



# VALVULAR HEART DISEASE- 2

## Infective Endocarditis

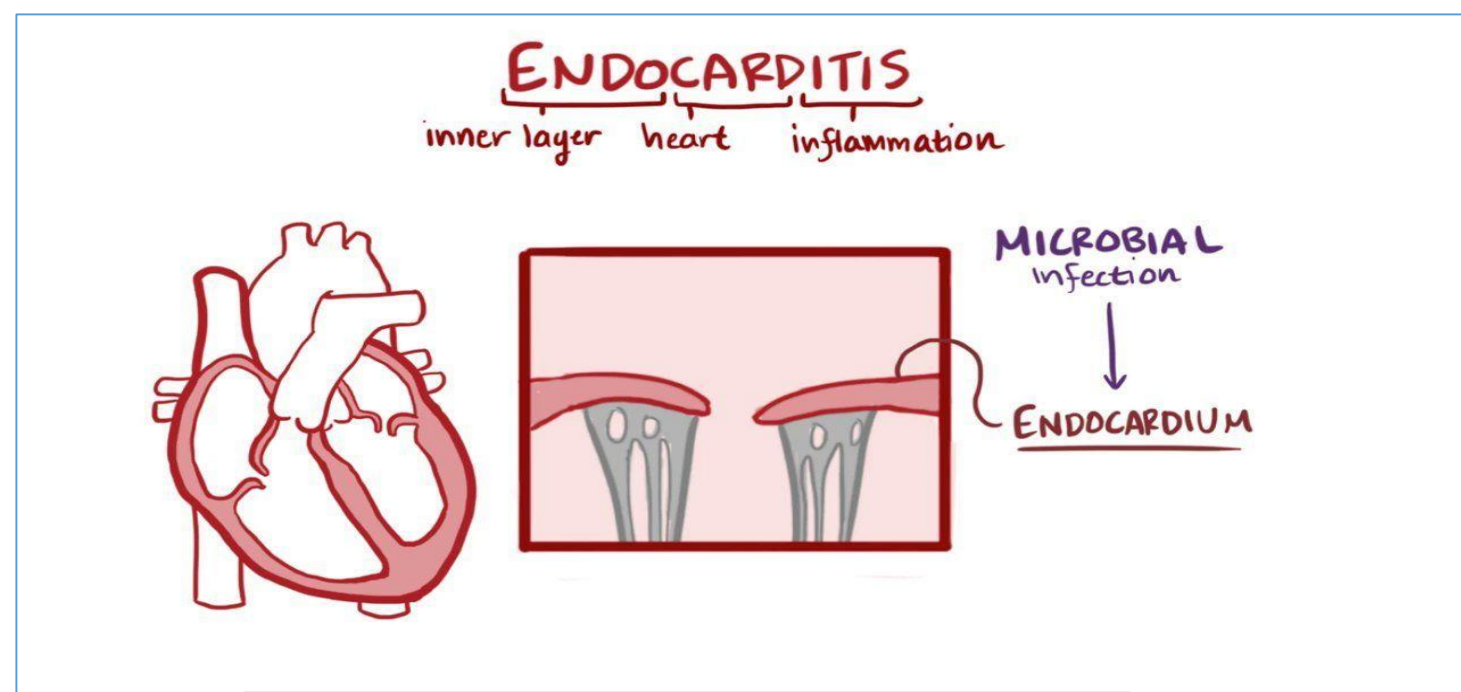
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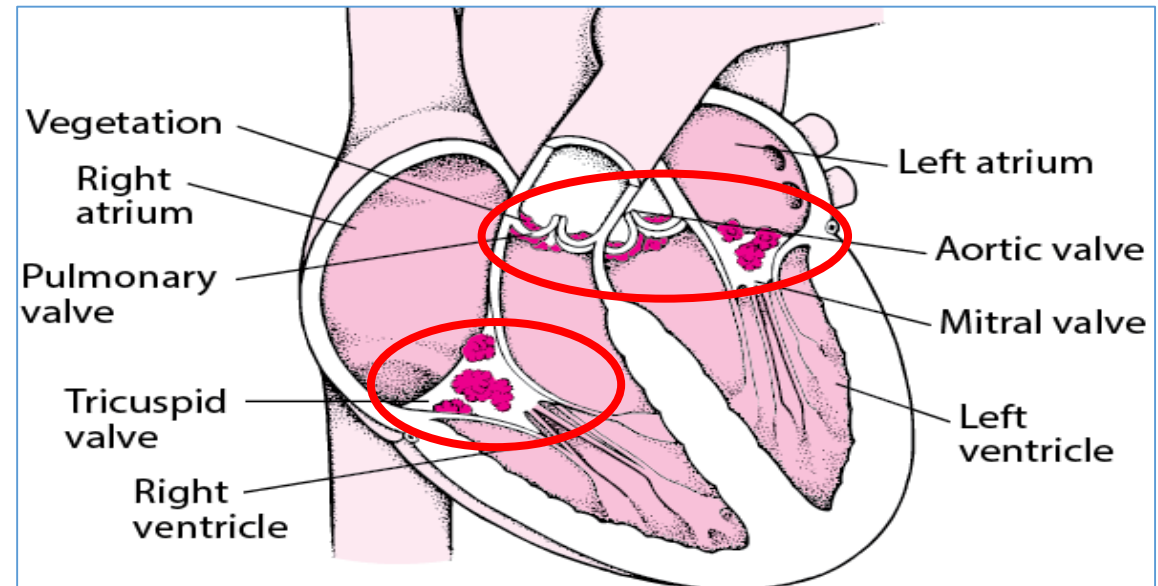
# Infective Endocarditis (IE)

