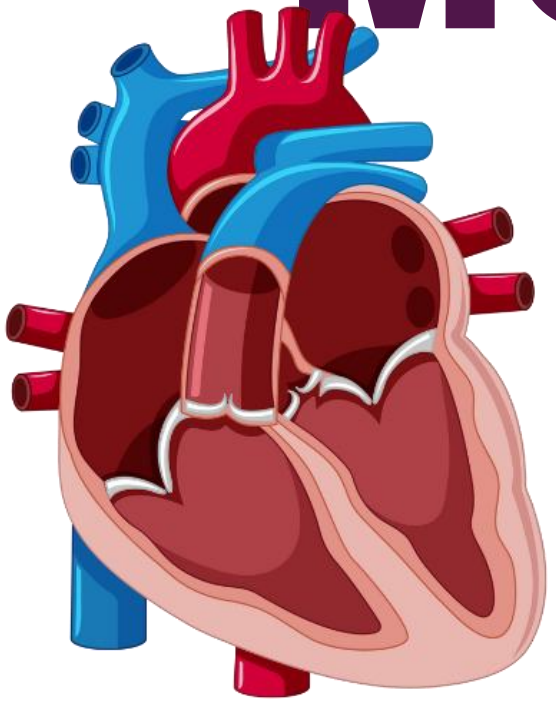
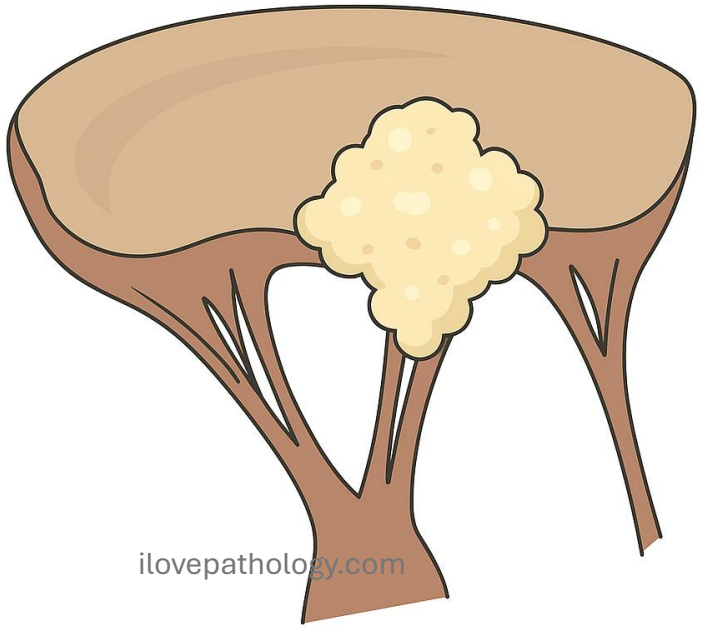
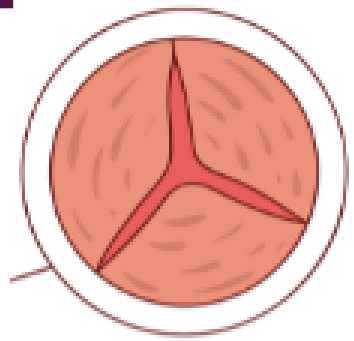
INFECTIVE ENDOCARDITIS

MORPHOLOGY







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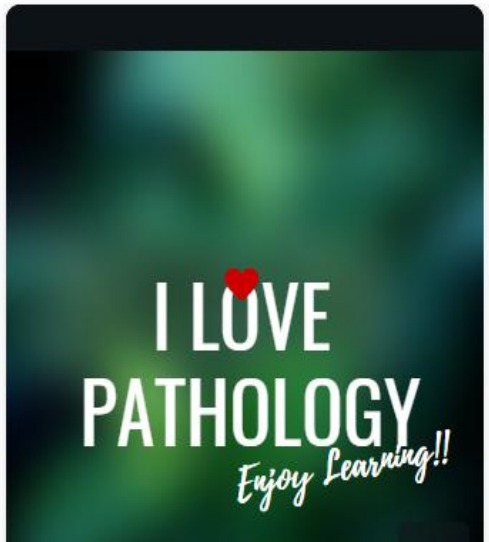
WHY PATHOLOGY?

