



Seminar Presentation
On



IMPLANTABLE CARDIOVERTER
DEFIBRILLATOR

Presented By

Dr. Thamari Thankam

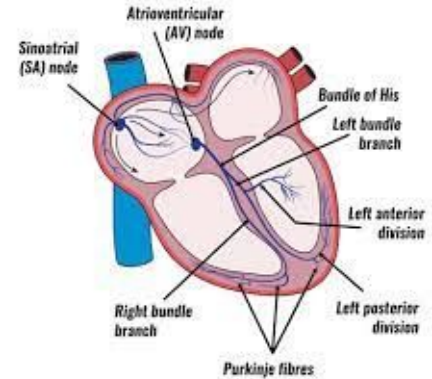
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Introduction

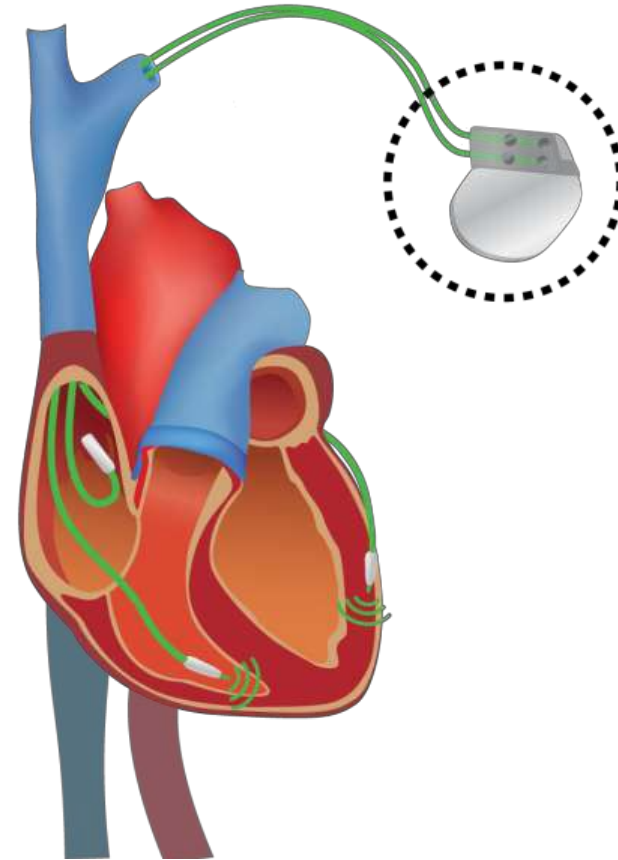
- Normally, the heart has an electrical system that controls the heartbeat.
- Heart Rate and Rhythm are controlled by the **Sinus Node** (*Natural pacemakers*).
- A healthy heart the nodes send regular electrical impulses to the cardiac muscles making them contract and pump blood.
- *There are 2 sinus nodes*
- **SA Node**: generate an electrical activity in the upper chamber of the heart
- **AV Node**: generates electrical impulses to the heart's lower chamber.



What Is An Implantable Cardioverter Defibrillator

It is a small battery-powered device placed onto the chest wall to monitor heart rhythm and detect irregular heartbeats.

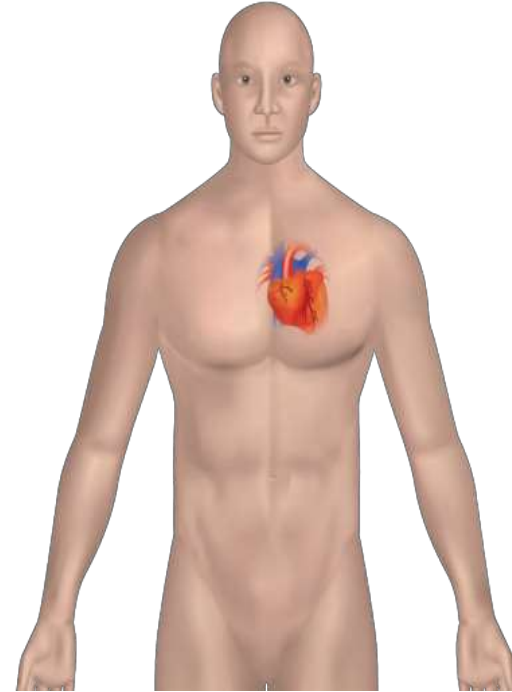
If required, it can deliver electric impulses to the heart to restore normal rhythm.



