



## FACULTY OF NURSING SCIENCES

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# PERICARDITIS

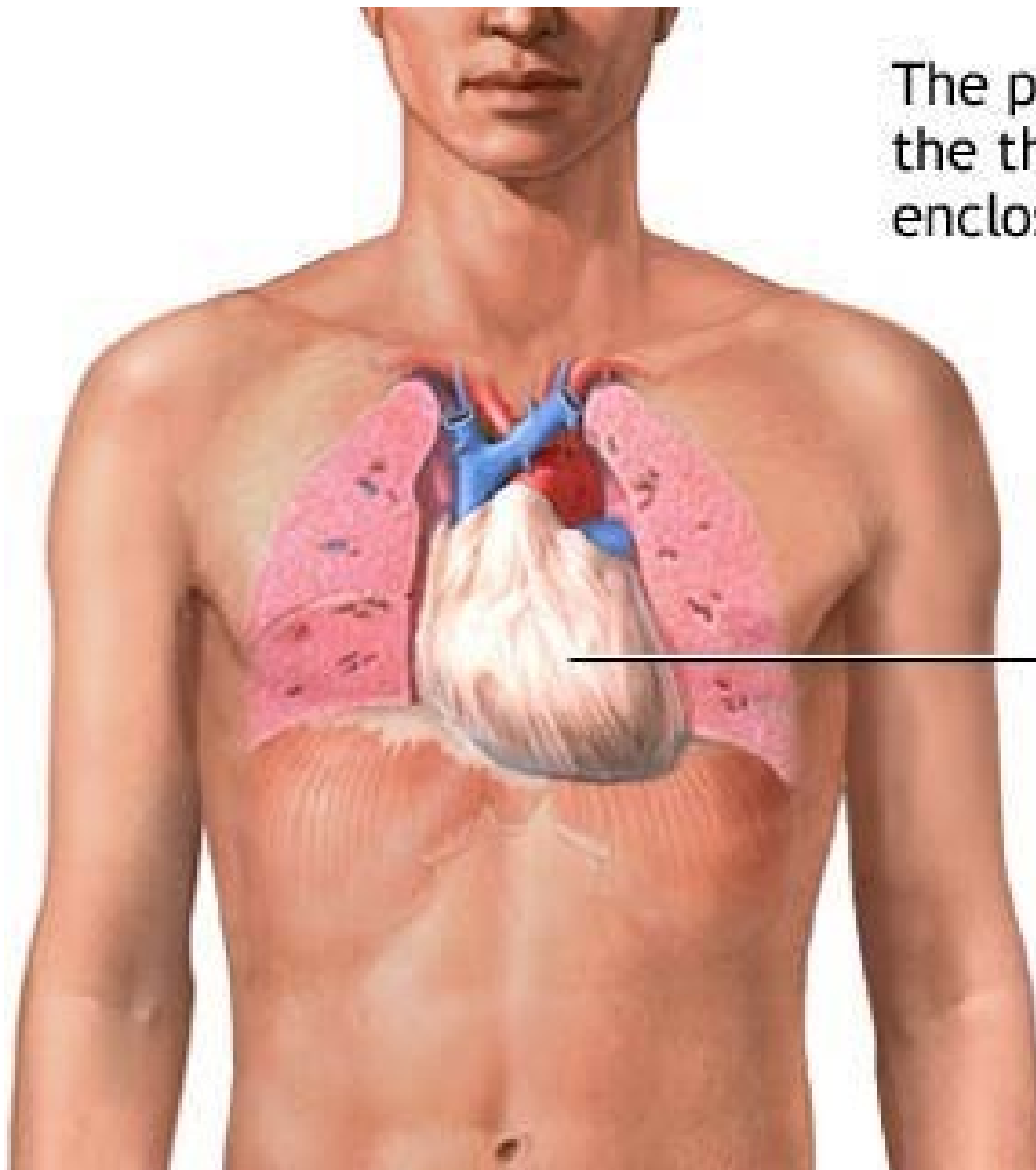
## Objectives

- ❖ Define pericarditis
- ❖ Classify the types of pericarditis
- ❖ Describe the etiology, risk factors, clinical manifestations, diagnostic criteria of pericarditis
- ❖ Explain the pathophysiology of pericarditis
- ❖ Enumerate the complications of pericarditis
- ❖ Describe the management of pericarditis

## Introduction

- Pericardium is a thin fibroelastic sac composed of two layers that separates the heart from the surrounding mediastinal structures.
- The functions of the pericardium is maintenance of cardiac position within the chest and as a barrier to infection and inflammation.

