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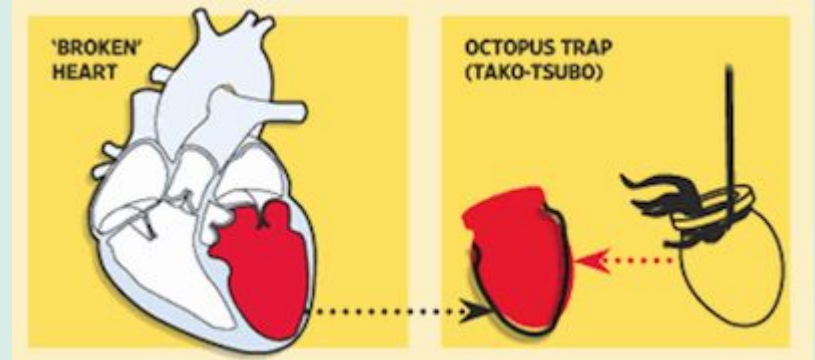
- Takotsubo Cardiomyopathy (broken heart syndrome, stress cardiomyopathy, TCM, TTS, and apical ballooning syndrome)

# Facts about TCM

Tako  
“Octopus”

+

Tsubo  
“Trap”

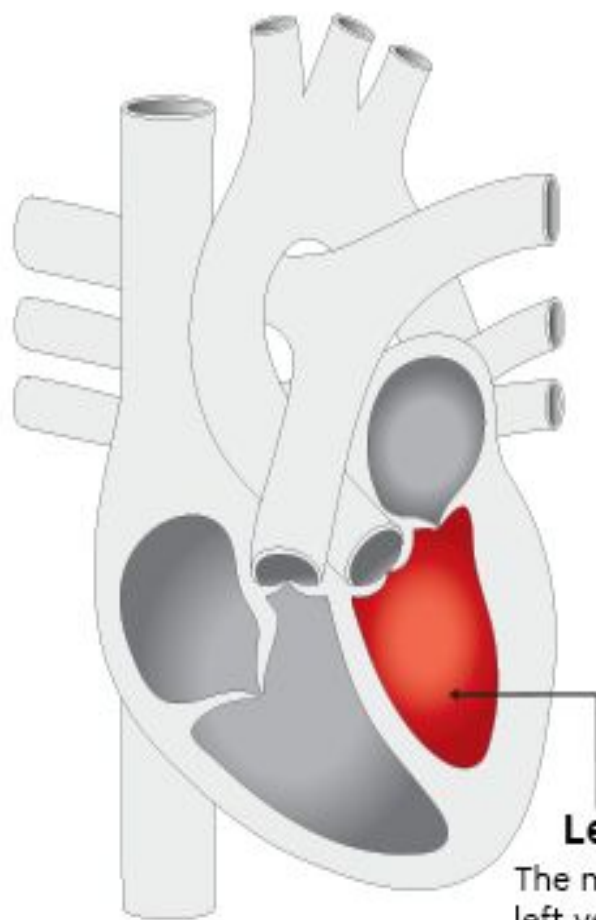


- Takotsubo cardiomyopathy was originally discovered in 1990 by Japanese doctors.
- “Tako” means “octopus” in Japanese. “Tsubo” means “trap” in Japanese. It was named like “octopus trap” because when TCM occurs on someone. The left ventricle expands and it looks like an octopus trap.

# Facts about TCM

- 90% of TCM occurs to women. Also, 80% of the 90% occurs to women above the age of 50 (the chance of triggering TCM increases by age)
- Death rate is about 5.7% (usually with other complications).
- Out of every hospitalization in USA. The likelihood of TCM happening is 0.02%. Hence, it is a really really rare disease to catch.
- Symptoms of takotsubo cardiomyopathy includes the shortness of breath, anigma, and possibly fainting.
- Most people recovered from TCM for a couple days. Hence, it is not deadly. However, do not underestimate the disease.

