



CVS MODULE – 4

RHEUMATIC HEART DISEASE

DR. EMAN KREISHAN, M.D.

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RHEUMATIC HEART DISEASE

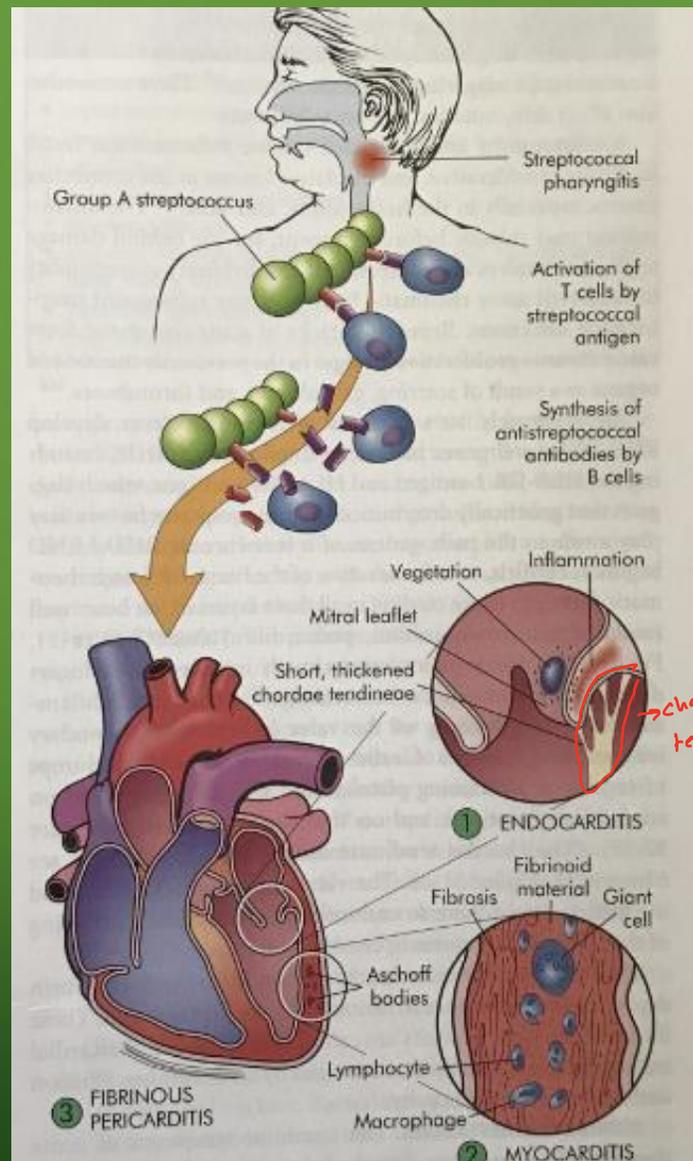
- Rheumatic heart disease is the cardiac manifestation of rheumatic fever.
- Rheumatic fever is an acute, immunologically mediated, multisystem inflammatory disease that occurs after group A β -hemolytic streptococcal infections (usually pharyngitis, but also occasionally infections at other sites, such as skin).
- valvular inflammation and scarring produce the most important clinical features, rheumatic heart disease is essentially the only cause of acquired mitral stenosis.

PATHOGENESIS

- The pathogenic mechanism involves autoantibodies and T cells directed against group A streptococcal cell wall components that cross-react with heart or brain.
- Predisposing factors include genetic and environmental factors such as poverty and overcrowding.