- Microbial (mostly bacterial\*) invasion of heart valves and **endocardium**
- bulky, friable **vegetations** (necrotic debris+ thrombus+ organisms).

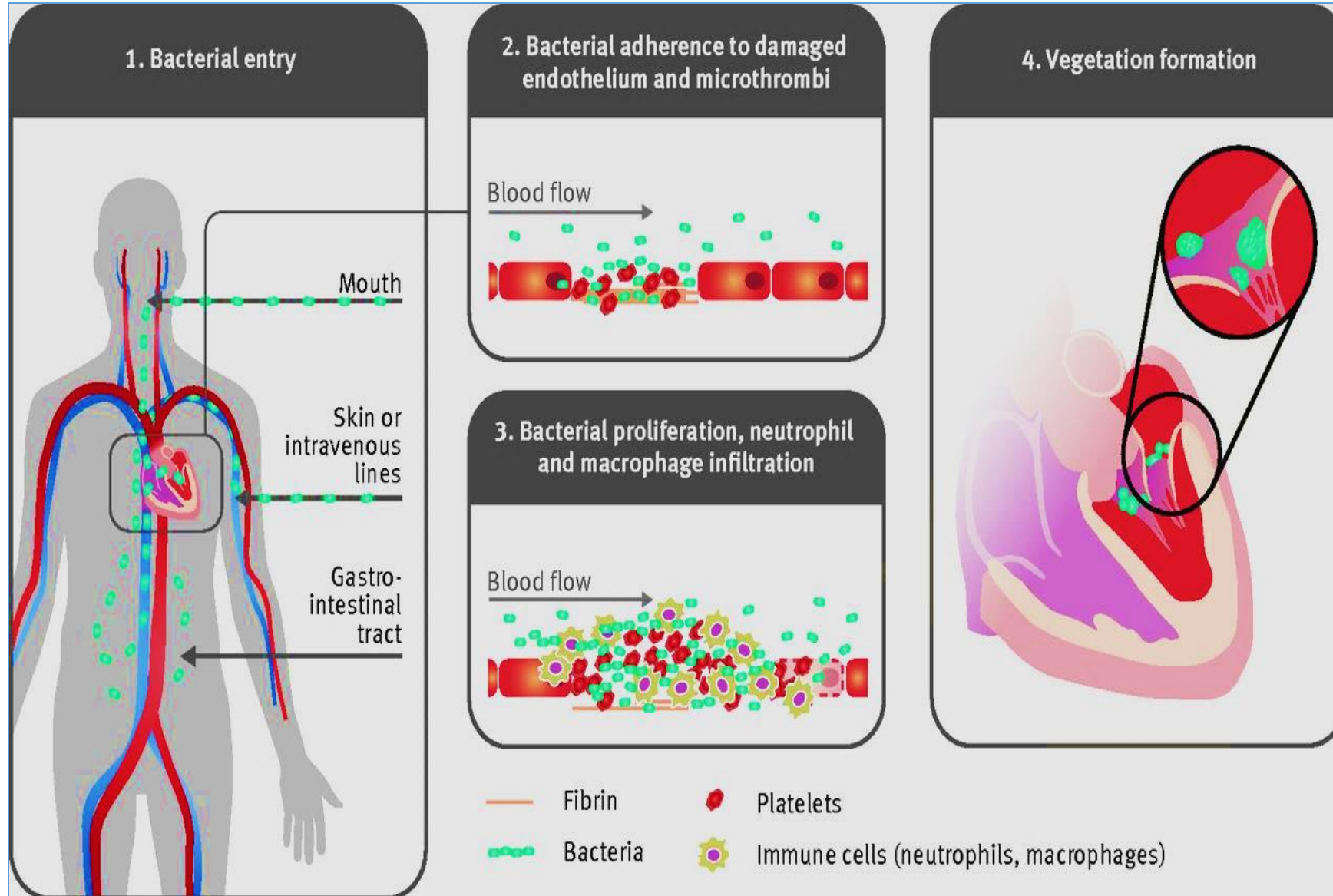
\* others include: fungi, rickettsiae; and chlamydia