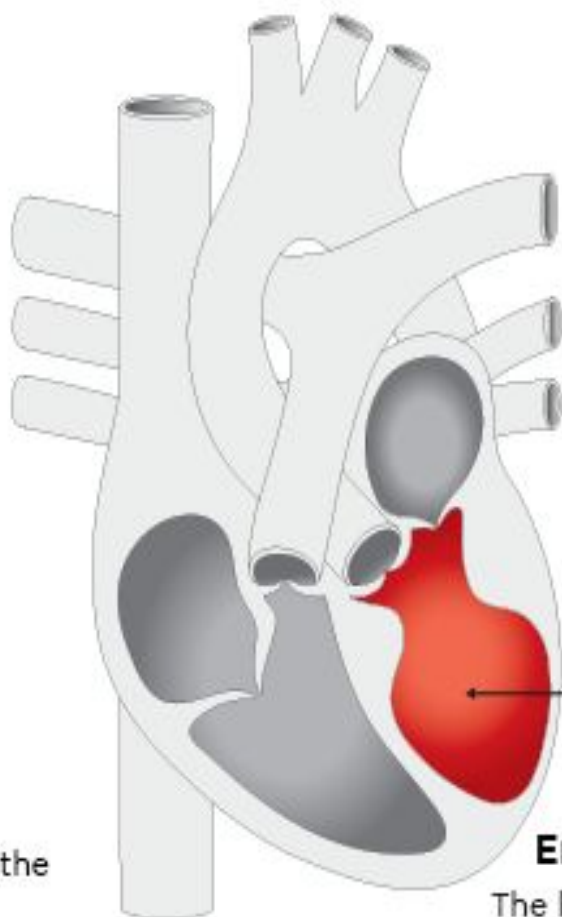
## Normal heart



**Left ventricle**

The normal shape of the left ventricle after it contracts (squeezes)

## Takotsubo cardiomyopathy



**Enlarged left ventricle**

The left ventricle swells and forms a shape like an octopus pot

**Japanese Octopus Pot  
(Tako-Tsubo)**



**How do you diagnose it?**

# How do you diagnose it?

**Electrocardiogram (ECG)**- Use the ECG pattern can tell that something is wrong with the heart. However, it is hard to diagnose solely with the ECG. (presumptive)

**Blood test**- It indicates that if enzymes has done damage to the heart. It can tell if the enzymes is doing damage. However, it can't tell why and how it's being damaged. (presumptive)

**Echocardiogram**- It uses ultrasound to study the heart's shape and function. If the ECG indicates that the heart is beating irregularly, and the echocardiogram shows that the left ventricle shapes like an octopus trap. Then there is a high possibility that the patient has takotsubo cardiomyopathy. (Confirmatory)

**Coronary angiogram**- It checks whether blood flows through the coronary artery or not. Since many cardiovascular diseases are related to coronary artery blockages. Hence, it is reasonable if the physician orders coronary angiogram to see if the coronary arteries are normal. If the coronary arteries are normal, then the physician can focus on other possibilities of the cause of the patients' discomfort. (presumptive).

**MRI and CT**- The imaging results shows that anatomy of the heart. With the imagings, the radiologists will be able to diagnose the patients. (confirmatory)

# Possible causes of takotsubo cardiomyopathy

The cause of TCM is usually by an intense emotional event (sometimes physical)

For instance.....

The death of a family member, a fierce argument, death of someone you love, an unexpected loss, asthma attack, fall, motor vehicle accidents, and other types of tragic events that may potentially make people feel extremely depressed.

In some cases, TCM can be triggered by...

An intense fear, unexpected surprises, financial hardship, and acute and drastic changes to your life, and a simple jumpscare.

Or Anakin....

