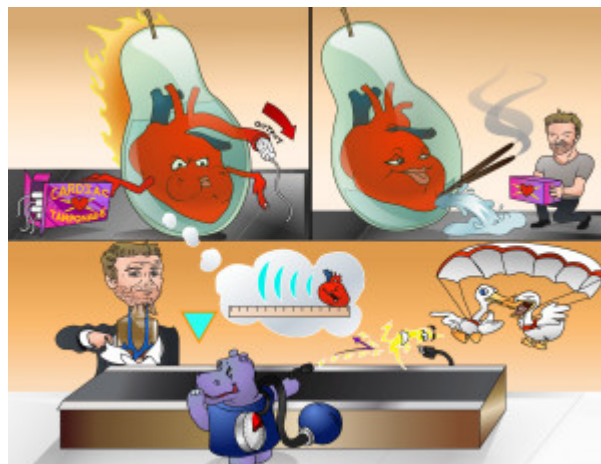


## Cardiac Tamponade

Cardiac tamponade is a condition which occurs due to fluid in the pericardial sac. It leads to clinical manifestations of hypotension, jugular venous distention and distant heart sounds. Effective treatment is pericardiocentesis.



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### Mechanism

#### Fluid in the Pericardial Sac

##### Fluid in Pear-heart Sac

Cardiac tamponade occurs due to fluid in the pericardial sac, and leads to increased intrapericardial pressure. Causes of this include trauma, rupture and iatrogenic etiology.

#### Pericarditis

##### Pear-heart-on-fire

This is inflammation of the pericardial sac that is commonly due to viral infection. It can lead to accumulation of fluid and cardiac tamponade. It is one of the most common causes of cardiac tamponade. Other causes include trauma.

#### Decreased Cardiac Output

##### Down-arrow Heart Output-measurement

The fluid surrounding the heart compresses it and leads to decreased diastolic filling of the ventricles which leads to decreased cardiac output and hypotension.

### Signs/Symptoms

#### Beck's Triad

##### Beckham's Triangle

This is the classic triad of hypotension, JVD and distant heart sounds. It occurs in 10-40% of patients.

#### Hypotension

##### Hippo-BP

Hypotension occurs due to decreased cardiac output.

#### Jugular Venous Distention (JVD)

##### Jug Veins Bulging

Increased intrapericardial pressure leads to increased central venous pressure. Thus, increased JVD can be seen because of decreased diastolic filling capability.

### **Distant Heart Sounds**

#### [Distant Heart Soundwaves](#)

Fluid in the pericardial space muffles heart sounds, leading to decreased heart sounds.

### **Pulsus Paradoxus**

#### [Parachuting Pair-of-ducks](#)

This is a drop of  $>10\text{mmHg}$  in systolic blood pressure on inspiration. It occurs due to decreased diastolic filling and bulging of the inter ventricular septum into the left ventricle.

### **Electrical Alternans**

#### [Electricity Alters-direction](#)

This is seen on EKG and as alternating amplitudes of QRS complexes. It is possibly due to movement of the heart within the pericardial fluid.

## **Treatment**

### **Pericardiocentesis**

#### [Puncturing Pear-heart-with-incense](#)

Evacuating the fluid in the pericardial space is done via needle drainage. This is called pericardiocentesis.