



GHADIALI

General Surgery

P R E S E N T S

Dr. Mufa T. Ghadiali is skilled in all aspects of General Surgery.
His General Surgery Services include:

- General Surgery
- Advanced Laparoscopic Surgery
- Surgical Oncology
- Gastrointestinal Surgery
- Hernia Surgery
- Endoscopy

ECHOCARDIOGRAM

Multimedia Health Education

Disclaimer

This film is an educational resource only and should not be used to make a decision on **ECHOCARDIOGRAM**. All such decisions must be made in consultation with a physician or licensed healthcare provider.

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GHADIALI

MULTIMEDIA HEALTH EDUCATION MANUAL

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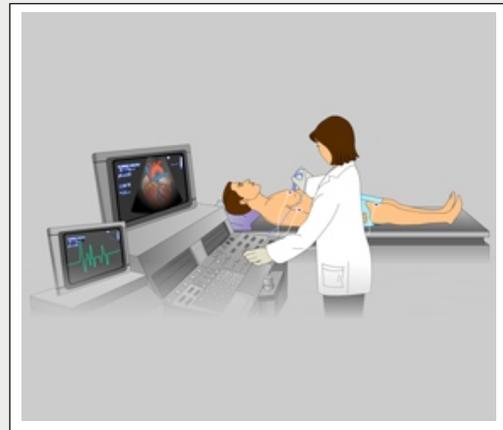
INTRODUCTION

An **echocardiogram**, often referred to as an echo, is a type of ultrasound test that uses high-pitched sound waves to look at the structure of the heart and how well the heart functions. It is a similar sort of scan to the ultrasound scan used in pregnancy. The sound waves used in ultrasound are harmless and painless.

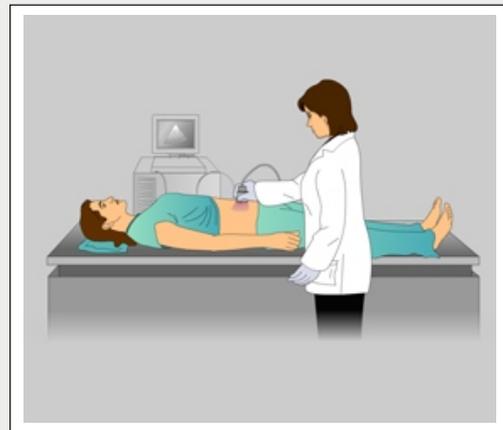
What is an Echocardiogram?

The high-pitched sound waves are sent through a device called a transducer. The transducer picks up the echoes of the sound waves as they bounce off different parts of the heart and these echoes are turned into moving pictures of the heart.

(Refer fig. 1& 2)



(Fig.1)



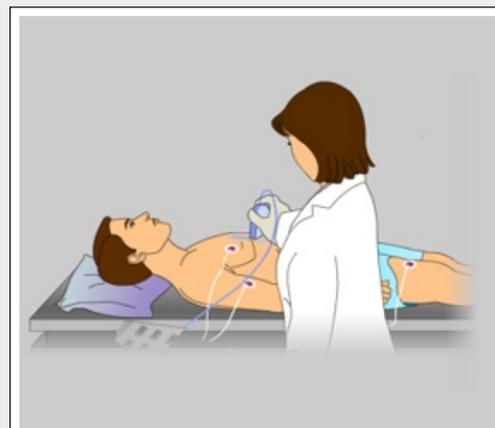
(Fig.2)

Types of Echocardiogram

Transthoracic Echocardiogram:

In this type of test, the transducer can be moved to different locations on the chest and upper abdomen to obtain the views of the heart. This is the most common type of test.

(Refer fig. 3)



(Fig.3)

Stress Echocardiogram

A stress echocardiogram is usually done to look for decreased blood flow to the heart. During this test, an echocardiogram is done both before and after the heart is stressed either by having the patient exercise or by injecting a medicine that makes the heart beat harder and faster.

(Refer fig. 4)



(Fig.4)

Doppler Echocardiogram

Doppler echocardiogram is used to look at how blood flows through the heart chambers, heart valves and blood vessels. The movement of the blood transmits sound waves to a transducer. The ultrasound computer then measures the direction and speed of the blood flowing through your heart and blood vessels.

