

# MYOCARDITIS



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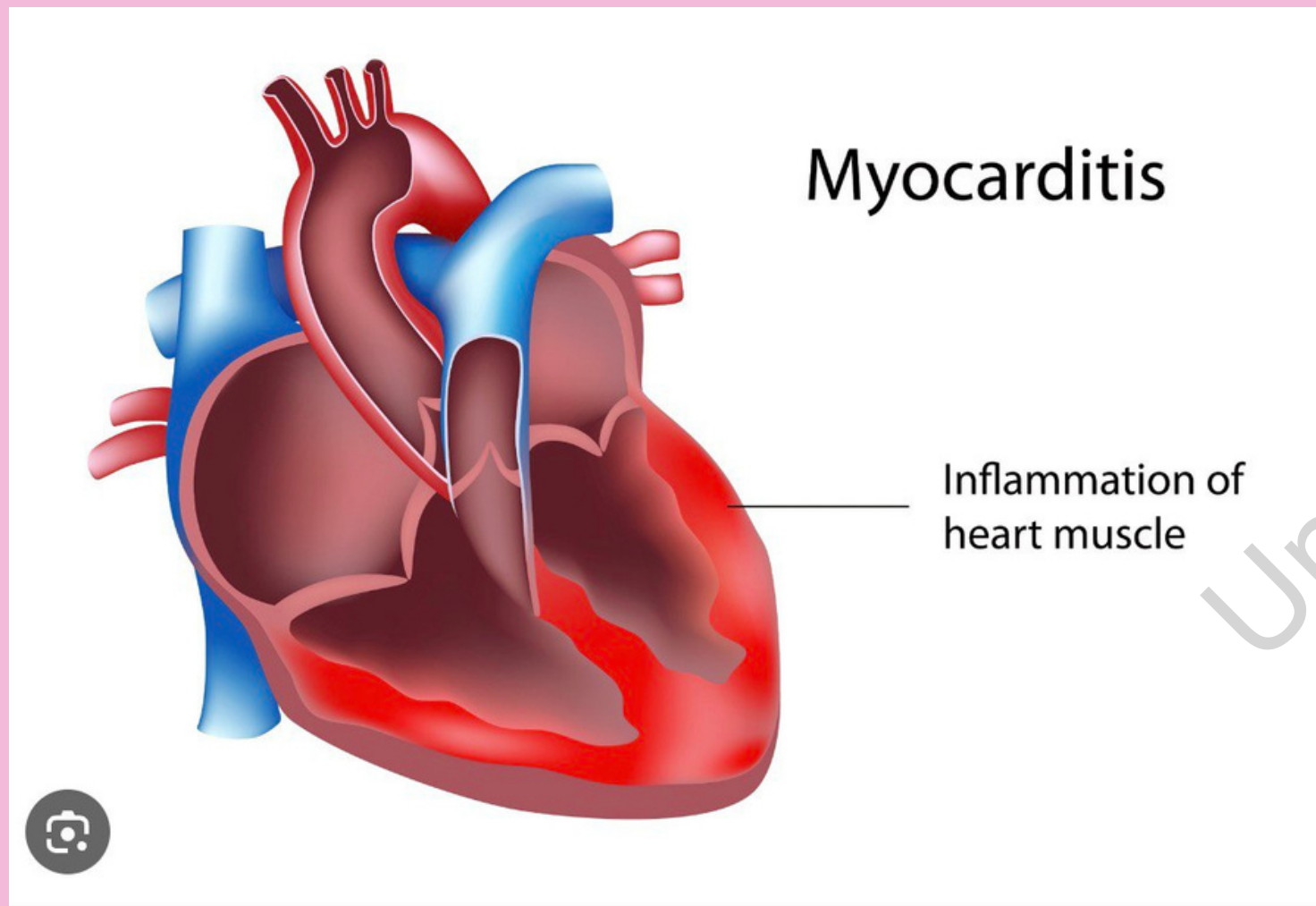
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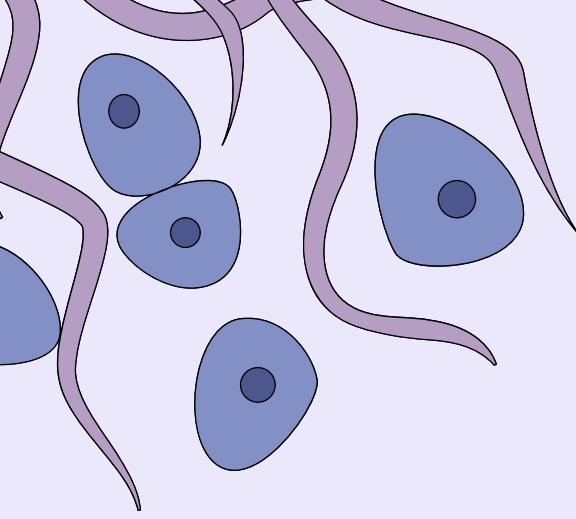
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# INTRODUCTION