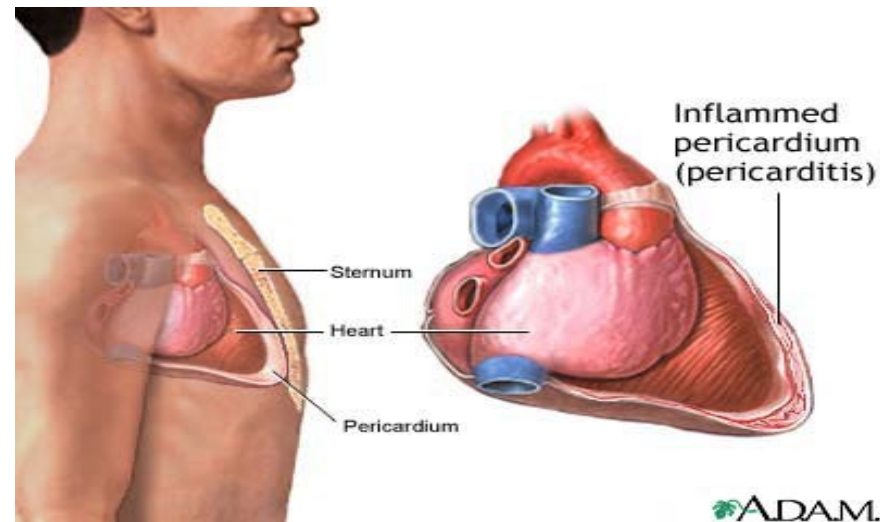
The pericardium is the thin sac enclosing the heart



Pericardium

## Definition

It is an acute inflammation of the pericardium results in visceral and parietal layers of the pericardium characterised by chest pain, pericardial friction rub, changes in ECG, rarely pericardial effusion.



## Etiology

- ❖ C-Collagen vascular disease
- ❖ A-Aortic aneurysm
- ❖ R-Radiation
- ❖ D- Drugs such as hydralazine
- ❖ I- Infections

## Etiology

- ❖ A-Acute renal failure
- ❖ C- Cardiac infarction
- ❖ R- Rheumatic fever
- ❖ I-Injury
- ❖ N-Neoplasms
- ❖ D-Dresslers syndrome



## ETIOLOGY:

- ✓ Acute idiopathic disease
- ✓ Infections
- ✓ Connective tissue disease
- ✓ Collagen disease
- ✓ Acute rheumatic fever
- ✓ Post open heart surgery
- ✓ Bleeding into the pericardium
- ✓ Post MI

- MISCELLANEOUS:
  - ✓ Drugs & vaccinations
  - ✓ Neoplasms
  - ✓ Radiation therapy
  - ✓ Chronic renal failure
  - ✓ Uremia
  - ✓ Sarcoidosis
  - ✓ Amyloidosis
  - ✓ Myxoedema

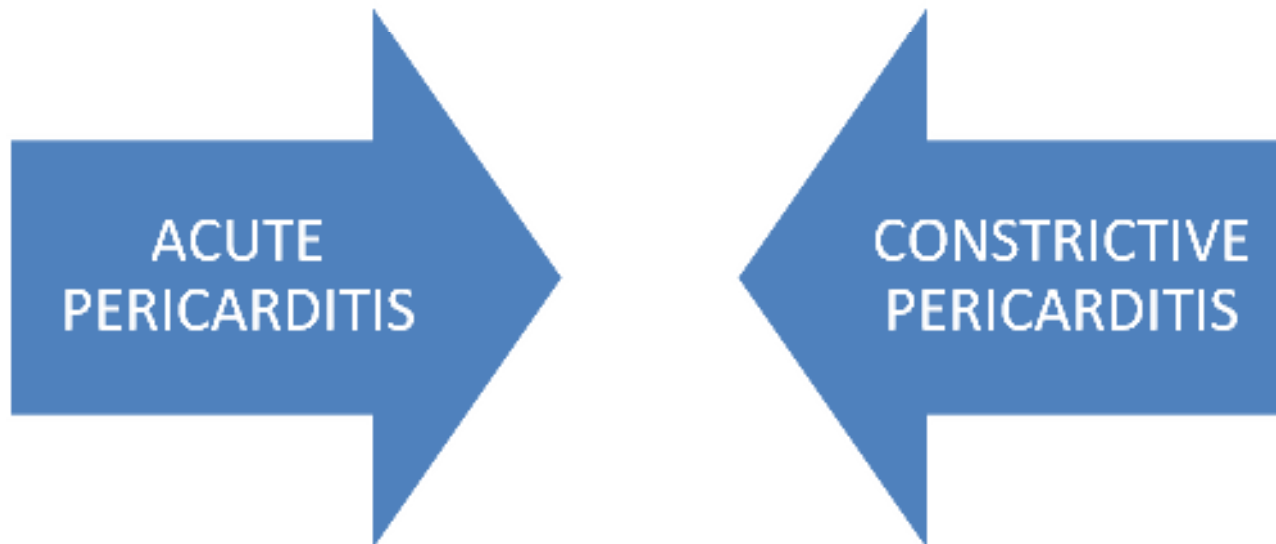
## Types of pericarditis

- Idiopathic pericarditis
- Viral pericarditis- coxsackie virus B
- Purulent pericarditis- pneumonia
- Tuberculous pericarditis- pulmonary TB
- Uremic and Dialysis associated pericarditis
- Pericarditis following MI
- Dressler's syndrome
- Malignancy
- Traumatic pericarditis- sharp blunt post ablation procedures