Pathogenesis

PanCarditis
↳ involving all
layers



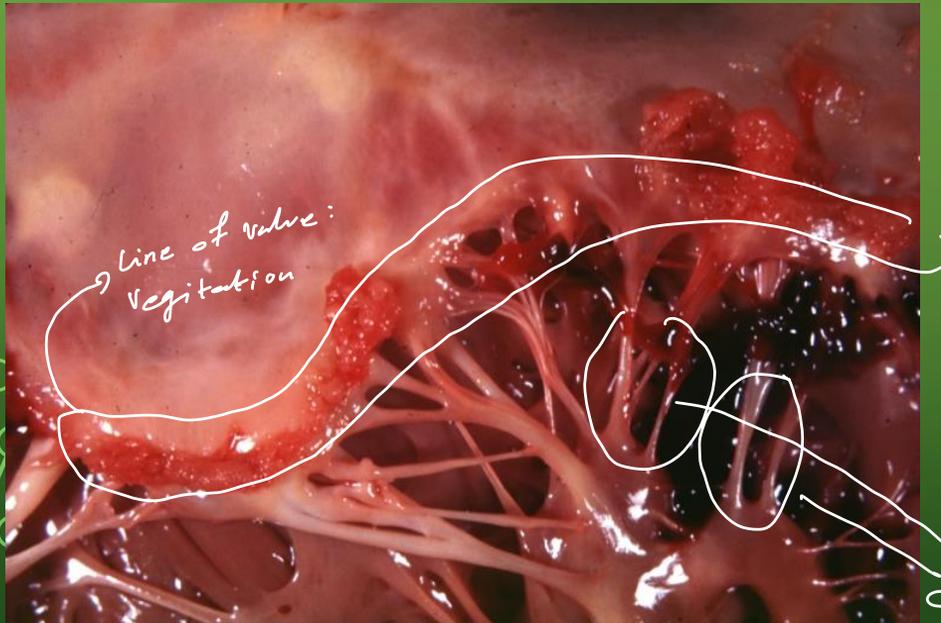
Cause → weakness of heart → ↓ Contraction
↓
CHF

* Most predisposed age group?
Children.