Infection of heart valves and endocardium

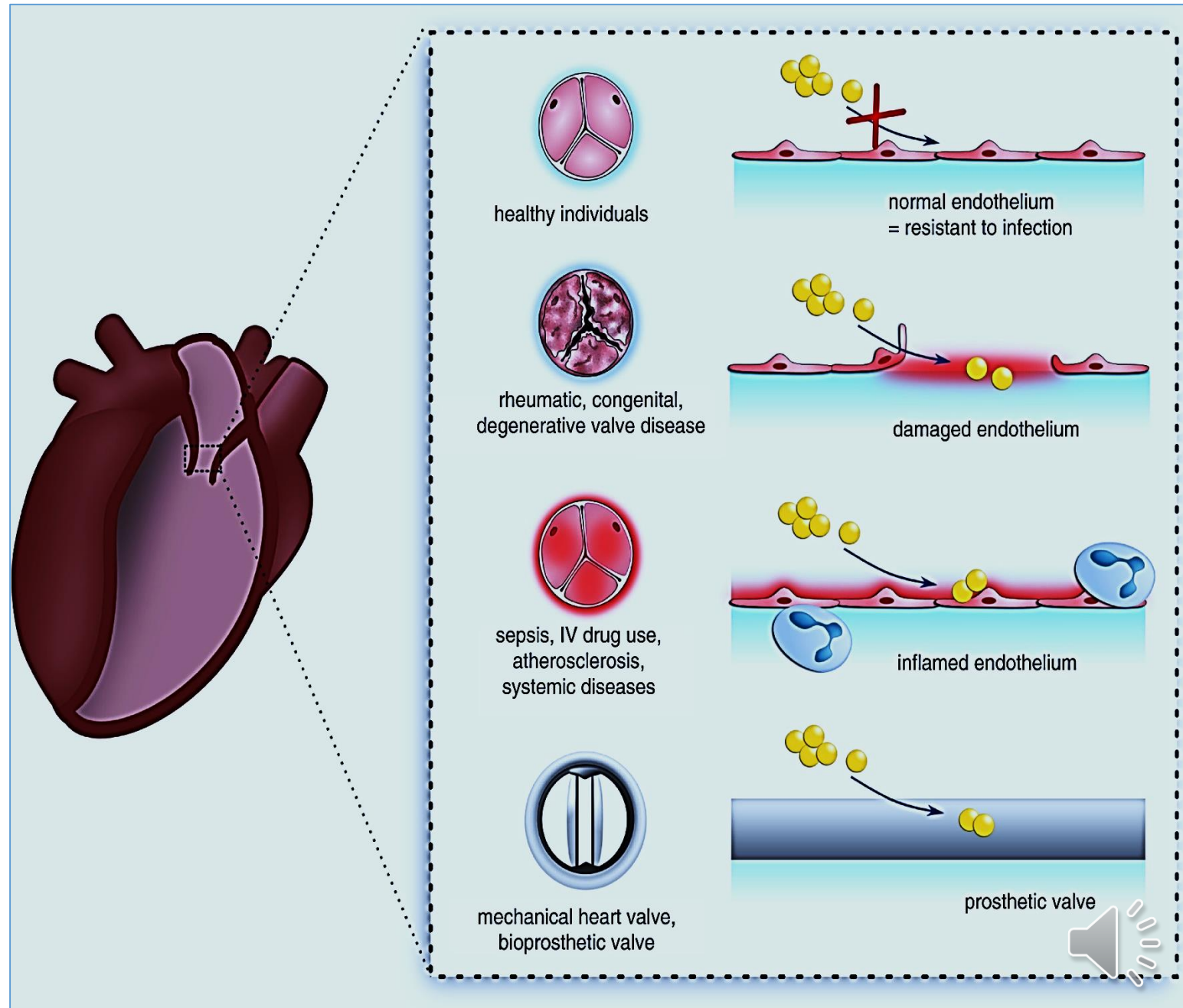


# Infective Endocarditis (Infection of heart valves and endocardium)



# Infective Endocarditis- Risk Factors

- Congenital heart disease
- Acquired heart disease (including rheumatic fever)
- Indwelling vascular catheters
- Intra-cardiac devices & prostheses
- Immunodeficiency
- I.V. drug use/ abuse
- Septicemia
- ? Dental procedures (in patients with risk factors)



# Infective Endocarditis (IE)

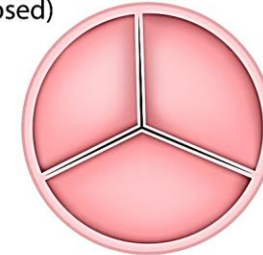
Classified into **acute** and **subacute** based on:

- 1- the **virulence** of microorganism
- 2- presence of **underlying** cardiac disease

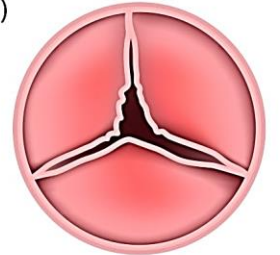


## HEART VALVE DISEASE

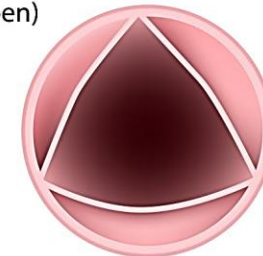
Normal valve (closed)



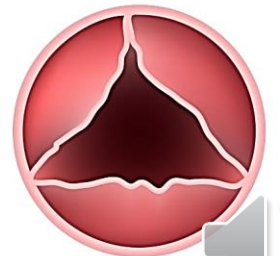
Valve stenosis (closed)



Normal valve (open)



Valve stenosis (open)

