

Difference Between Cardiomegaly and Cardiomyopathy

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Key Difference - Cardiomegaly vs Cardiomyopathy

An abnormal enlargement of the [heart](#) is known as cardiomegaly whereas cardiomyopathies are a heterogeneous group of diseases of the [myocardium](#) associated with mechanical and/or electrical dysfunction that usually exhibit inappropriate ventricular [hypertrophy](#) or [dilatation](#) and they are due to a variety of causes that are frequently [genetic](#). **Cardiomegaly is a clinical manifestation of cardiomyopathies.** This is the **key difference** between them. The abnormal enlargement of the heart can happen in many other disease conditions also which means cardiomyopathies are not the only cause of cardiomegaly.

What is Cardiomegaly?

An abnormal enlargement of the heart is known as cardiomegaly. An enlarged heart can work in its normal [physiological](#) capacity up to a certain limit beyond which the deterioration of the functional and structural arrangement of the myocardial fibers begin.

Causes

- [Hypertension](#)
- Coronary artery diseases
- Dilated [cardiomyopathy](#)
- Hypertrophic cardiomyopathy
- [Pregnancy](#)
- [Infections](#)
- Inherited disorders

Clinical Features

- Fatigue
- [Dyspnea](#)
- [Edema](#) in the dependent regions such as the ankles
- Palpitations

Diagnosis

When there is a clinical suspicion of cardiomegaly different investigations are carried out to confirm the diagnosis.

- Chest [X-ray](#)
- USS
- Cardiac catheterization
- Thyroid functions tests
- CT
- [MRI](#)

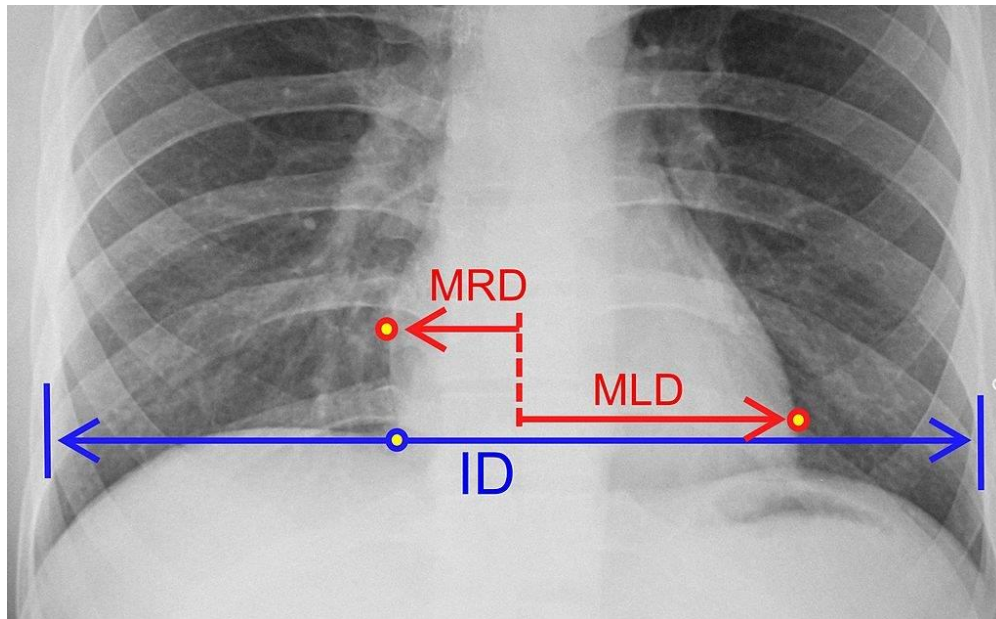


Figure 01: Cardiothoracic Ratio

Management

It is difficult to reverse the changes that have already taken place in the [cardiac muscles](#) without removing the underlying cause. Proper regulation of the [blood pressure](#) with the use of [diuretics](#) can reduce the workload of the heart thus providing enough breathing space for it to reach back to the normal dimensions. Any occlusions in the coronary vasculature should be removed by coronary [angioplasty and stenting](#) or any other appropriate method. Lifestyle modifications such as minimizing the consumption of alcohol are extremely important to improve the disease prognosis.

What is Cardiomyopathy?