GROSSING

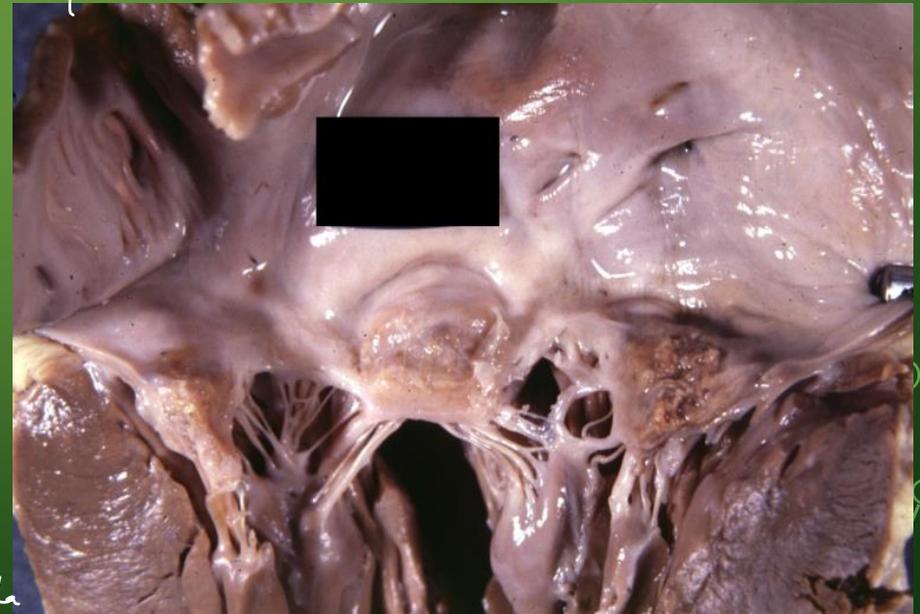
MITRAL VALVULITIS

* acute stage



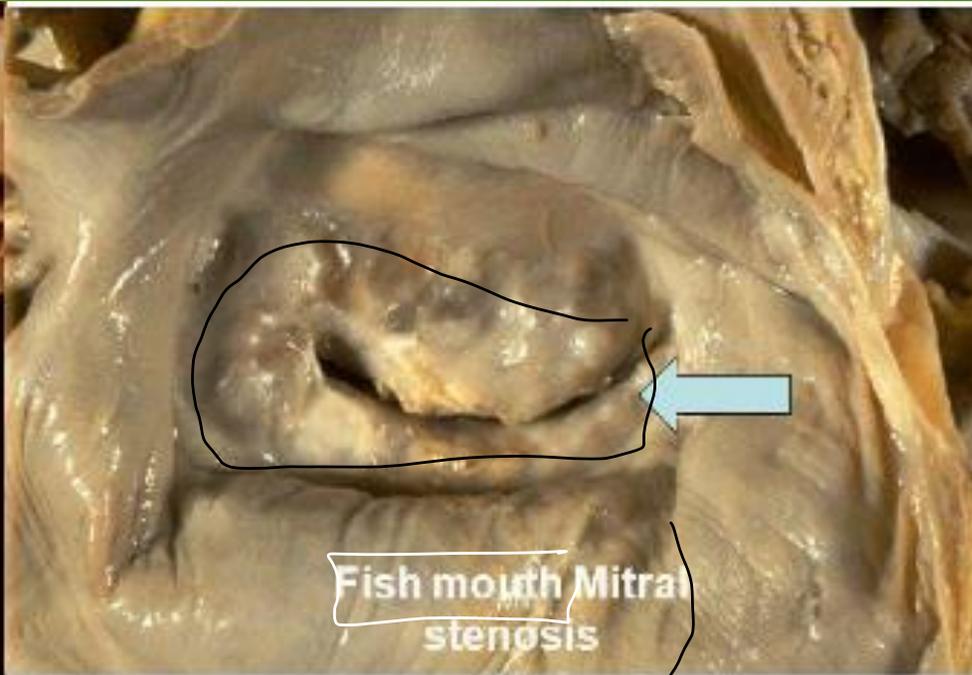
MITRAL SCARRING

↳ fibrotic valve, non-functional



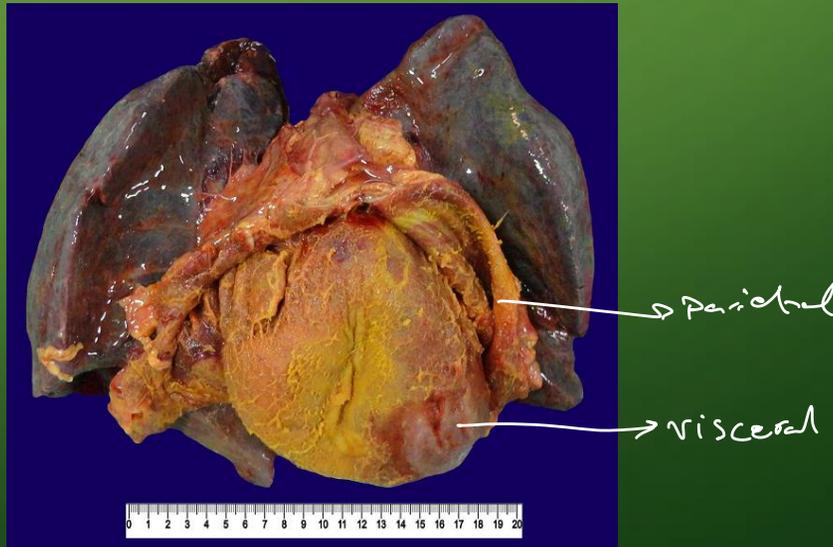


Valve leaflet
thi ←



Fibrosis ←

The pericardium may exhibit a fibrinous exudate, which generally resolves without sequelae. *(good prognosis, good response to treatment)*



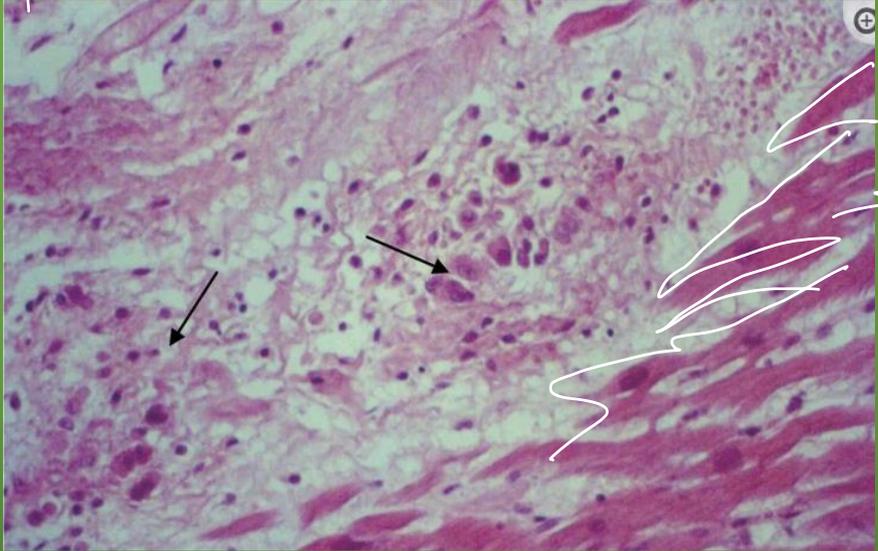
HISTOLOGY

- Acute rheumatic valvulitis manifests with :
 - ✓ active inflammation characterized by lymphocytic infiltration, ^{*}Aschoff bodies^{*}, and Anitschkow cells (have abundant cytoplasm and nuclei with chromatin that is centrally condensed).