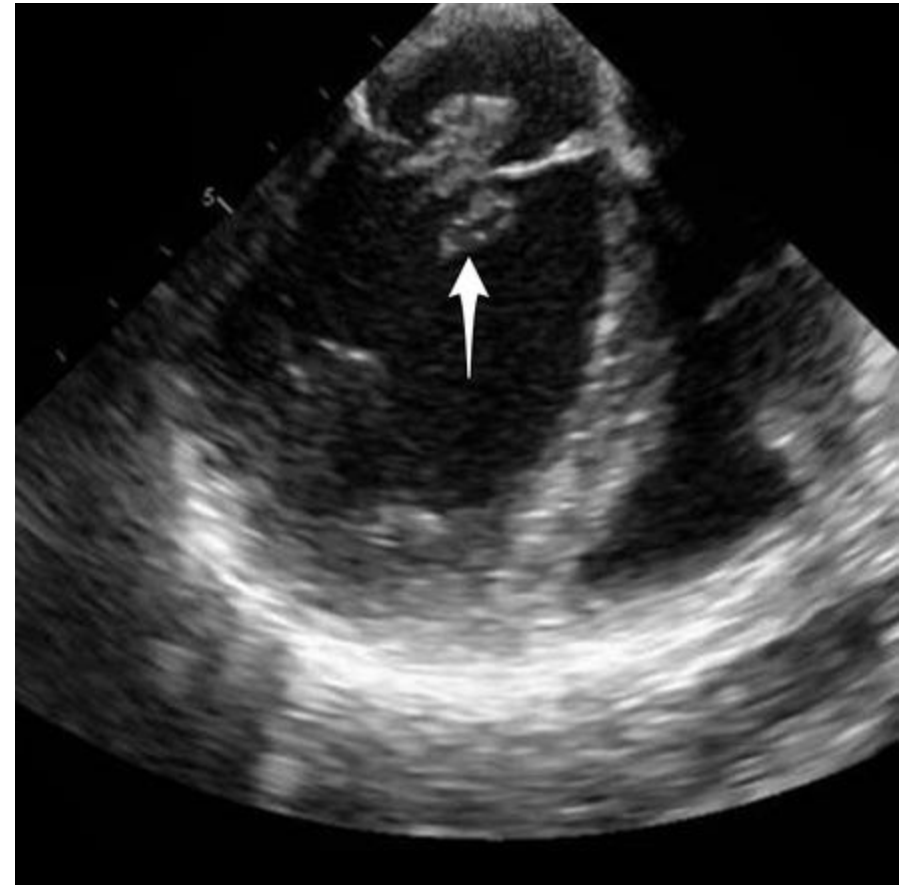


Feature	<b>Acute</b> endocarditis	<b>Subacute</b> endocarditis
Virulence	highly <b>virulent</b> organism	low virulent organism
Most common organism	Staph. aureus	Streptococcus viridans
Underlying cardiac disease	previously normal valve	previously abnormal valve (scarred or deformed)