(Refer fig. 5)



(Fig.5)

Transesophageal Echocardiogram

During this test, the probe is passed down the esophagus instead of being moved over the outside of the chest wall.

Since the probe is located closer to the heart and because the lungs and bones of the chest wall do not block the sound waves produced by the probe, the transesophageal echocardiogram shows very clear pictures of the heart.

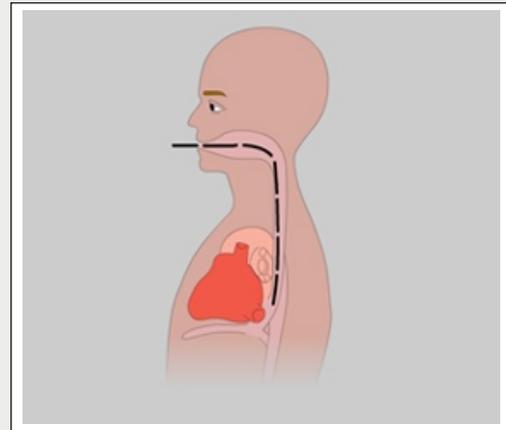
A sedative and an anesthetic applied to the throat make the patient comfortable during this test.

(Refer fig. 6)

Fetal Echocardiogram

Fetal echocardiograms are used to help diagnose certain heart defects before a child is born. A fetal echocardiogram shows the baby's heart in more detail than a normal ultrasound scan used in pregnancy.

(Refer fig. 7)



(Fig.6)



(Fig.7)

Unit 2:

Purpose of Echocardiogram

Why it is Used?

Echocardiogram is used to diagnose various types of heart disease. The echocardiogram provides accurate information about the pumping action of the heart, as well as the structure of the heart and the heart valves.

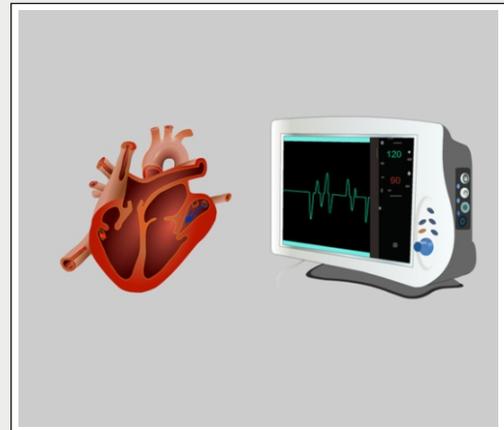
(Refer fig. 8)

Echocardiogram is used to look for the cause of abnormal heart sounds (murmurs or clicks), an enlarged heart, unexplained chest pains (angina), dyspnea (difficulty in breathing), or irregular heartbeats.

(Refer fig. 9)

An Echocardiogram can be used to diagnose heart attack as well as show evidence of a previous heart attack. It can assess the function of the heart valves and check how well they work. It also measures the size and shape of the heart's chambers.

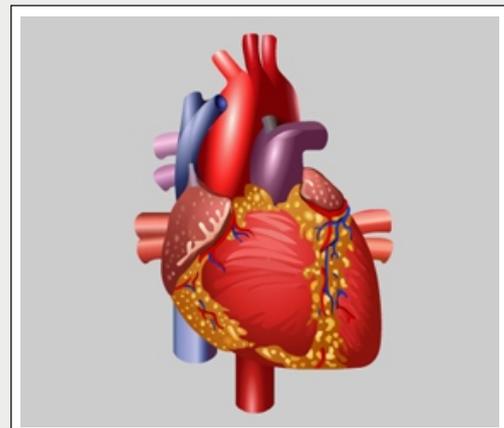
(Refer fig. 10)



(Fig.8)



(Fig.9)



