treated to avoid complications and help the heart recover. This usually consists of treatment for one or more of the following.

- **Treatment for a heart attack** – as the condition has the same symptoms as a heart attack, many people will be treated for this (until the doctors can be sure it is not a heart attack). This includes checking that the coronary arteries are not narrowed or blocked.

- **Breathlessness** – this is caused by a build-up of fluid on the lungs because the heart isn't working properly. This is usually treated with diuretics (or 'water tablets') – medication that helps to support the heart and reduce fluid build-up.
- **Reduced heart muscle function** – drugs such as betablockers and ACE inhibitors are used as they help to reduce the workload of the heart.
- **Low blood pressure** – in severe cases (which are uncommon) medication may be given to stabilise the blood pressure.
- If someone has a cardiac arrest due to this condition (where dangerous abnormal heartbeats cause the flow of blood out of the heart to suddenly stop), they may be considered for an ICD (implantable cardioverter defibrillator) if there is a risk of this happening again. ICDs monitor the heart rhythm and give an electric shock to the heart if a cardiac arrest happens due to a dangerous heart rhythm.
- **Blood clots** – any blood clots found are treated with blood thinning drugs such as warfarin. Warfarin may also be used for atrial fibrillation (an abnormal heart rhythm) which can cause an increased risk of having a stroke.

Complications

In a small number of people, the condition can cause complications. These include:

- low blood pressure which leads to a condition known as cardiogenic shock (when the blood supply does not meet the demands on the body);
- a stroke due to blood clots forming in the heart; and
- serious arrhythmias (chaotic heart rhythms) which, in some cases, can lead to cardiac arrest.

However, these complications are rare, and are reduced by effectively treating the symptoms of the condition.

Prognosis

The heart's size, shape and function often improves with treatment, though recent research suggests that for some people there may be a longer-lasting change to their heart function, which results in ongoing symptoms such as: extreme fatigue, shortness of breath, chest pain or palpitations. TTS can recur in around 4% of people, the trigger may be similar or different.



What next?

You may be reading this factsheet because you, or someone you know, have been diagnosed with TTS. It can be a difficult time and you may feel overwhelmed. It is natural to have lots of questions, and you may want to talk to someone who understands. Although a diagnosis of cardiomyopathy may feel devastating, with the right information and support most people can live full and active lives.

We are here for you

At Cardiomyopathy UK we offer help and support for you and your family. We have information about each type of cardiomyopathy as well as diagnosis, treatment and lifestyle issues. Look on our website or call us for more information. Call our helpline to talk to our cardiomyopathy support nurses. We can put you in contact with other people affected by cardiomyopathy through our support groups, support volunteers, social media and our online forum. Contact us for more about our services, or look online - www.cardiomyopathy.org.

Send your feedback to contact@cardiomyopathy.org

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