CATEGORIES

Select Category

ILOVEPATHOLOGY



Overview

- Morphology
- Clinical features
- Complications
- Prognosis

INFECTIVE ENDOCARDITIS

Microbial infection of the heart valves or the mural endocardium

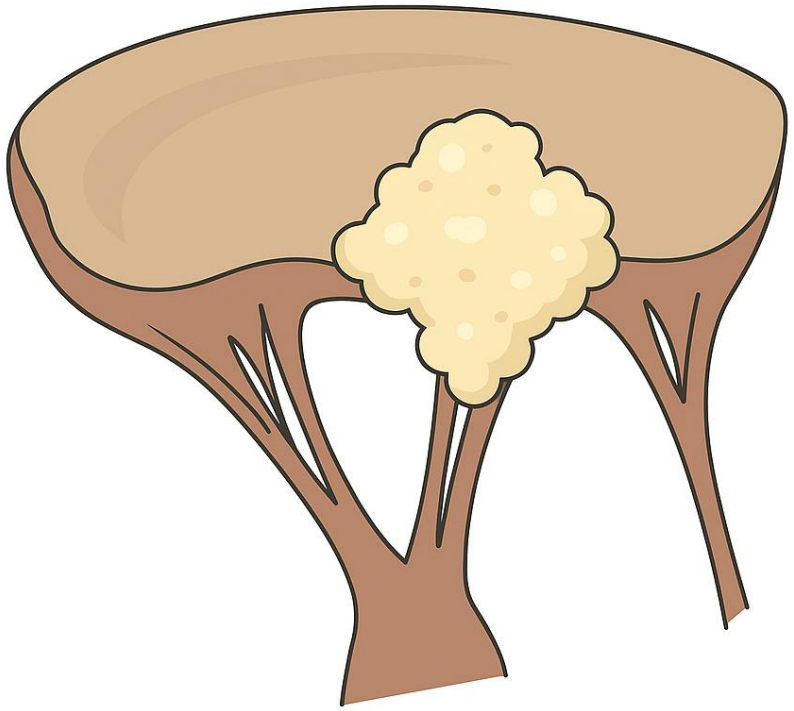
That leads to the formation of **vegetations**

Composed of thrombotic debris and organisms

Often associated with destruction of the underlying cardiac tissues.

MORPHOLOGY VEGETATIONS

Classic hallmark of IE



Containing fibrin, inflammatory cells, and bacteria or other organisms

Friable, bulky, destructive

Most common sites:

Intravenous drug abusers

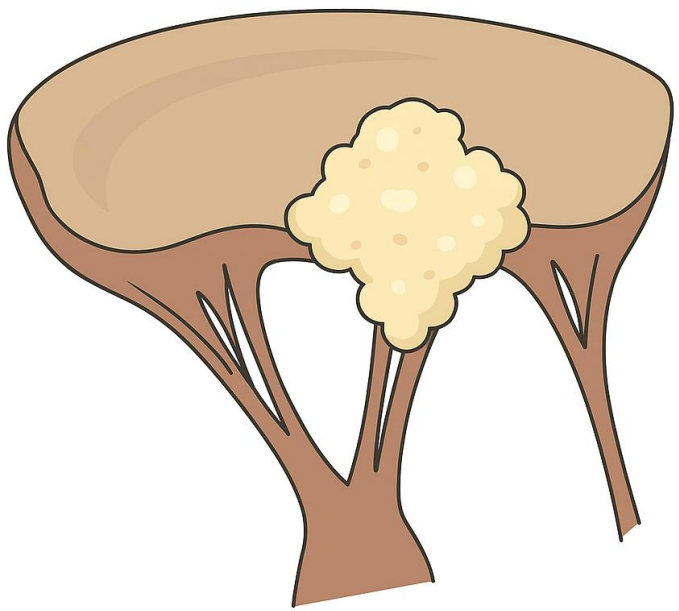
Aortic and Mitral valve

Valves of right side of the heart

Single / multiple ; one or more valves

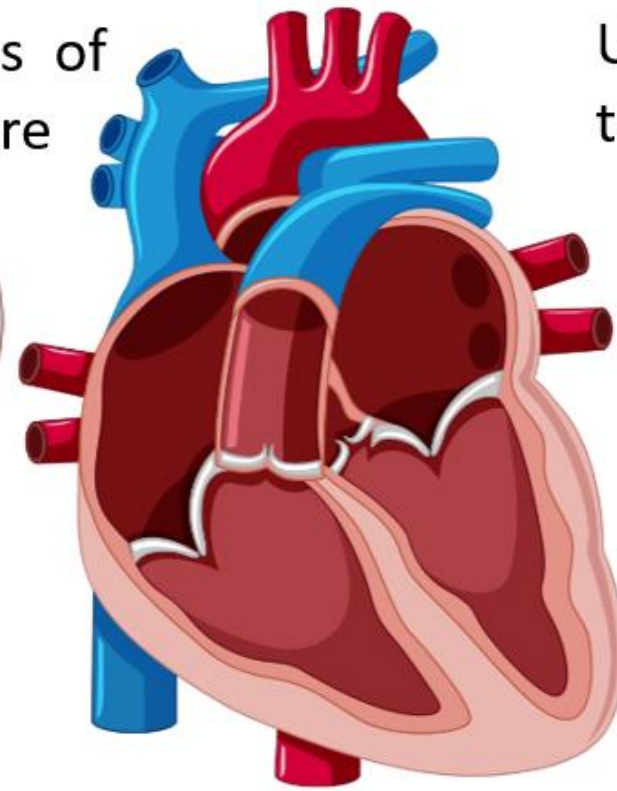
PATHOGENESIS OF INFECTIVE ENDOCARDITIS

Endothelial damage



Where damage is most likely seen?

Points of closure

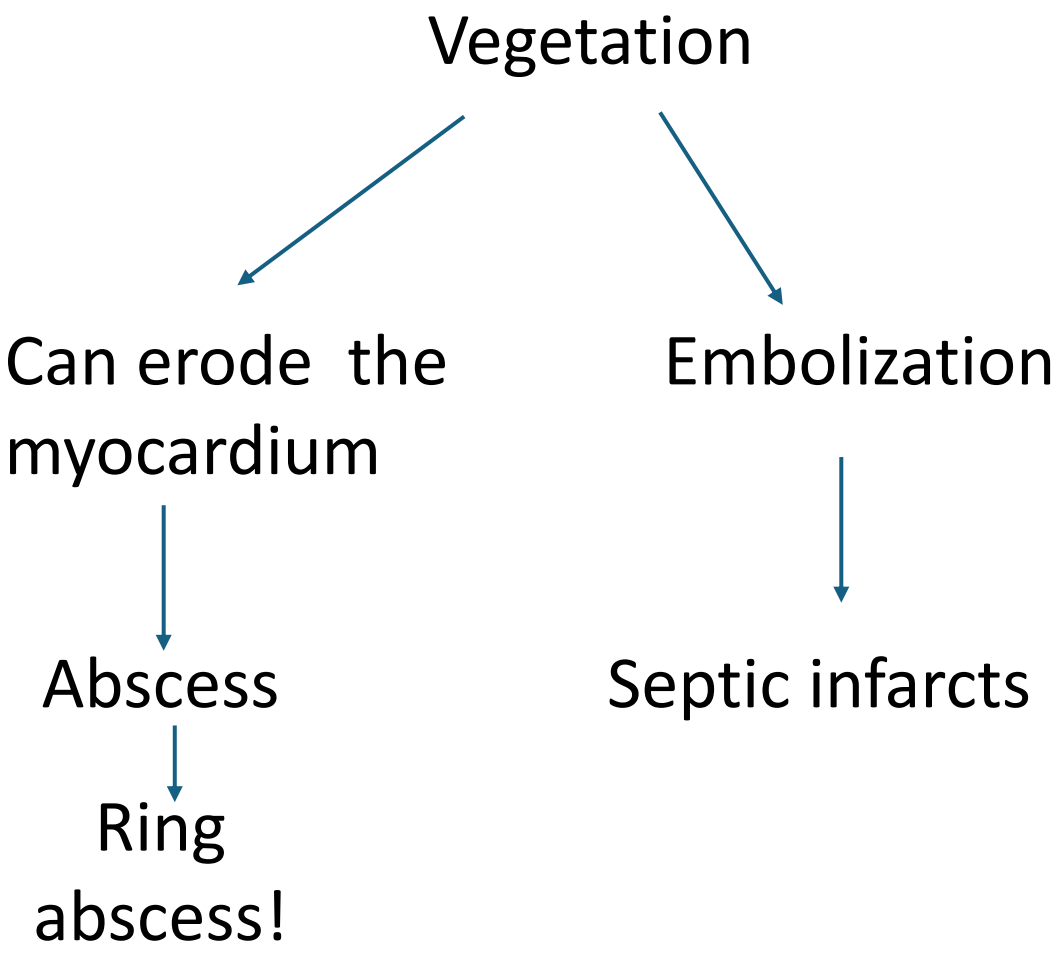


Upstream face of the valve

the side facing the incoming jet of blood causing high-velocity, turbulent flow

Atrial Side Of Atrioventricular Valves
Ventricular Side Of Semilunar Valves

Sequalae



*because it typically encircles the **annulus** of the affected valve*

MORPHOLOGY

Vegetations of **subacute IE**

Show **granulation tissue** at base

Suggestive of healing

Sequalae

Fibrosis,
Calcification, and a
Chronic inflammatory infiltrate

CLINICAL FEATURES

Fever — Most common symptom

Acute IE : — Stormy onset with rapid onset of Fever, chills, weakness, and lassitude