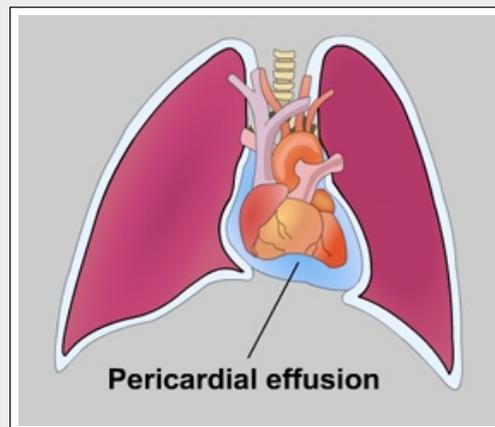
(Fig.10)

Unit 2:

Purpose of Echocardiogram

A transthoracic echocardiogram may also be used to diagnose pericardial effusion, a collection of fluid around the heart, or to diagnose thickening of the pericardium, the lining around the heart.

(Refer fig. 11)

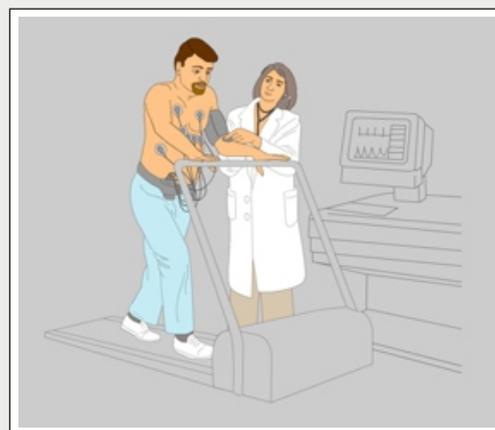


(Fig.11)

A stress echo may be done to identify and monitor reduced blood flow to the heart muscle, a condition called ischemia.

This is usually more apparent after some form of stress is induced, such as with exercise or medicine.

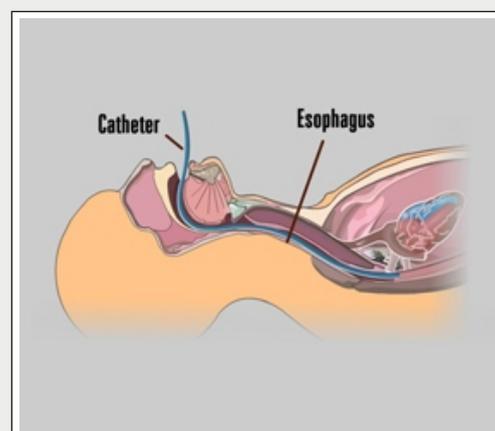
(Refer fig. 12)



(Fig.12)

Transesophageal echocardiogram (TEE) may be done to monitor heart function during surgery.

(Refer fig. 13)



(Fig.13)

How is it Done?

The preparation for an echocardiogram will differ based on the type of echocardiogram procedure being done.

A transthoracic echocardiogram (TTE), Doppler echocardiogram, and stress echocardiogram are performed by a specially trained ultrasound technician. A transesophageal echocardiogram (TEE) is performed by a cardiologist with the help of assistants.

(Refer fig. 14)

During Transthoracic echocardiogram (TTE) and Doppler echocardiogram, the patient will lie on his back on a table. Small metal discs called electrodes will be taped to their arms and legs to record their heart rate during the test.

The doctor will then apply small amount of gel to the left side of the chest to help pick up the sound waves. An instrument called a transducer is pressed firmly against the chest and moved slowly back and forth.

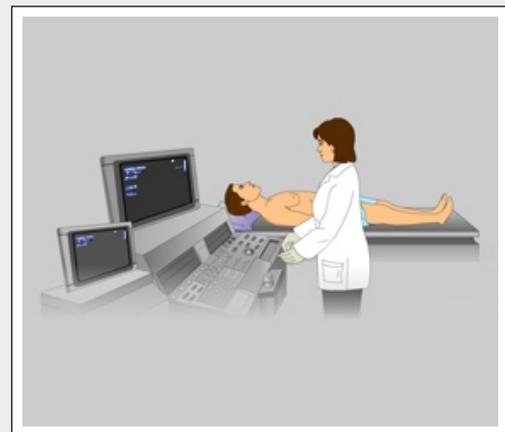
(Refer fig. 15)

The transducer sends soundwaves into the chest and picks up the echoes as they bounce off different parts of the heart. The echoes are then sent to a video monitor that records the pictures of the heart.