## TYPES BASED ON THE DURATION OF MI

**INCIDENCE: Following cardiac surgery 10% to 40%**

- ACUTE PERICARDITIS
- Occur with in the initial 48 to 72 hours after MI
- LATE PERICARDITIS
- Which appears 4 to 6 weeks after MI.



# ACUTE PERICARDITIS

## DEFINITION:

Inflammation of the pericardial sac enveloping the heart, which occurs on an acute basis.

# Pathophysiology

- Etiological factors
  - ↓
- Influx of neutrophils and other chemical mediators
  - ↓
- Change the permeability of pericardial vasculature
  - ↓
  - Pericardial inflammation and edema
    - ↓
- Restriction of heart motion and pain with breathing

## CLINICAL MANIFESTATION:

- Chest pain: sharp & pleuritic in nature
- Worse in deep inspiration, may radiate to neck, arms & shoulders near trapezius muscle.
- Rapid & shallow breaths
  - Fever, sweating & chills, Malaise & Myalgias
  - Dysrhythmias, Restlessness
  - HALLMARK FINDING- PERICARDIAL FRICTION RUB  
Rub is scratching, grating, high pitched sound believed to arise from friction between the roughened pericardial & epicardial surface.

# CONSTRICTIVE PERICARDITIS

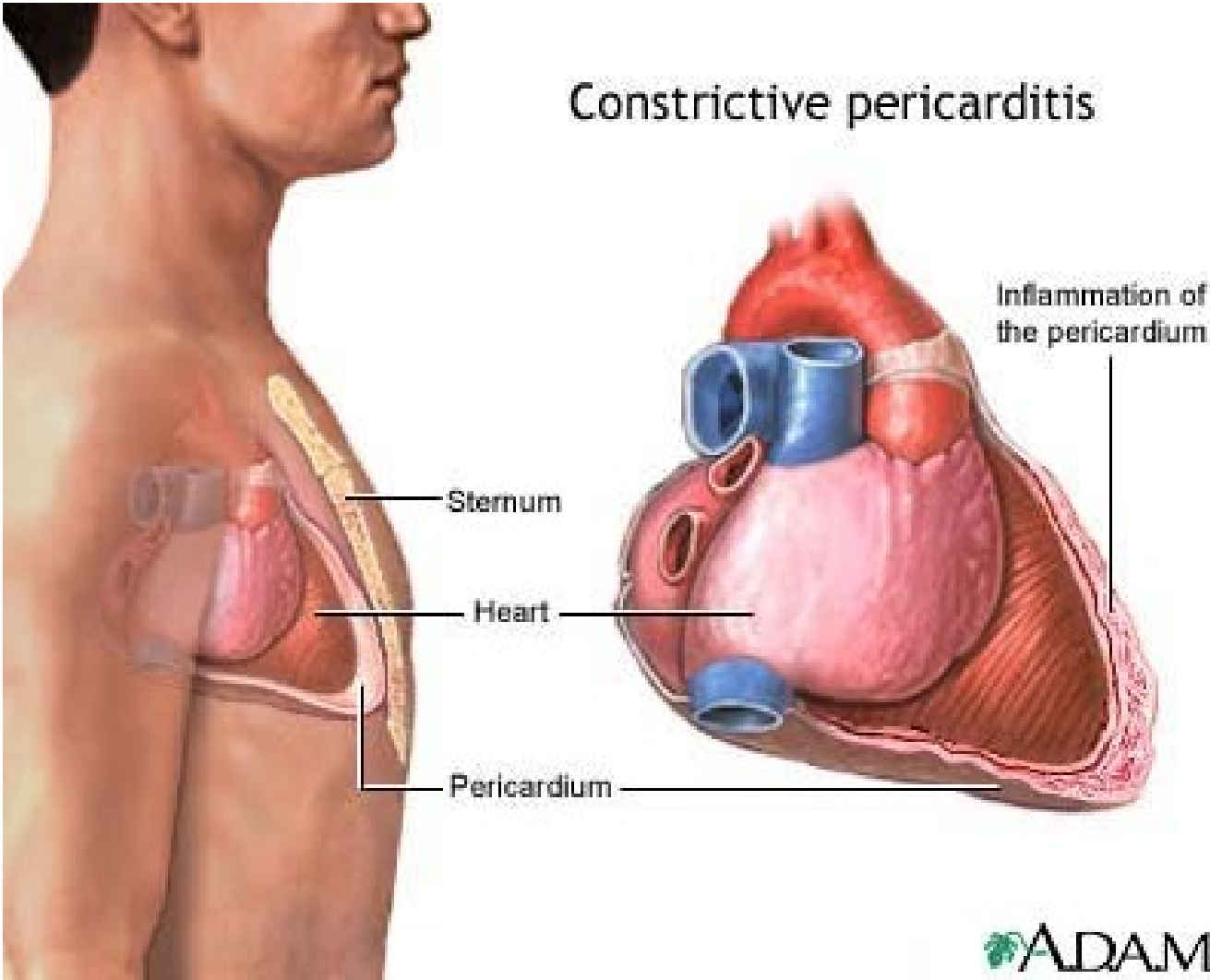
## DEFINITION:

It is characterized by a thickening and fibrosed pericardium which impairs ventricular filling by impeding diastolic relaxation and results in elevated heart pressures

- GOLDSTEIN, 2004.



# Constrictive pericarditis



# PATHOPHYSIOLOGY

Begins in acute pericarditis with pericardial effusion



Effusion slowly progresses to the subacute phase of reabsorption followed by chronic inflammation

FIBROSIS SCARRING

THICKENING OF THE PERICARDIUM



Closure of pericardial space

Fusion of the layers



Rigidity & Inelasticity which reduces the filling of heart chambers

Decreased cardiac output HEART FAILURE

## Clinical manifestations

- Severe sharp retrosternal chest pain often radiates to neck, shoulder, back
- High pitched friction rub
- Cardiac tamponade
- Dry cough
- Ankle, feet and leg swelling (occasionally)
- Anxiety
- Muffled or  heart sounds
- Fatigue if severe- rales,  breath sounds
- Fever

## Diagnostic evaluation

- ✓ History collection
- ✓ Physical examination muffled heart sounds
- ✓ Chest x ray –Cardiomegaly
- ✓ ECG- ST depression
- ✓ ECHO- Regional wall motion abnormalities
- ✓ CT,MRI- Thickness and effusion of pericardial space

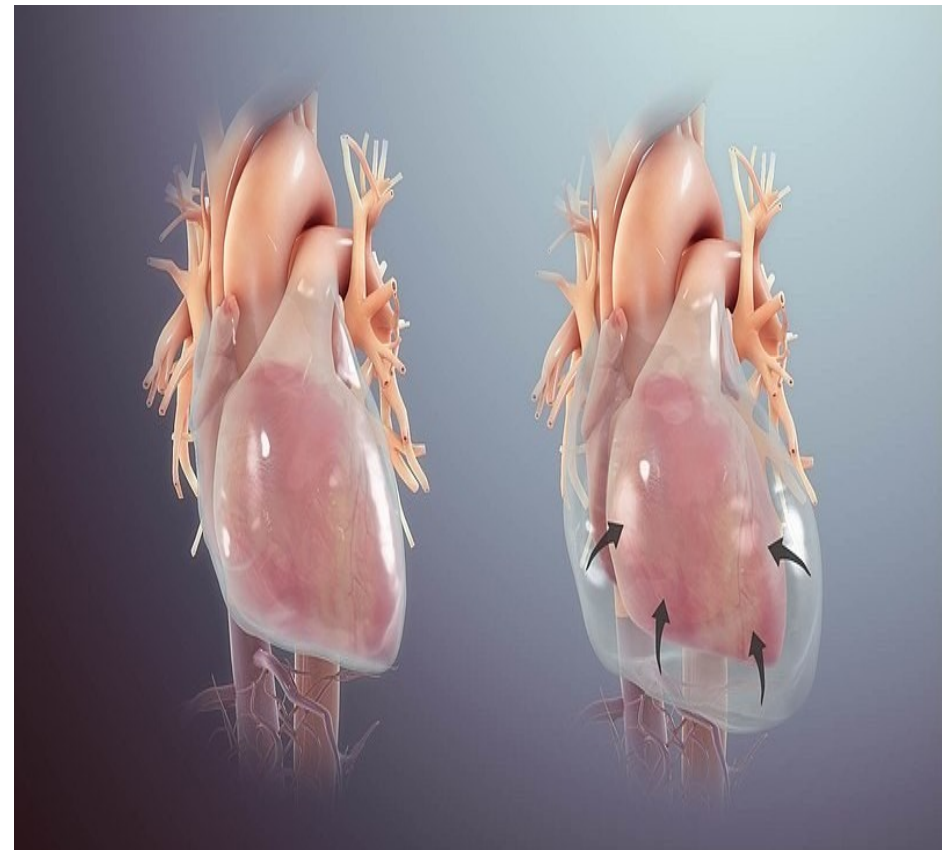
## COMPLICATION:

- ✓ PERICARDIAL EFFUSION
- ✓ CARDIAC TAMPONADE
- ✓ HEART FAILURE
- ✓ HEMOPERICARDIUM

## Complications

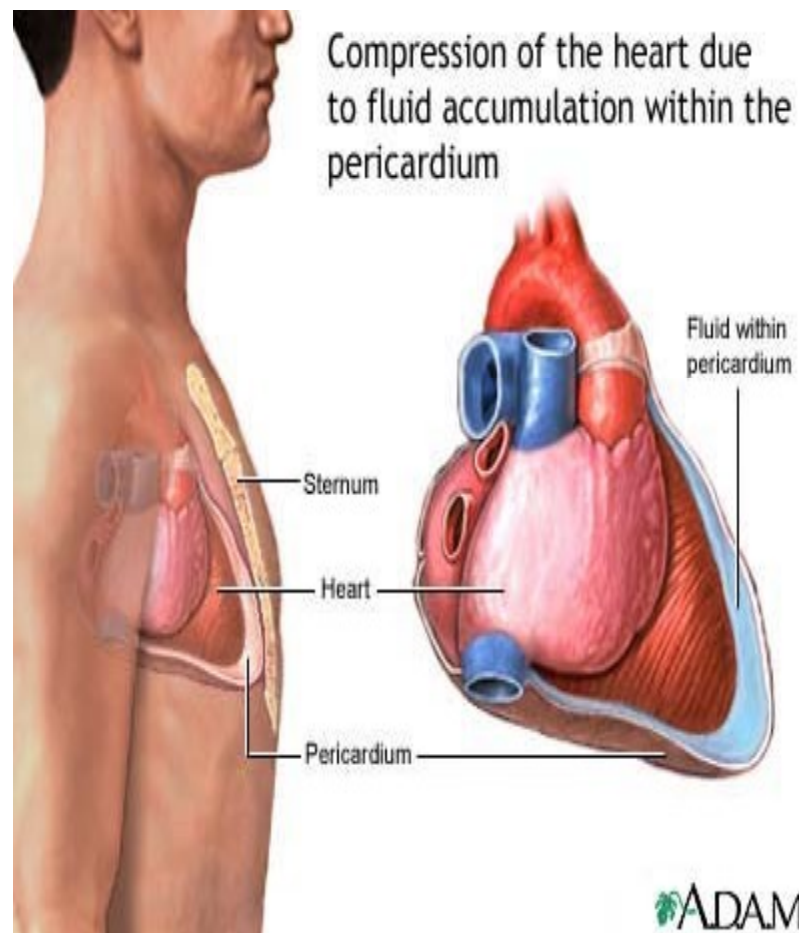
### **Pericardial effusion –**

Fluid collection in the pericardial space more than 50 ml



## Complications

- **Cardiac tamponade:**  
Compression of the heart caused by fluid collecting in the sac surrounding the heart.



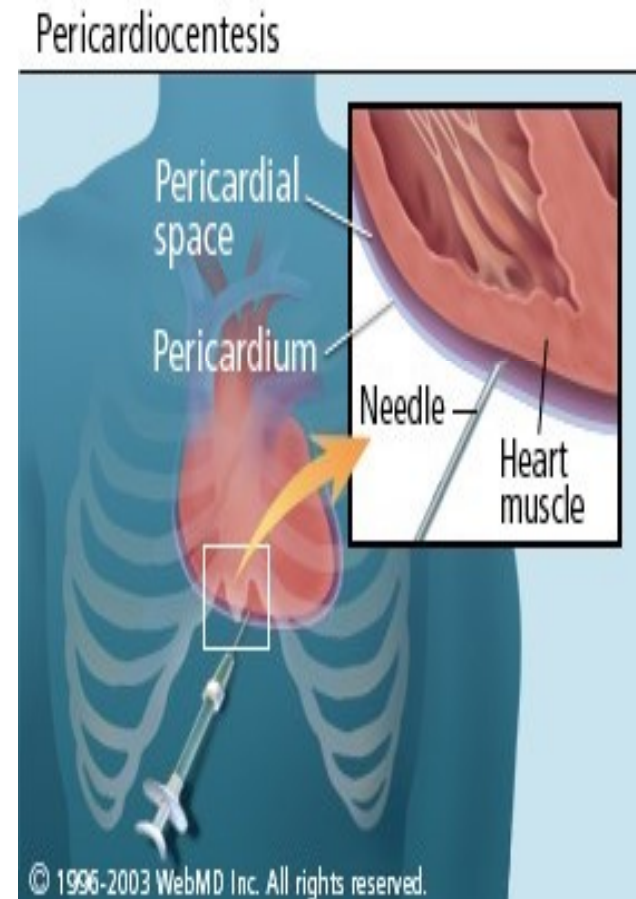
## Medical management

- Combination of colchicine and NSAID's such as Ibuprofen 600 mg + Indomethacin 50 mg 8 hrly
- High dose salicylates (Aspirin) can be given
- Corticosteroids
  