- ♥ Myocarditis is inflammation due to viruses, bacteria.
- ♥ Inflammation of myocardium
- ♥ But every inflammation of the myocardium is not myocarditis.
- ♥ Injured area like ischemia or infarction which causes inflammation is not myocarditis.



# CAUSES OF MYOCARDITIS



1

## INFECTIOUS CAUSES

virus - Cocksacke virus

influenza virus /Cytomegalovirus virus/ or even HIV virus

directly infiltrate into myocardium and cause inflammation -  
by viral proteins and T-lymphocytes comes into the picture  
and start destroying the viral proteins.

## 2

## INDIRECT - VIRUS INDUCED MYOCARDITIS

Here the infection or the inflammation is there in the respiratory system - so from the immune headquarters i.e bone marrow



lymphocytes comes into the picture



and sometimes if the viral protein is present in the myocardium of the heart.



this immune headquarters starts directing the lymphocytes to the myocardium





**3**

### **CHLAMYDIAL - INFECTIONS**

It is common among those who are parrot lovers. They develop chlamydial pneumonia. Organism present in parrot is called *Chlamydia psittaci*.

**4**

### **RICHETTESIA**

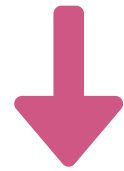
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### **BACTERIA**

Exodus-tick brings the bacteria *Borrelia burgdorferi*, which causes Lyme disease.

- **CORNYBACTERIUM DIPHTHERIA**

this proliferates in the oral cavity



produces exotoxins



gets into blood and goes



into the heart and produces cardio-toxicity,  
i.e myocardial inflammation which leads to  
hear failure.

} **Complications of diphtheria**

# 6

## FUNGI

Seen in immunocompromised patients

- **CANDIDIASIS** - candida from the oral cavity or any other part of the body goes into the blood.



produces Candidemia



gets into the heart and damages the myocardium

# 7

## PROTOZOA

Organism - *Trypanosoma cruzi*,

**Chagas disease**



Esophageal dilation (dysphagia)



colon dialation (constipation)



involves the heart and produces complication

8

## HELMINTHS

multicellular parasite

Trichonosis - damages the myocardium

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# IMMUNE MEDIATED MYOCARDITIS