Cardiomyopathies are a heterogeneous group of diseases of the myocardium associated with mechanical and electrical dysfunction that usually exhibit inappropriate ventricular hypertrophy or dilatation and are due to a variety of causes that frequently are genetic. They are either confined to the heart or are part of generalized multi-system disorders, often leading to cardiovascular death or progressive cardiac failure related instability.

There are three main types of cardiomyopathies,

Dilated Cardiomyopathies

This type of cardiomyopathies is characterized by the progressive cardiac dilatation and contractile (systolic) dysfunction, usually with concomitant hypertrophy

Causes

- Genetic mutations
- Myocarditis
- Alcohol
- Childbirth
- Iron overload
- Supraphysiological stress

Morphology

The heart is enlarged, flabby and heavy. The presence of mural thrombi is commonly observed. Histologic findings are non-specific.

Clinical Features

Patients usually present with dyspnea, easy fatigability, and poor exertional capacity.

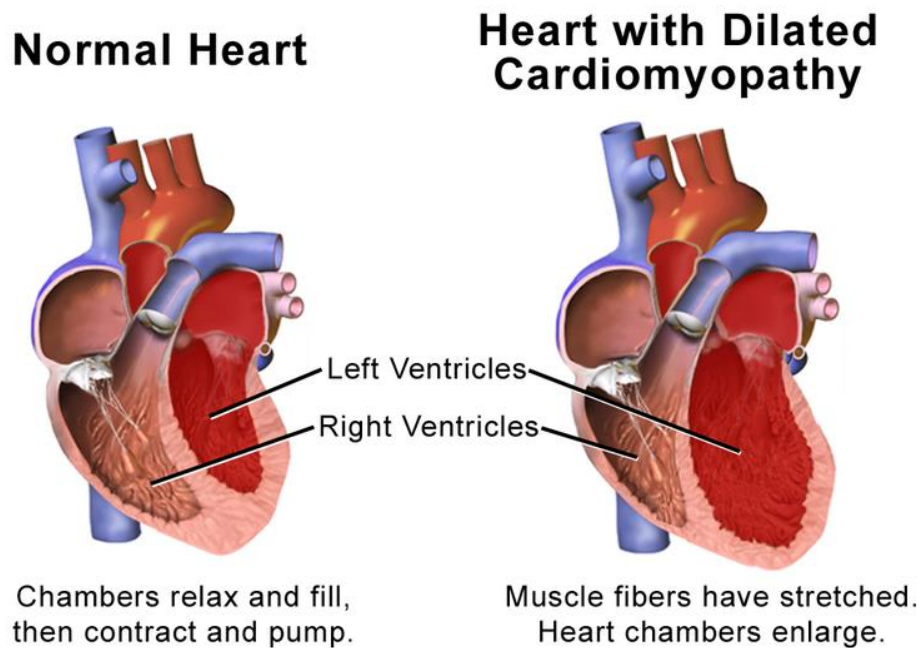


Figure 02: Heart with Dilated Cardiomyopathy

Management

Management of dilated cardiomyopathies includes the conventional management of cardiac failure along with cardiac resynchronization therapy. Cardiac transplantation may also be required in some patients.

Hypertrophic Cardiomyopathy

Hypertrophic cardiomyopathy is a genetic disorder which is characterized by myocardial hypertrophy, poorly compliant left ventricular myocardium leading to abnormal diastolic filling and intermittent ventricular outflow obstruction.

Morphology

- Massive myocardial hypertrophy
- Disproportionate thickening of interventricular septum relative to the free wall. This is called asymmetric septal hypertrophy.
- Massive myocyte hypertrophy, irregular arrangement of myocytes and contractile elements in sarcomeres and interstitial fibrosis are the unique microscopic features.

Clinical Features

- [Stroke](#) volume is reduced because of the impairment of diastolic filling.
- Atrial fibrillation
- Mural thrombi

Management

Treatment options include,

- Minimizing the symptoms with the use of beta-blockers and verapamil either in combination or individually.
- Implantable cardiovascular defibrillators can be used in high-risk patients.
- Dual chamber pacing is necessary for patients with a significantly low output from the left cardiac chambers.

Restrictive Cardiomyopathy

This is the least common type of cardiomyopathies and is characterized by a primary decrease in ventricular compliance, resulting in impaired ventricular filling during diastole.

