

## **PATHOPHYSIOLOGY AND MANAGEMENT OF MYOCARDITIS**

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### **Summary**

Myocarditis is an inflammatory disease of the heart muscle. Its background is viral infection, bacterial infection and fungal infection. Its indications are abnormal heartbeat, fatigue, leg swelling and shortness of breath. Its laboratory test is blood culture for infection, chest x-ray, ECG, heart muscle biopsy and WBCs count. It may be treated by antibiotics, diuretics, anti-inflammatory medicines to reduce swelling and by low salt diet.

**Key words:** Myocardium, Necrosis, Mycoplasma, Coccidioides

### **Introduction**

Myocarditis (1) is an inflammatory disease of myocardium or heart muscle. It has a wide range of clinical presentation from mild to severe. Myocarditis is defined as; “an inflammatory infiltrate of myocardium with necrosis (2) or degeneration of adjacent myocytes (3).” It may readily appear in a healthy person and can result rapidly moving toward heart failure and arrhythmia (4).

### **Pathophysiology**

Myocarditis is a heart disease which is caused by viral, bacterial or fungal infection. All these are being explained here briefly.

### **Viral infections:**

Resulting viral infection can cause myocarditis:-

1. Coxsackie
2. Cytomegalovirus (5)
3. Hepatitis C
4. Herpes
5. HIV
6. Parvovirus

**Bacterial Infections:**

There is little bacterial infection that can cause myocarditis:-

1. Chlamydia
2. Mycoplasma (6)
3. Streptococcus
4. Treponema (7)
- 5.

**Fungal infections:**

Succeeding are the infections that can cause myocarditis:-

1. Aspergillus
2. Candida
3. Coccidioides
4. Cryptococcus
5. Histoplasma (8)
6. Schistosomiasis (9)

When somebody has an infection then his or her immune system produce antibodies which provide immunity to the body against disease. If disease causing chemicals disturbs the heart then the cells prevent the heart against chemicals enter into the heart. However, antibodies formed against disease can destroy the heart muscle. In a consequence of the heart can become enlarge, swell, and perform less function.

**Symptoms:**

Myocarditis may or may not have any symptoms. If it have symptoms then they may be:

1. Join pain or swelling
2. Great tiredness
3. High temperature and other indication of infection such as headache, infection in throat and lose motion
4. High or low heart rate
5. Chest pain that is same to myocardial infarction
6. Difficulty in inhalation and exhalation
7. Leg swelling
8. Some other indications:
  - a) Low urine production
  - b) Loss of consciousness, often related to abnormal heart beat.

**Signs on physical examination:**

On physical examination following signs may show myocarditis:

1. Tachycardia (10)
2. Increased or decreased heart beat or heart murmurs
3. High temperature
4. Swelling in the lungs
5. Lungs edema (11)

### **Laboratory Diagnosis:**

There are the subsequent laboratory tests that can be used to diagnose myocarditis:

1. ECG
2. WBCs count (increased)
3. Blood test for antibodies against the heart muscle and the body itself
4. Chest x-ray
5. Blood cultures for infection
6. Endomyocardial ultrasonography (12)
7. RBCs
8. Echocardiogram (13)

### **Management:**

Myocarditis can be treated through antibiotics which reduce inflammation, diuretics which remove extra water from body, taking less salt in diet and reducing in routine activities. If the muscle of heart become flacid or weak then recommend medicines to treat heart attack. To treat increase or decrease in heart beat, an implantable cardioverter-defibrillator (14,15) may be used. If the clot of blood is present in auricles or ventricles then the patient also have to receive blood thinning medicine.

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