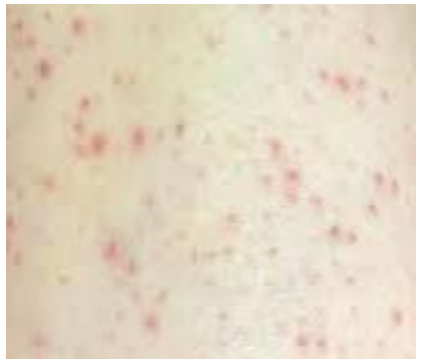
Murmurs – in 90% of the patients with left sided lesions

CLINICAL FEATURES

If not treated properly

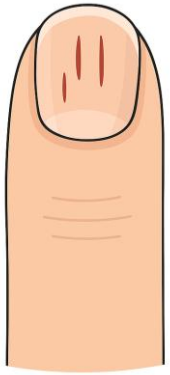
Emboli can lead to

Petechiae



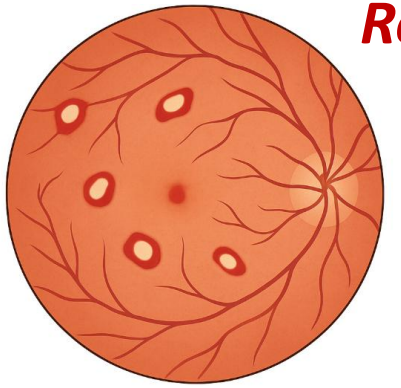
Nail bed hemorrhages

Splinter hemorrhages



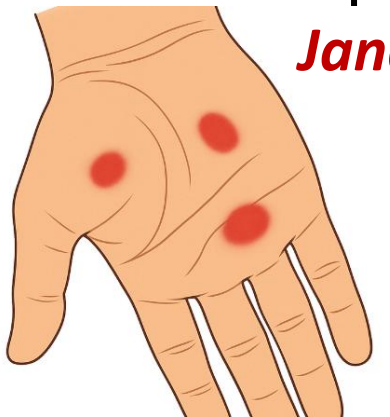
Retinal hemorrhages

Roth spots



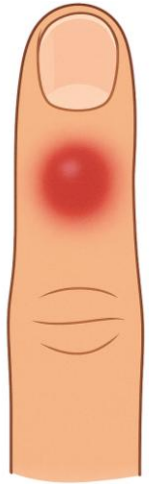
Painless, erythematous lesions of the palm or sole

Janeway lesions



Painful fingertip nodules

Osler nodes



CLINICAL FEATURES

Subacute IE : fever may be absent, nonspecific fatigue, weight loss, and a flulike syndrome

Splenomegaly may be present

Older adults: Slight or absent

anorexia, weight loss, malaise, and night sweats.

COMPLICATIONS

begin within the first few weeks of onset

Glomerular antigen-antibody Complex deposition

Glomerulonephritis

Sepsis

Arrythmias

Systemic embolization

DIAGNOSIS

Blood cultures — Positive in 90 - 95% of cases

CULTURE NEGATIVE ENDOCARDITIS

Prior antibiotic therapy

Difficulties in isolating the offending agent

Because deeply embedded organisms within the enlarging vegetation are not released into the blood

DIAGNOSIS

ECG	May show prolongation of P-R interval or bundle branch block
Echocardiography	To localize lesions

DIAGNOSIS

Modified Duke Criteria – facilitates the diagnosis

2M **1M 3m** **5m**

PATHOLOGIC

Microorganisms, demonstrated by culture or histologic examination, in
a vegetation, embolus from a vegetation, or intracardiac abscess

Histologic confirmation of active endocarditis in a vegetation or intracardiac abscess

CLINICAL

MAJOR(M)

Blood culture(s) positive for a characteristic organism or persistently positive for an unusual organism

Echocardiographic identification of a valve-related or implant-related oscillating mass or abscess, or partial separation of artificial valve

New valvular regurgitation

MINOR (m)

Predisposing heart lesion or intravenous drug use

Fever

Vascular lesions,

Immunological phenomena,

Microbiologic evidence, including a single culture positive for an unusual organism

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PROGNOSIS

If untreated	Generally fatal
with appropriate antibiotic therapy and/or valve replacement	Reduction in mortality

Summary

- Morphology
- Clinical features
- Complications
- Prognosis

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