Who Required ICD

Patients with following conditions may require ICD placement:

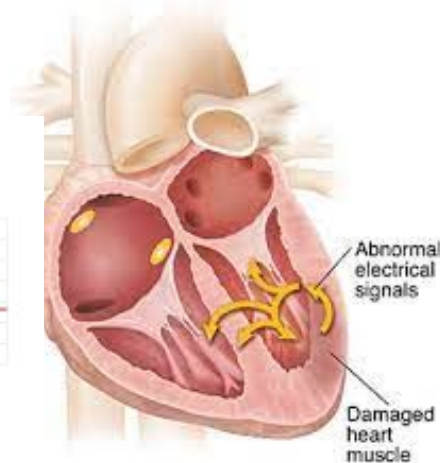
- Ventricular arrhythmia
- Long QT syndrome
- Congenital heart disease
- History of sudden cardiac arrest
- Brugada syndrome
- History of heart attack
- Cardiomyopathy (diseased heart muscles)



Who Required ICD

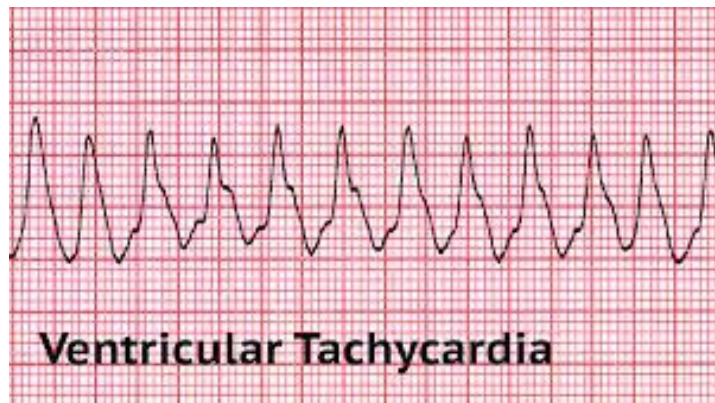
- **Ventricular arrhythmia**

Abnormal heartbeats that originate in your lower heart chamber



Reason:

- H/O heart disease
- Previous heart attack
- Congenital heart block
- Inherited cardiomyopathy
- Electrolyte imbalance



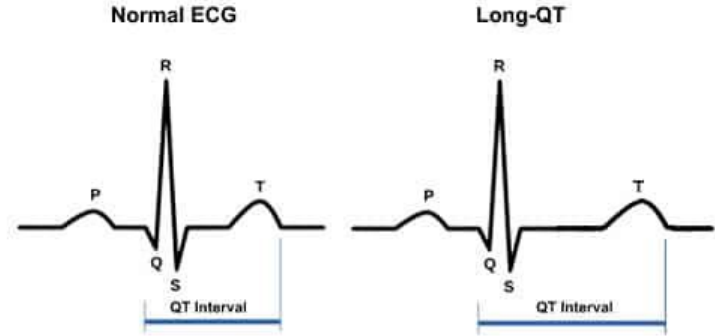
Who Required ICD

- Long QT syndrome

(Conduction disorder with electrical activity)

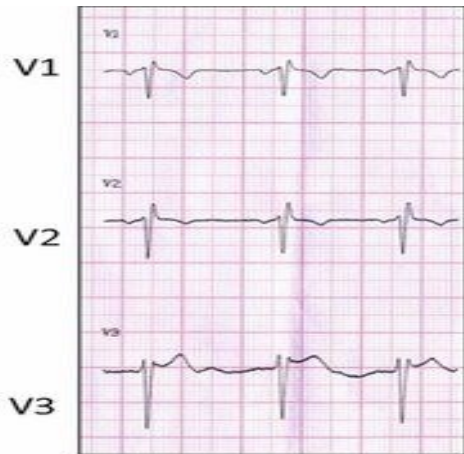
Why its develop Long QT Syndrome

- Inherited
- Abnormal gene
- Certain medicines (Antibiotics)