- Here the immune system starts attacking the myocardium

**Ex: Rheumatic myocarditis**

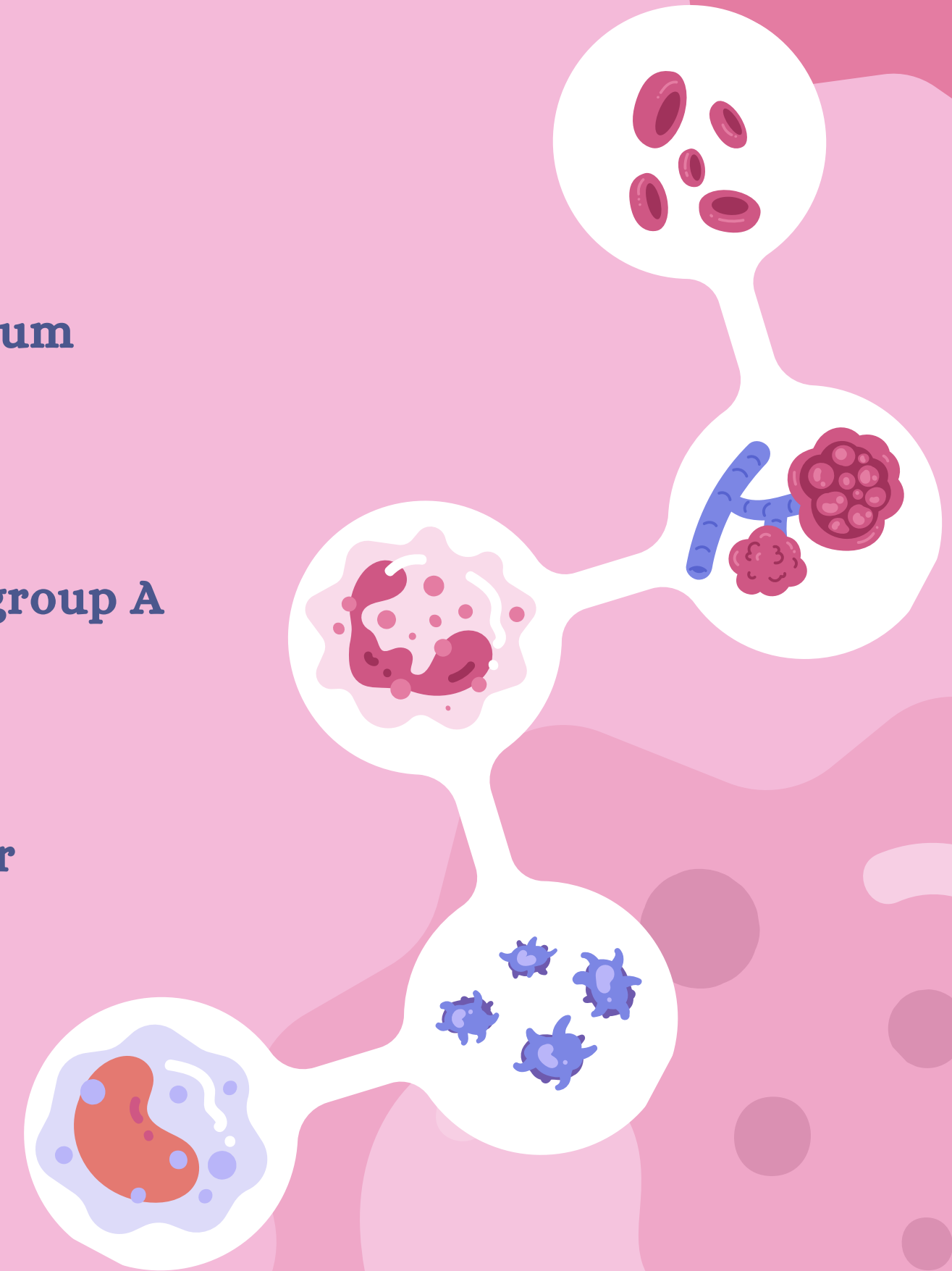
- caused by streptococcus beta Haemolytica Langs field group A

- Rheumatogenic strain



which produces the Rheumatic fever

- sometimes associated with SLE
- Organ - transplant rejection
- sarcoidoses induces myocarditis

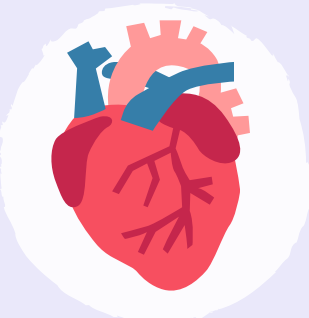


# DRUG INDUCED MYOCARDITIS

Due to antibiotics, diuretics and anti-hypertensive drugs.



# MORPHOLOGICAL CHANGES IN THE MYOCARDIUM



It can be focal (local) or diffuse (entire area)

It is not dangerous

clinically dangerous

myocardium becomes loose and flabby due to which. It contract properly.

**THESE MAY BE  
ARRYTHMIAS  
RESULTING IN**

leads to contractility failure

leads to heart failure

# UNDER THE MICROSCOPE

We will be seeing the myocytes - with necrosis

**Acute inflammatory cells** and **chronic inflammatory cells**

neutrophils  
and  
macrophages

Macrophages

Lymphocytes

Plasma cells

If Immune mediated



then can find even Eosinophils as well along with Lymphocytes

# CLINICALLY

Mild cases are asymptomatic



severe cases show diffuse myocarditis



come with cardiac arrhythmias



goes into cardiac failure

most of the patients will have fever



# AUSCULTATION

Left ventricle loose and flabby



so mitral valve is dilated



so the valves becomes soft



Hence S1 becomes soft

1

In some cases systolic regurgitation murmur occur due to softening of the valves.

2



due to dilation the blood comes in to the heart



that is the diastole - when the aortic and the pulmonary valve closes it produces S2



Here due to rapid filling it causes S3 sound (additional murmur)

3



**THANK YOU**

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