Clinical course	rapidly developing	Insidious disease
Outcome	High morbidity and mortality	most patients recover after appropriate antibiotic therapy



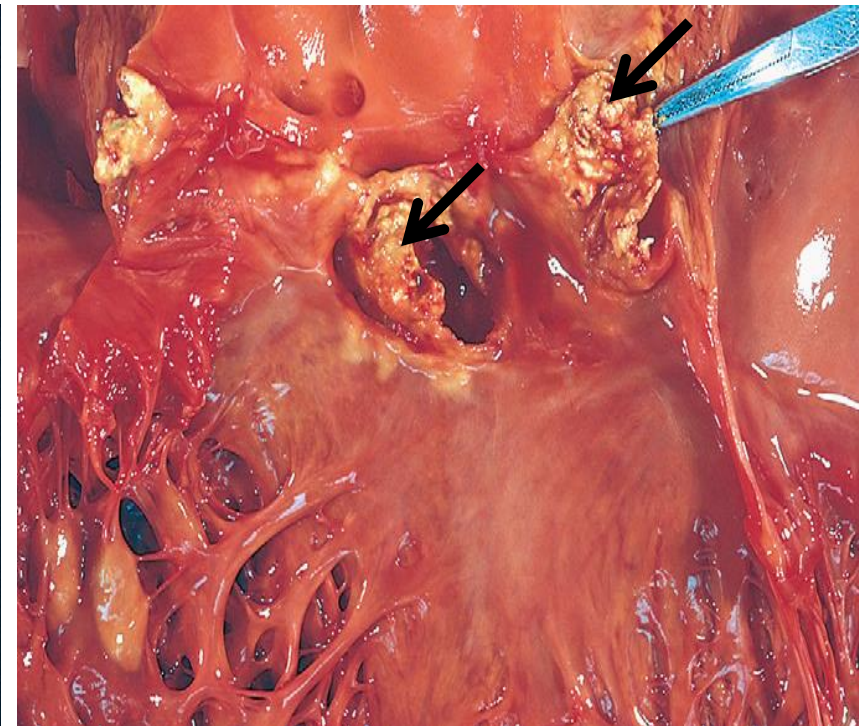
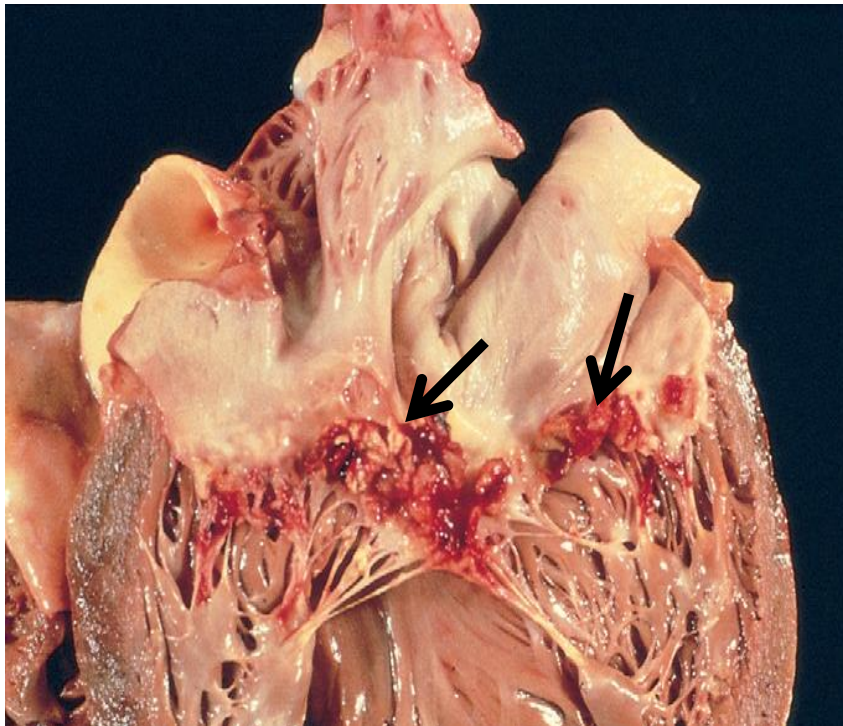
# Infective Endocarditis- Clinical Features