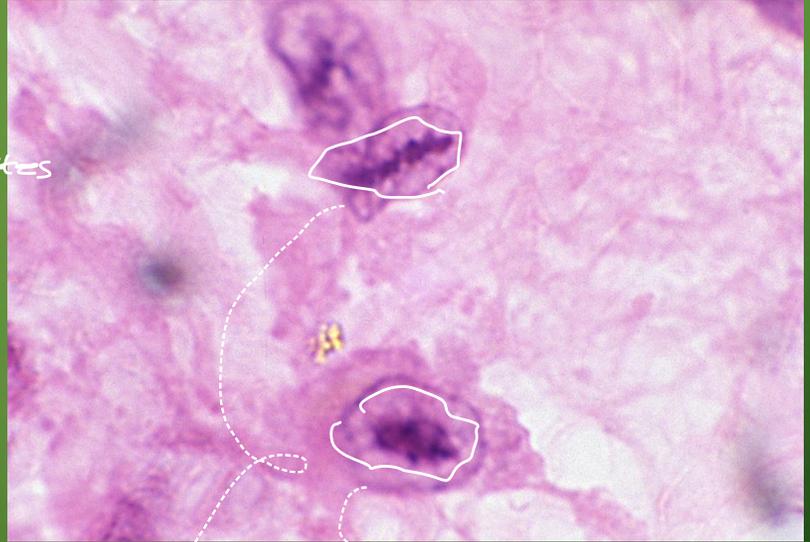
- Chronic rheumatic valvulitis is associated with:
 - ✓ neovascularization, valvular fibrosis and/or dystrophic calcification.
*↳ angiogenesis
near BVs formation*

- During acute rheumatic fever, Aschoff bodies can be found in any of the three layers of the heart—pericardium, myocardium, or endocardium (including valves).

→ Myocardium
→ granuloma (giant cells, lymphocytes, macrophages)



Myocytes



Aschoff nodules

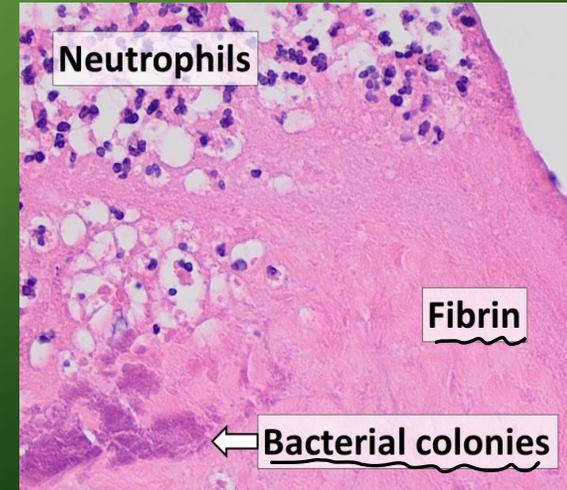
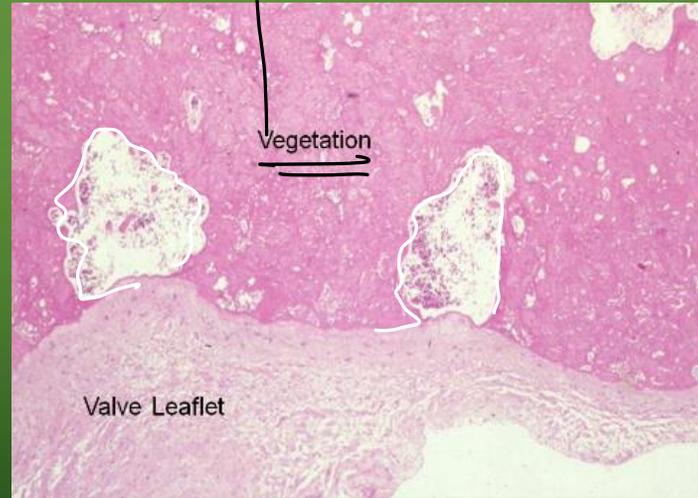
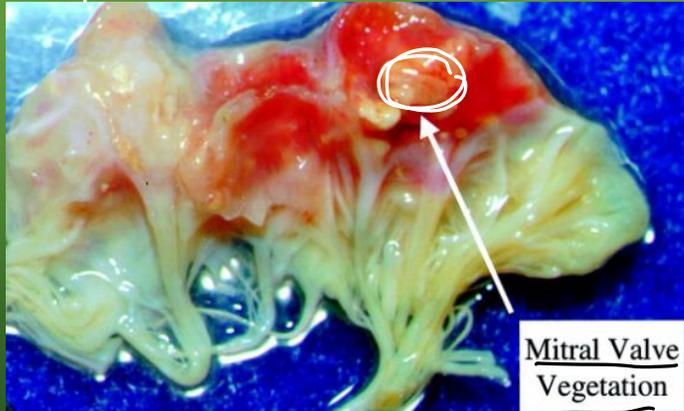


