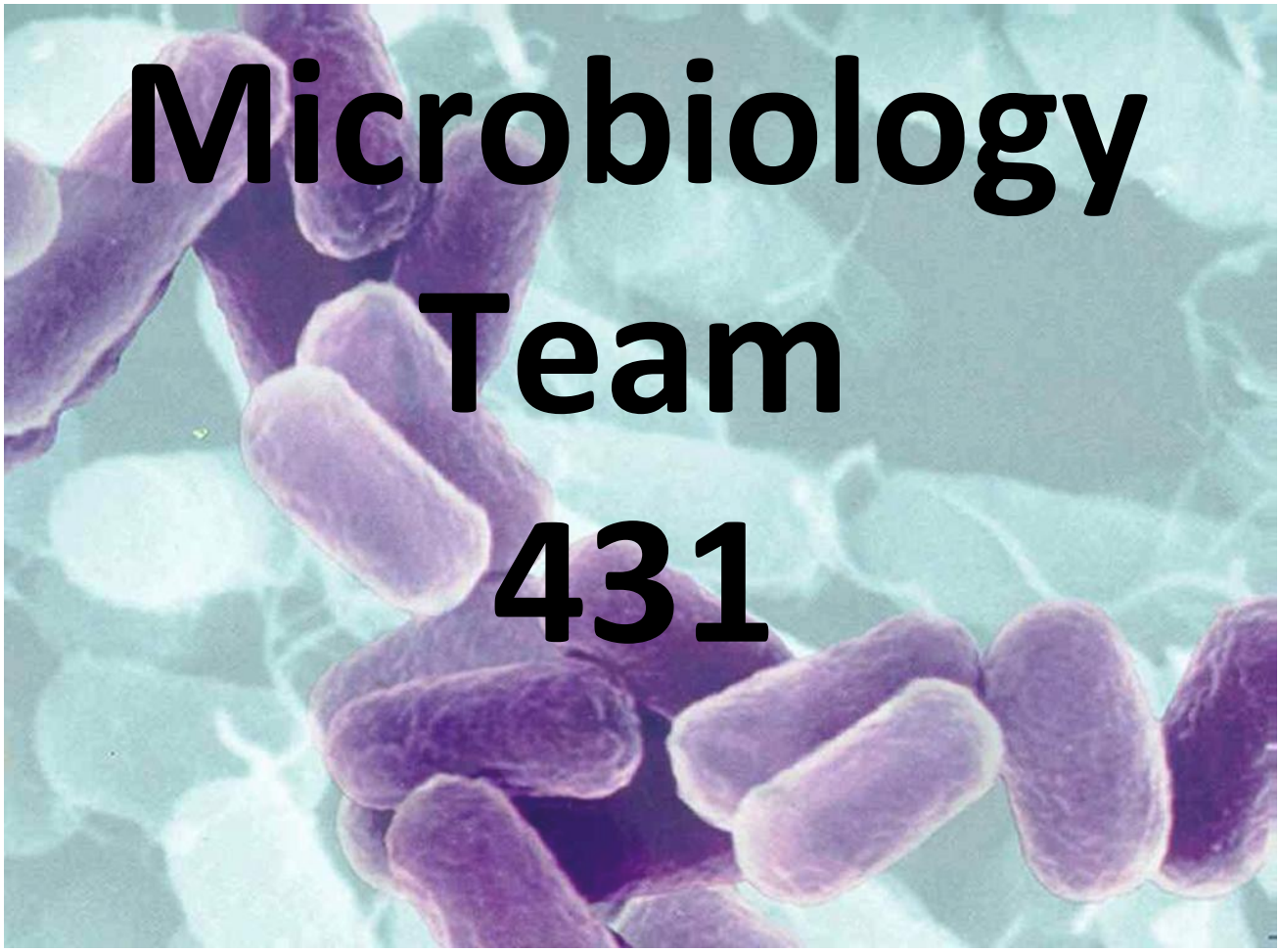
Microbiology Team 431



Team Members:

Dalal Fatani
Sameeha AlJetaily
Haifa AlAbdulkarim
Bayan AlTassan
Noha Khalil
Abeer AlSwailem
Noura AlSwaidan
AlAnoud Asiri
Jumana Alshammari
Jazeel Almulla
Lama Mokhlis
Maymona Alabdely

Team Members:

Faisal Al Rashed
Abdullah Al Turki
Abdullah Baqais
Ghassan Al Kharboush

- **Red = Very Important**
- **Blue = Important**

Myocarditis

- Myocarditis is inflammatory disease of the heart muscle.
- Myocarditis can be due variety of infectious and non infectious causes
- **Viral infection is the most common cause**
- Others like toxin drugs and hypersensitivity immune.

♣ Etiology, Epidemiology and Risk Factors:

- **Coxsackievirus B** is the most common cause of Myocarditis
- Other virus like coxsackievirus A, other echoviruses, adenoviruses influenza, EBV, rubella, vericella, mumps, rabies, hepatitis viruses and HIV.
- Bacterial causes include corynebacterium diphtheriae, syphilis, Lyme's disease or as a complication of bacterial endocarditis.
- A parasitic cause includes chagas diseases, trichinella spiralis, **toxoplasma gondii** and Echinococcus.
- Toxoplasma gondii → Cat exposure
- Other includes rickettsia, fungi, Chlamydia, enteric pathogens, legionella and tuberculosis.
- **Giant cell myocarditis** due thymoma, SLE or thyrotoxicosis.