- Fever, chills, weakness, and murmurs
- **Valve vegetations can cause emboli** in different target tissues
- **Diagnosis\*** = (positive blood cultures + echocardiographic (echo) findings)
- \* depends on certain criteria....



# Infective Endocarditis- Morphology

- Friable, bulky, and destructive vegetations on heart valves
- Most common: aortic and mitral valves
- Tricuspid valve common in I.V. drug abusers



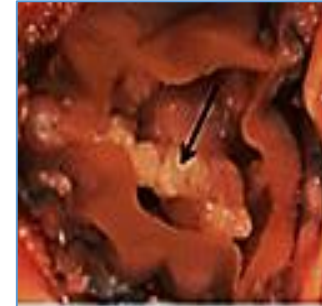


# Clinical Features

## • Complications of IE vegetations:

- 1- emboli
- 2- abscesses
- 3- septic infarcts
- 4- mycotic aneurysms

- **Treatment:** long-term ( $\geq 6$  weeks) I.V. antibiotic therapy and/or valve replacement



**Infective endocarditis**  
Acute: *Staphylococcus aureus*  
Subacute: *Streptococcus viridans*

Fever, heart murmur, echocardiogram,  
petechiae, splinter hemorrhages, osler nodes,  
janeway lesions, roth spots



# Infective Endocarditis: Diagnosis

## Duke Criteria

- 1994 a group at Duke University standardised criteria for assessing patients with suspected endocarditis
- **Definite**
  - 2 major criteria
  - 1 major and 3 minor criteria
  - 5 minor criteria
  - pathology/histology findings
- **Possible**
  - 1 major and 1 minor criteria
  - 3 minor criteria
- **Rejected**
  - firm alternate diagnosis
  - resolution of manifestations of IE with 4 days antimicrobial therapy or less

## Modified Dukes' criteria

### Major-

- 2 positive blood cultures, for an organism known to cause IE  
or  
persistent bacteremia- 2 +ve 12 hours apart or 3 of 4 +ve drawn over 1 hour
- ECHO evidence-  
oscillating mass on valve or supporting structures  
or abscess  
or new valvular regurgitation or partial dehiscence of prosthetic valve

### Minor-

- Predisposing factor-  
cardiac lesion, IVDU
- Fever >38 °C
- Vascular phenomenon
- Immunologic phenomenon
- +ve blood culture
- +ve ECHO



# Let's find out?

- Are all people with streptococcal pharyngitis exposed to risk of rheumatic fever?
- In what ways are rheumatic fever and infective endocarditis similar?
- What is different between rheumatic fever and infective endocarditis ?