- Antibiotics: penicillin, penicillin G &
- anti tuberculosis chemo therapy
- Antifungal



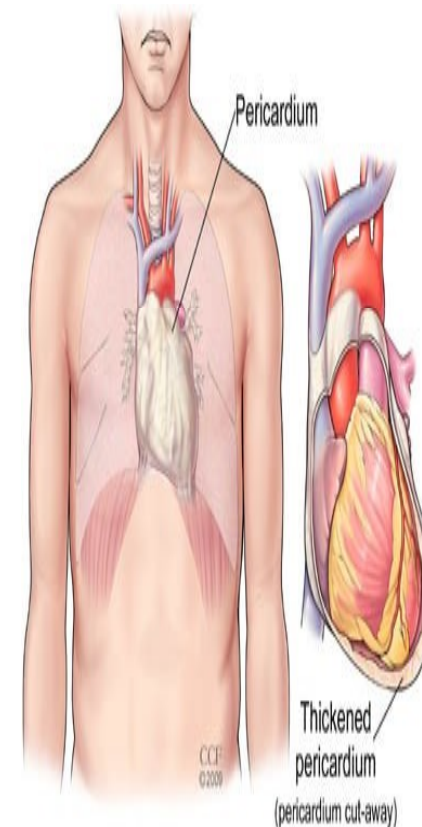
## Non Surgical: Percutaneous Intervention