♣ Clinical Presentation:

- Fever, headache, muscle aches, diarrhea, sore throat and rashes.
- Chest pain, arrhythmias or sweating fatigue and may present with congestive heart failure.

♣ Diagnosis:

- CBC, WBC and ECG
- **Blood cultures**
- Viral serology and other specific test for Lyme, diphtheria and Chagas disease maybe indicated on a case by case basis.
- Radiology MRI
- Heart muscle biopsy

♣ Management:

- Often supportive;
  - ✓ Restricted physical activity in heart failure.
- Specific antimicrobial therapy is indicated when an infecting agent is identified
- Treatment of heart failure arrhythmia
- Other drugs indicated in special situations like anticoagulant, NSAID steroid or immunosuppressive immunomodulatory agents.
- Heart transplant
- Most cases of viral myocarditis are self limited.
- One third of the patients are left with lifelong complications, ranging from mild conduction defects to severe heart failure.
- Patient should be followed regularly every 1-3 months.
- Sudden death may be the presentation of myocarditis in about 10% of cases.

Pericarditis

- Pericarditis is an inflammation of pericardium usually of infectious etiology
- **Coxsackievirus A and B, echovirus are the most common causes**
- Other includes herpes viruses, hepatitis B adeno virus, Varicella.

♣ Etiology:

- ***Bacterial Pericarditis*** usually complication of pulmonary infections (e.g. pneumonia empyema): S. pneumonia, **M. tuberculosis**, S. aureus, H. influenzae, K. pneumoniae legionella.
  - T.B. Pericarditis → secondary to viral infection
- ***HIV patients*** may develop pericardial effusions (tuberculosis M. avium complex).
- Disseminated fungal infection (Histoplasma, Coccidioides)
- **Parasitic infections** (disseminated toxoplasmosis, contagious spread of Entamoeba histolytica) are rare causes.

♣ Types:

1. **Caseous pericarditis** commonly tuberculosis in origin.
2. **Serious Pericarditis** by autoimmune diseases (rheumatoid arthritis, SLE).
3. **Fibrous Pericarditis**: A chronic Pericarditis usually caused by suppurative, caseous, or encased in a thick layer of scar tissue.

♣ Clinical Presentation:

- Patients with Pericarditis will present with chest pain, fever, dyspnea and a **friction rub**.
- Patient with tuberculous pericarditis has insidious onset of symptoms.
- On examination exaggerated pulsus paradoxus JVP and tachycardia.
- As the pericardial pressure increases, palpitations presyncope or syncope may occur.

♣ Diagnosis:

- Leukocytosis and an elevated ESR are typical other routine testing urea and creatine and Blood culture
- PPD skin test is usually positive in tuberculous Pericarditis.
- PPD skin test may occur later.
- Chest x-ray may show enlarged cardiac shadow or calcified pericardium and ct scan show pericardial thickening >5mm.
- Pericardial fluid or pericardial biopsy specimens for fungi, antinuclear antibody tests and histoplasmosis complement fixation in endemic area.

♣ Management:

- Supportive for cases of idiopathic and viral Pericarditis including bed rest and NSAIDs, Colchicine.
- Gastroc steroid is controversial and Anticoagulants usually contraindicated.
- Specific antibiotics must include activity against S. aureus and respiratory bacteria.
- Antiviral
- Pericardiocentesis to relief tamponade.
- Acyclovir for herpes simplex or varicella ganciclovir for CMV etc.
- Patients who recovered should be observed for recurrent.
- Symptoms due to viral Pericarditis usually subsided within 1 month.

- 30% of patients include pericardial effusion and tamponade, constrictive Pericarditis and pleural effusion.
- Restrictive Pericarditis and heart failure.

Summary, VERY IMPORTANT!

	Myocarditis	Pericarditis
Definition	Myocardium inflammation	Pericardium inflammation Caseous ,Serious and Fibrous pericarditis
Etiology	Infectious and noninfectious **Viral** (Coxsackievirus B is the most common) other **Bacterial** like corynebacterium diptheriae **Parasitic** like toxoplasmosis	Infectious and noninfectious **Viral** (Coxsackievirus A and B) and HIV other Bacterial ,pneumonia causing bacteria like TB **Parasitic** like toxoplasmosis
Symptoms	Fever, Chest pain, headache, muscle aches, diarrhea, sore throat and rashes	Chest pain, fever, dyspnea
Signs	Palpitation,CHF	friction rub, exaggerated pulsus paradoxus JVP and tachycardia
Investigation	CBC,ESR,ECG,CXR,MRI,BC,Viral serology, Myocardial Bx	CBC,ESR,ECG,CXR,MRI,BC,Viral serology PPD skin test ,Pericardial fluid or pericardial biopsy
Managment	Supportive , Bed rest, NSAIDs,Antiviral,Immunosupressive meds ,Heart transplant	Supportive for cases Bed rest and NSAIDS, Colchicine. Gastroc steroid, Antiviral
Prognosis	Self limiting ,1/3 CHF or conduction defect	Pericardial effusion and tamponade, constrictive Pericarditis and pleural effusion.