

Infective Endocarditis

Andrew Ying-Siu Lee, MD, PhD.

- = microbial infection of endocardium with vegetation containing microorganisms, platelets and fibrin, commonly involve heart valves.
- **Predisposing factors** = mitral valve prolapse, rheumatic heart disease, congenital heart disease, intravenous drug abusers (usually infect right heart valves), prosthetic valve

■ **Etiology = Native valve endocarditis:**

streptococci viridans

enterococci

staphylococci

Prosthetic valve endocarditis:

staphylococci

gram-negative bacilli

fungi

Intravenous drug abusers:

staphylococcus aureus

streptococcus

enterococci

gram(-) bacilli (pseudomonas etc)

**unusual organisms (Corynebacterium,
lactobacillus etc)**

Pathophysiology:-

- local destructive effects of intracardiac infection
- embolization → infarction or infection
- metastatic infection
- immune response to infecting organism → tissue damage

Symptoms:-

- fever, chill, malaise, dyspnea, cough, stroke, headache, myalgia/arthralgia, confusion etc.
- heart murmur, splenomegaly, clubbing, embolic events, Osler's node (=small tender subcutaneous nodules in pulp of fingers), petechiae, Roth's spots (= oval retinal

hemorrhage), splinter hemorrhage (=dark red, linear streaks in nail bed of fingers or toes), Janeway's lesion (=small erythematous nontender lesions on palms and soles)

- heart failure due to valve destruction, distortion or rupture of chordae tendineae
- renal insufficiency (due to immune response)

Diagnosis of infective endocarditis

Major Criteria =

- positive blood culture
- positive echocardiogram (endocardial involvement with vegetation, abscess, valvular regurgitation etc)

Minor Criteria =

- predisposing heart condition or intravenous drug use
- fever
- vascular phenomena = major arterial emboli, septic pulmonary infarct, intracranial hemorrhage, conjunctival hemorrhage, Janeway's lesion
- immunological: glomerulonephritis, Osler's nodes, Roth's spots, rheumatoid factor

Diagnosis = 2 major, or 1 major and 3 minor, or 5 minor criteria

Treatment of infective endocarditis

- Antibiotics
- **Surgery if:-**
- moderate to severe heart failure due to valve destruction
- unstable prosthesis eg. dehiscence
- uncontrolled infection despite antibiotics
- relapse
- large vegetation (>10 mm diameter, to prevent embolization)
- perivalvular invasive infection with abscess, fistula formation

Prevention of infective endocarditis

- **Antibiotic prophylaxis** for procedures (eg. dental, tonsillectomy, bronchoscopy, cytoscopy, sclerotherapy, ERCP, surgery involving upper respiratory, gastrointestinal, gallbladder, urinary tract etc) in high-risk patients (prosthetic heart valves, previous endocarditis, congenital heart disease, heart transplant with valvulopathy)