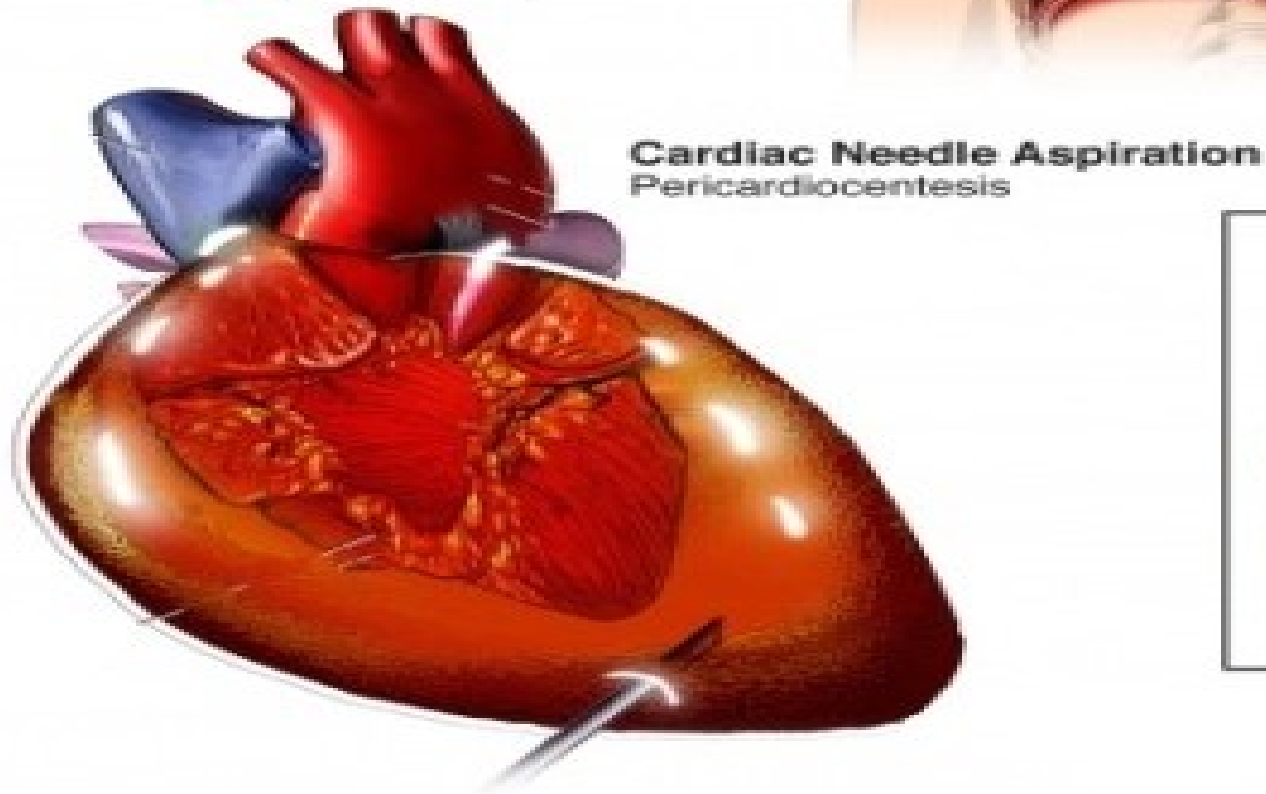
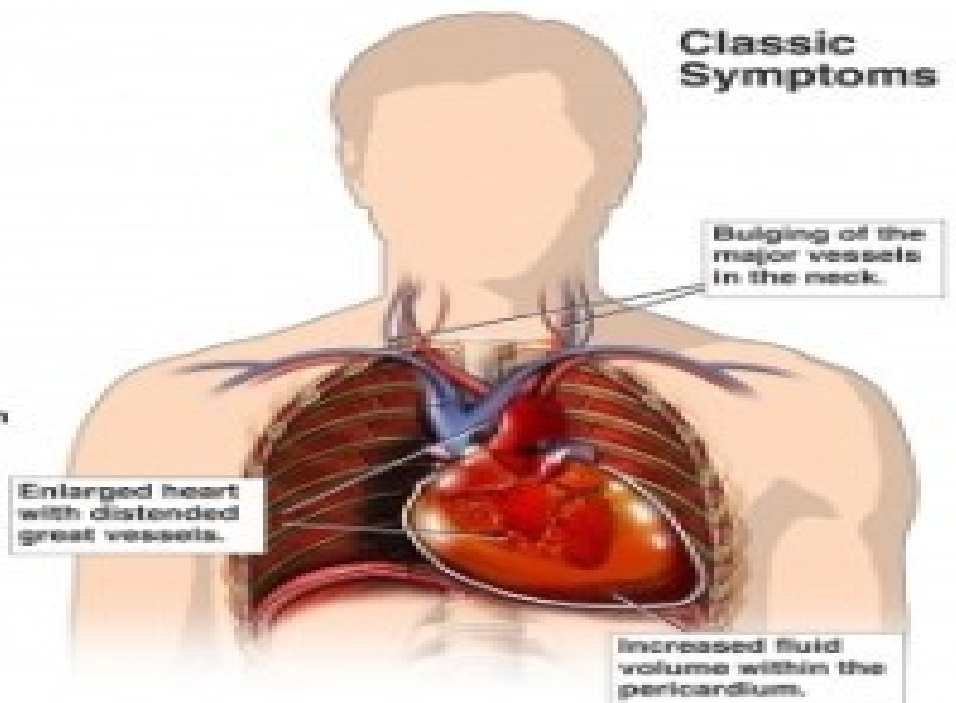
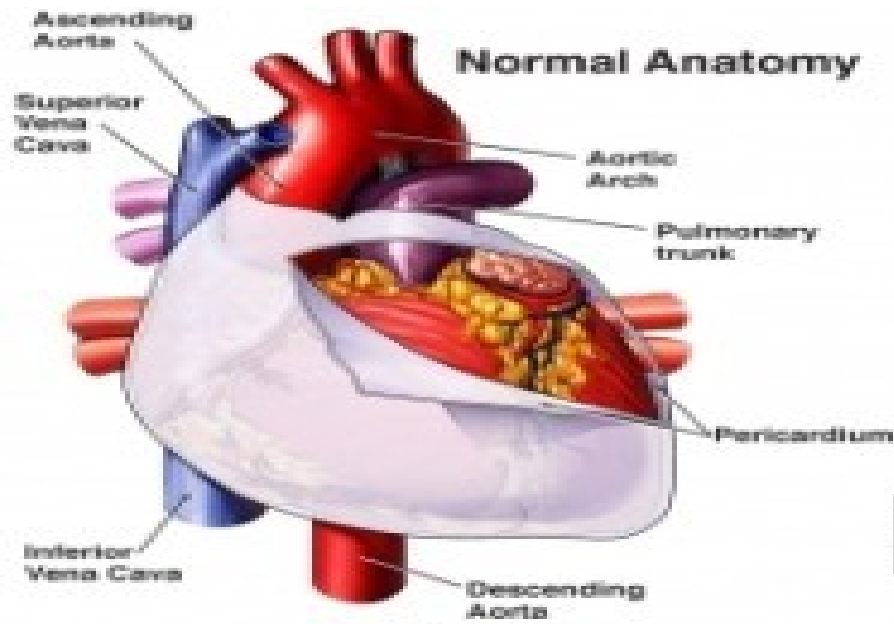
Pericardiocentesis is a procedure done to remove fluid from pericardium using a needle and small catheter to drain excess fluid by percutaneous approach guided by ECG & echocardiogram to remove fluid for analysis and to relieve cardiac pressure.