**Turning into the darkside, slaughtering the younglings, initiating Order 66, and force chokes Padmé**

# Signs of Takotsubo Cardiomyopathy (excluding the symptoms)

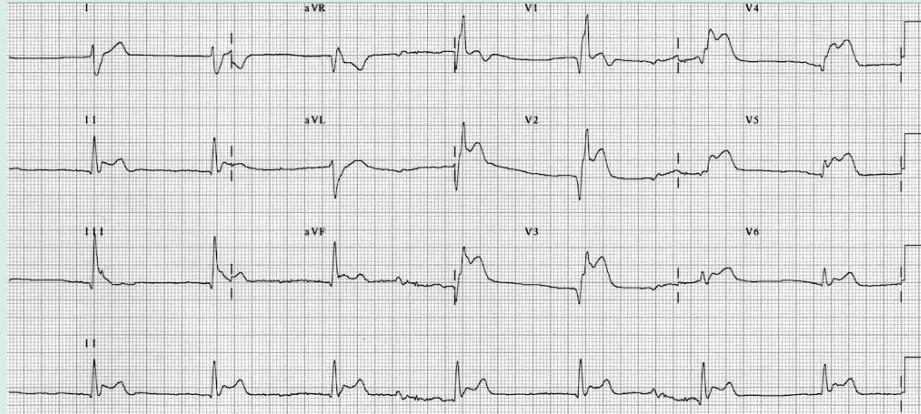
- MRI, electrocardiogram, ECG, and CT tests.
- Acute or subacute chest pain
- Reduce ejection fraction of the heart (ejection fraction is the a measurement of the percentage of blood leaving your heart each time it contracts)
- The rise of the cardiac enzyme levels
- Elevated troponins (when the heart is damaged, it releases troponins into the bloodstream).
- Excess catecholamine (a type of hormone that is response of your “flight or fight” response) Adrenaline, noradrenaline, and dopamine are in the catecholamine category.
- Signs of cardiac ischemia (when the blood flow and oxygen decreases in the heart muscle). This sign is similar to coronary artery diseases. Hence, it can not be the main reason to diagnose TCM.
- Arrhythmia (because the dysfunction of the left ventricle will cause the heart to pump irregularly)



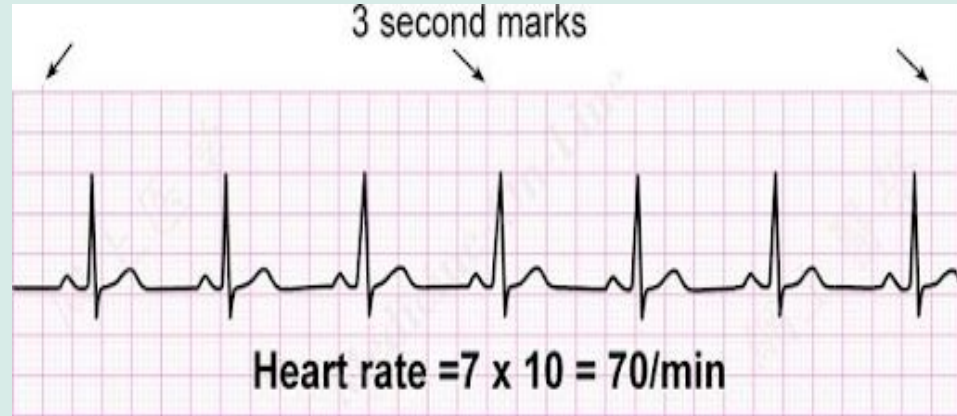
# Compare and contrast the difference in ECG of a regular heart and TCM

- Regular heart beat is consistent. Whereas, TCM heart beat is inconsistent.

**TCM**



**Regular**



# So pathophysiologically, what causes TCM?

The etiology (the study of the cause of the disease) is not fully known in the medical field. However, researchers noticed several interesting findings amongst patients who suffered from TCM.

Nonetheless, this is a summarized and oversimplified what researchers know about TCM so far...

So during TCM, a recent stress stimulates the sympathetic nervous system to produce a vast amount of catecholamines. The significant amount of catecholamines results in the increase of vessel constriction, heart rate, and the contractility of the heart. The increase in the catecholamines will cause the dysfunction of the left ventricle (make it shape like a “octopus pot.” Inefficient pumping).

A helpful video that may help you

<https://www.youtube.com/watch?v=d15kbYySnoY>

CARDIOLOGY

↓ EJECTION FRACTION

**TAKOTSUBO  
CARDIOMYOPATHY**

ECG CHANGES  
SIMILAR TO  
ACUTE CORONARY SYNDROME

↑ TROPONIN

TAKO

# Mourning for Padmé

Who died from takotsubo cardiomyopathy



**Padmé Amidala**  
**46 BBY - 19 BBY**

# Sources

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# Meeting concluded!

**Next meeting: Alzheimer's Disease**