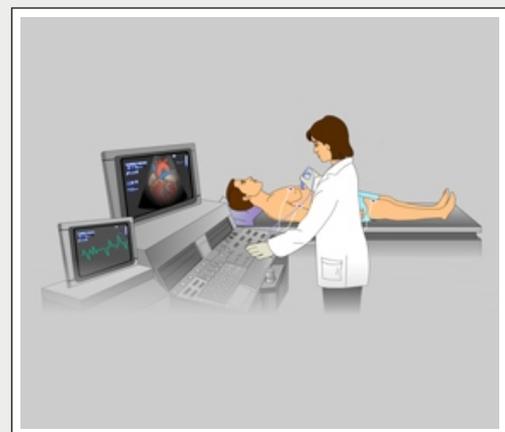
(Refer fig. 16)



(Fig.14)



(Fig.15)



(Fig.16)

How is it Done?

During a stress echocardiogram procedure, the patient will be asked to exercise for a specific amount of time. An echocardiogram will be taken before and after the exercise session.

Your doctor will also do an EKG, an electrocardiogram, at the same time by attaching electrodes to various parts of the chest. This provides further information about your heart for your doctor.

(Refer fig. 17)

Before a Transesophageal echocardiogram (TEE) procedure, an IV line is placed in the vein of the arm.

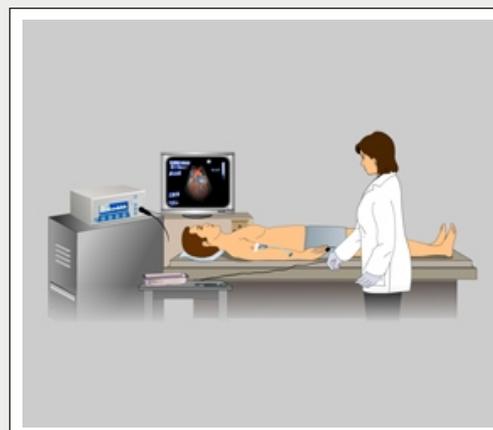
Pain medicine and sedation will be administered through the IV line during the procedure to keep the patient comfortable. An oximeter is placed on the finger to monitor the amount of oxygen in the blood.

Heart rate, breathing rate, and blood pressure will be monitored throughout the procedure. The technician will now pass a thin, flexible catheter with a tiny transducer on the end down the esophagus. The transducer picks up the sound waves which are then turned into moving pictures of the heart.

(Refer fig. 18)



(Fig.17)



(Fig.18)

What are the Risks?

An echocardiogram procedure is safe, however, as with any medical procedure, there are risks and complications that may occur depending on which procedure is performed.

There are no known risks from a transthoracic echo, Doppler echo, or fetal echocardiogram.

(Refer fig. 19)

A stress echocardiogram can occasionally cause shortness of breath, irregular heartbeats, or heart attack from the stress of the exercise on the heart.

Tell your technician if you experience any chest pain or shortness of breath during the procedure.

(Refer fig. 20)

Risks and complications of TEE include:

- Perforation or tear of the esophagus
- Pneumonia
- Infective Endocarditis, a serious infection of the heart lining
- Irregular heartbeats

A Transesophageal echocardiogram (TEE) does have certain risks and complications. Although they occur rarely, it is important you are informed of them before you undertake the procedure.



(Fig.19)



(Fig.20)

Although every effort is made to educate you on **ECHOCARDIOGRAM** and take control, there will be specific information that will not be discussed. Talk to your doctor or health care provider about any concerns you have about **ECHOCARDIOGRAM**

YOUR SURGERY DATE

READ YOUR BOOK AND MATERIAL

VIEW YOUR VIDEO /CD / DVD / WEBSITE

PRE - HABILITATION

ARRANGE FOR BLOOD

MEDICAL CHECK UP

ADVANCE MEDICAL DIRECTIVE

PRE - ADMISSION TESTING

FAMILY SUPPORT REVIEW

Physician's Name : _____

Patient's Name : _____

Physician's Signature: _____

Patient's Signature: _____

Date : _____

Date : _____