## Surgical management

- ❖ **Peri cardiectomy-** It is the surgical removal of part or most of the pericardium through a median sternotomy with use of cardiopulmonary bypass.
- ❖ Total/ Complete to relieve constrictive pericarditis
- ❖ Partial (pericardial window) resection of the pericardium





## Nursing management

- Rest: to reduce inflammatory process & pain
- Adequate fluid & electrolyte input
- Reducing fever
- Assess the vital signs, CVP & ECG
- Amount quality & location of pain
- Close observation & monitoring of respiratory function
- Avoid alcoholic beverages Misoprostal can be given to protect the gastric mucosa
- Anxiety reducing measures

## Nursing management

- The nurse monitors the patients temperature
- Heart sounds assessed (A new or worsening murmur may indicate dehiscence of a prosthetic valve, rupture of an abscess or injury to valve leaflet)
- The nurse monitors for signs and symptoms of complications

## Nursing management (contd)

- After discharge the nurse supervises and monitors IV Anti therapy delivered in the home setting and educates the p family about prevention and health promotion
- The nurse provides the patient and family with emotional and facilitates coping strategies during the prolonged cou the infection and antibiotic treatment.

# Nursing process

## **ASSESSMENT**

- Subjective and objective data from patient
- Assess for pericardial friction rub
- Assess for pain
- Assess for ECG changes
- General assessment for typical signs and symptoms.

## **Nursing diagnosis**

### **1.Acute chest pain related to fluid built up in the pericardial space**

- ❖ Assess the level of pain
- ❖ Provide comfort and rest
- ❖ Administer antipyretics according to physicians order such as aspirin or non steroidal anti inflammatory drugs
- ❖ Reduce physical activity to decrease cardiac workload

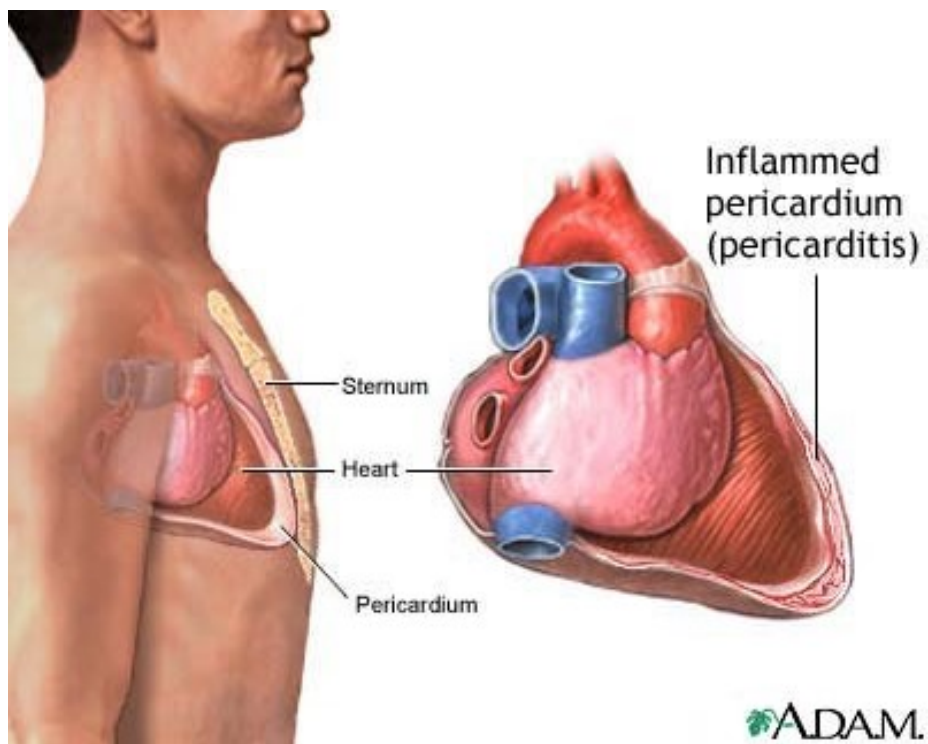


## **2. Decreased cardiac output related to fluid overload in pericardium as manifested by pericardial friction rub tachycardia**

- Auscultate heart sound, rate and rhythm
- Monitor hemodynamic status of the patient.
- Assess capillary refill, skin colour and temperature.
- Assess for jugular venous distention.
- Provide oxygen therapy to increase oxygen to promote comfort by relieving hypoxemia.
- Administer diuretics according to order.
- Assess for blood pressure

### **3. Activity intolerance related to generalized weakness and alteration in oxygen transport secondary to pericardial effusion**

- Monitor vital signs during activity to evaluate cardiac response
- Monitor for signs of activity intolerance
- Reduce activity if systolic blood pressure goes down
- Plan rest periods between activities to reduce cardiac workload.



## References

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Thank  
You 😊