Causes

- radiation fibrosis
- sarcoidosis
- amyloidosis
- metastatic tumors

Investigations

- Chest x-ray
- ECG
- Echocardiogram
- Cardiac MRI
- Coronary angiography

What is the Similarity Between Cardiomegaly and Cardiomyopathy?

- There are morphological alterations in the myocardium in both these disease conditions.

What is the Difference Between Cardiomegaly and Cardiomyopathy?

| Cardiomegaly vs Cardiomyopathy | |
|---|---|
| An abnormal enlargement of the heart is known as cardiomegaly. | Cardiomyopathies are a heterogeneous group of diseases of the myocardium associated with mechanical and/or electrical dysfunction that usually exhibit inappropriate ventricular hypertrophy or dilatation and are due to a variety of causes that frequently are genetic. |
| Nature | |
| Cardiomegaly is a clinical manifestation | Cardiomyopathy is one cause that can give rise to the clinical manifestation cardiomegaly. |
| Causes | |
| <ul style="list-style-type: none"> • Hypertension • Coronary artery diseases • Dilated cardiomyopathy • Hypertrophic cardiomyopathy • Pregnancy • Infections • Inherited disorders | <ul style="list-style-type: none"> • Genetic mutations • Myocarditis • Alcohol • Childbirth • Iron overload • Supraphysiological stress • Hypertrophic cardiomyopathy is due to a genetic mutation. • Restrictive cardiomyopathy is due to the following causes, <ul style="list-style-type: none"> • radiation fibrosis • sarcoidosis • amyloidosis • metastatic tumors |
| Clinical Features | |

| | |
|---|--|
| <ul style="list-style-type: none"> • Fatigue • Dyspnea • Edema in the dependent regions such as the ankles • Palpitations | <ul style="list-style-type: none"> • Patients usually present with dyspnea, easy fatigability, and poor exertional capacity. • Clinical features of hypertrophic cardiomyopathy • Stroke volume is reduced because of the impairment of diastolic filling. • Atrial fibrillation • Mural thrombi |
| Diagnosis | |
| <ul style="list-style-type: none"> • Chest X-ray • USS • Cardiac catheterization • Thyroid functions tests • CT • MRI | <ul style="list-style-type: none"> • Chest x-ray • ECG • Echocardiogram • Cardiac MRI • Coronary angiography |
| Management | |
| <p>Standard approach in the management of cardiomegaly comprises of,</p> <p>Proper regulation of the blood pressure with the use of diuretics can reduce the workload of the heart</p> <p>Any occlusions in the coronary vasculature should be removed by coronary angioplasty and stenting or any other appropriate method.</p> <p>Lifestyle modifications such as minimizing the consumption of alcohol are extremely important to improve the disease prognosis.</p> | <p>Management of dilated cardiomyopathies includes the conventional management of cardiac failure along with cardiac resynchronization therapy. Cardiac transplantation may also be required in some patients.</p> <p>Treatment options used in the management of hypertrophic cardiomyopathy are,</p> <p>Minimizing the symptoms with the use of beta-blockers and verapamil either in combination or individually.</p> <p>Implantable cardiovascular defibrillators can be used in high-risk patients. Dual chamber pacing is necessary for patients with a significantly low output from the left cardiac chambers.</p> |

Summary - Cardiomegaly vs Cardiomyopathy

An abnormal enlargement of the heart is known as cardiomegaly. Cardiomyopathies are a heterogeneous group of diseases of the myocardium associated with mechanical and/or electrical dysfunction that usually exhibit inappropriate ventricular hypertrophy or dilatation and are due to a variety of causes that frequently are genetic. Cardiomegaly is a result of many disorders affecting the heart of which cardiomyopathy is one. This is the difference between Cardiomegaly and Cardiomyopathy.

Reference:

- 1.Kumar, Parveen J., and Michael L. Clark. Kumar & Clark clinical medicine. Edinburgh: W.B. Saunders, 2009.
- 2.Kumar, Vinay, Stanley Leonard Robbins, Ramzi S. Cotran, Abul K. Abbas, and Nelson Fausto. Robbins and Cotran pathologic basis of disease. 9th ed. Philadelphia, Pa: Elsevier Saunders, 2010. Print.

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