Anitschkow cells.

HISTOLOGY CONT.:

- Valve involvement results in fibrinoid necrosis and fibrin deposition along the lines of closure forming **1 - to 2-mm vegetations**—verrucae—that cause little disturbance in cardiac function.

acute, healthy valve



CLINICAL FEATURES

- Acute rheumatic fever occurs most often in children; the principal clinical manifestation is *carditis* (قسط)

- However, about 20% of first attacks occur in adults, with *arthritis* being the predominant feature.

- قسط • Symptoms in all age groups typically begin 2 to 3 weeks after streptococcal infection.

↳ due to fibrinous pericardium

- The clinical signs of carditis include pericardial friction rubs and arrhythmias; myocarditis may be sufficiently severe to cause cardiac dilation and resultant functional mitral insufficiency and CHF.

التهوية كانه يتعصب على تاج

RHEUMATIC FEVER

DUCKETT-JONES DIAGNOSTIC CRITERIA

MAJOR CRITERIA

“CASES” is the Mnemonic

- * **C**arditis
- * **A**rthritis
- * **S**ubcutaneous nodules
- * **E**rythema marginatum
- * **S**ydenham's **chorea**

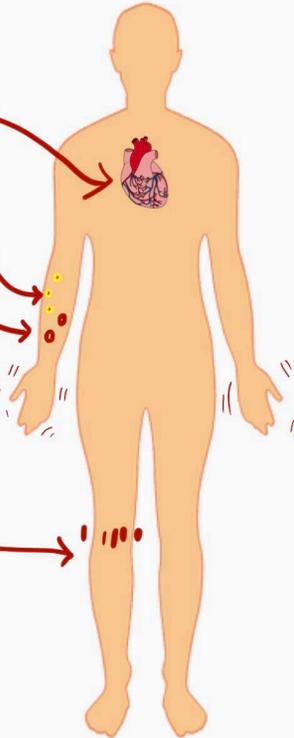
neurological signs → secondary to...?
brain impairment.

MINOR CRITERIA

“FRAPP” is the Mnemonic

- F**ever
- R**aised **ESR/CRP**
- A**rthralgia
- P**rolonged **PR** Interval
- P**revious **RF**

acute phase reactant



cause → weakness of myocardium → ↓ Contraction → CHF

Erythema Marginatum



There must be evidence of streptococcal infection plus:

2 major or 1 major + 2 minor or 5 minor
micro St. bolivian

LAB

- ESR, CRP.
- Elevated serum titers of antibodies against one or more streptococcal antigens (e.g., streptolysin O or DNAase) .
- Cultures are negative for streptococci at the time of symptom onset

* Specific
+ Diagnos ✓



TREATMENT

- Treatment strategies for acute rheumatic fever (ARF) can be divided into the following:
 - ✓ Management of the acute attack
 - ✓ Management of the current infection
 - ✓ Prevention of further infection and attacks

usual antibiotic used to treat strept. => penicillin.