Who Required ICD

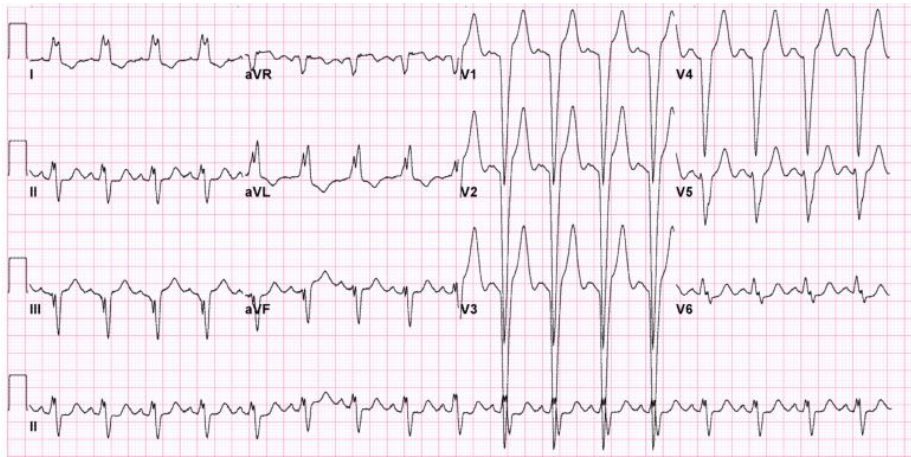
- Brugada syndrome



B



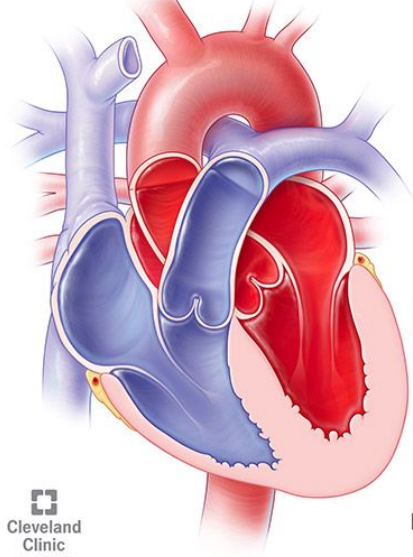
Brugada Syndrome - ECGpedia.org



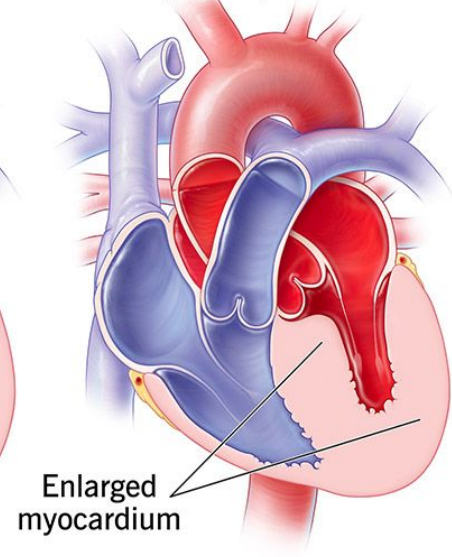
Who Required ICD

Cardiomyopathy

Normal heart

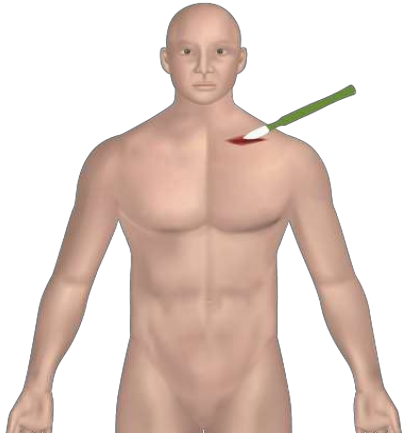
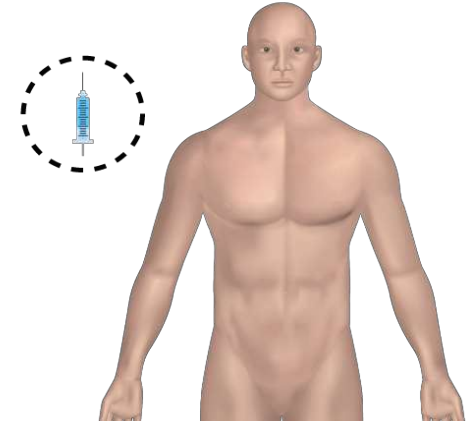


Cardiomyopathy



How Is An ICD Placed

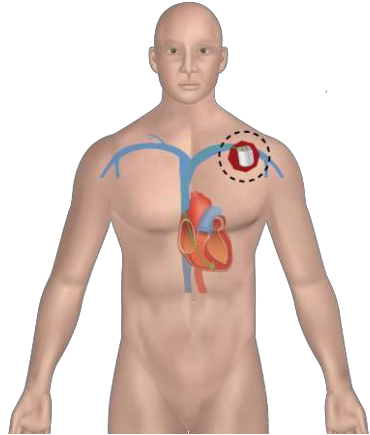
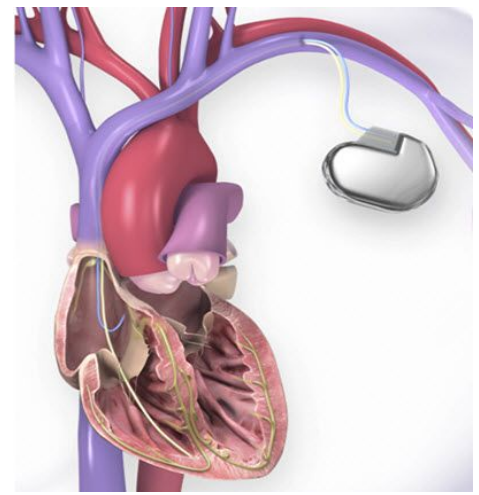
Anesthesia is administered to numb the chest wall area below the left collarbone. In infants, it may be placed in the abdomen



An incision is made through the skin to place the ICD generator (consisting of battery and electrical circuits) under the muscle.

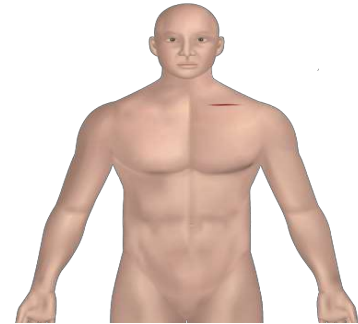
How Is An ICD Placed

Using special X-ray guiding images, electrodes are placed in the Right Atrium and Ventricle of the heart through the veins.



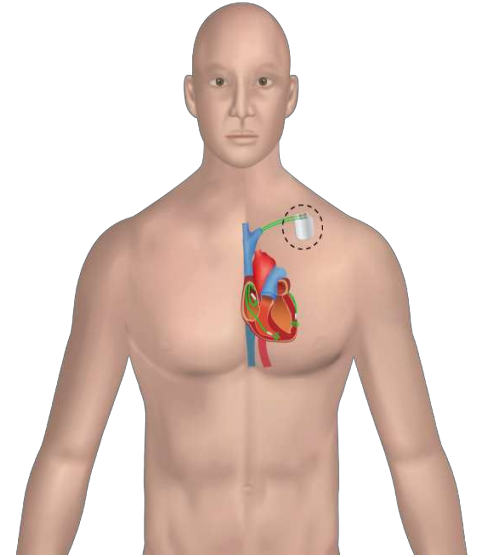
Electrodes are then connected to the pulse generator, placed on near the collar bone.

The incision is then closed.



How Does An ICD Work?

- The ICD constantly monitors the heart rhythm through the electrodes.
- If the heartbeat is irregular, the signals are transmitted to the ICD through the electrodes.
- The ICD then sends electrical impulses to the left ventricle to regulate the heartbeat .
- ICD can be programmed for low-energy pacing or providing high-energy shock .



Short-term Precautions After The Surgery

Performing exercises or activities that engage shoulder muscles



Lifting heavy weights



Playing intense sports such as tennis, bowling, or golf

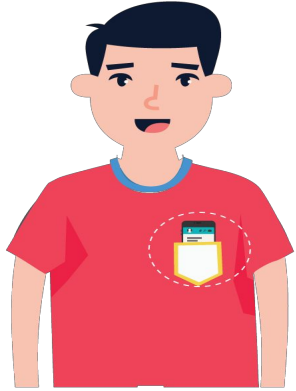


Playing contact sports

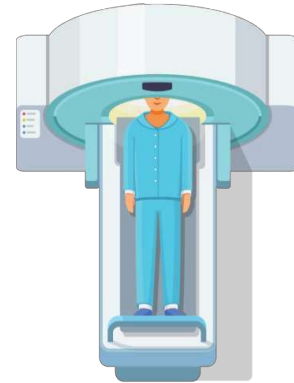


Living With ICDs

Keep cellphones at least six inches away from the ICD



Tell your healthcare providers if advised MRI, MRA, or radiofrequency tests



Living With ICDs

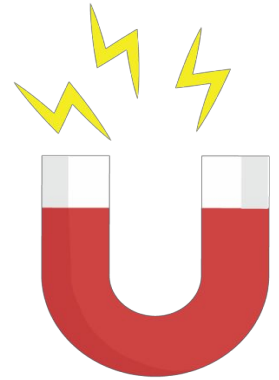
Maintain 2 feet distance from motor-generator system, high-voltage transformers or welding equipment



Keep magnets 6 inches away from the ICD site



Inform airport security personnel before undergoing checks under metal detector and surveillance system



ANY
QUESTIONS



Thank
you

