

Endocarditis, including Prophylaxis

ACOI Board Review 2020
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UPRIGHT

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DH



Infective Endocarditis

- Persistent bacteremia (blood cultures drawn >12 hrs apart) w/ organisms that tend to be associated w/ endovascular infections e.g. *S. aureus*, *Strep. viridans*, HACEK group
- “At-risk” underlying heart disease, including IVDA

HACEK Group

- Haemophilus spp. (not H. influenzae)
- New name: Aggregatibacter spp. Old name: Actinobacillus spp.
- Cardiobacterium spp.
- Eikenella spp.
- Kingella spp.

Modified Duke Criteria for Endocarditis*

- **Major clinical criteria:**
 - Persistently + blood culture for “typical” organisms
 - + echocardiogram, including partial dehiscence of prosthetic valve, myocardial abscess
 - Evidence of endocardial damage e.g., new valvular regurgitation
 - Serological or + culture for *Coxiella burnetti*

*these criteria may not apply to IVDA's

Modified Duke Criteria for Endocarditis*

- **Minor clinical criteria:**
 - Predisposing condition (valvular heart dx, IVDA)
 - Fever
 - Vascular phenomena (embolic events)
 - Immunologic phenomena (Roth spots, glomerulonephritis, Osler nodes)
 - + blood cultures not meeting strict major criteria

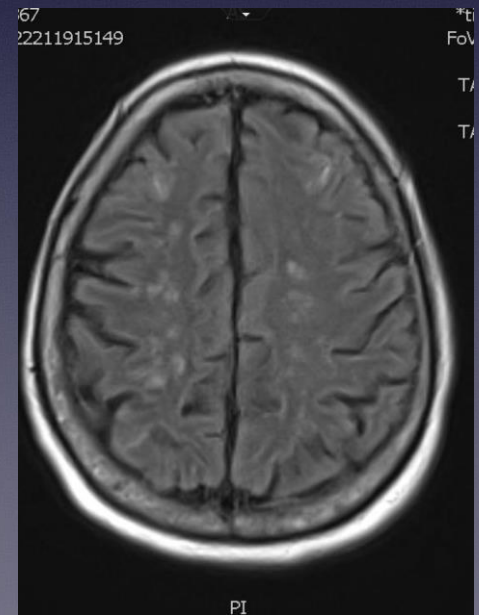
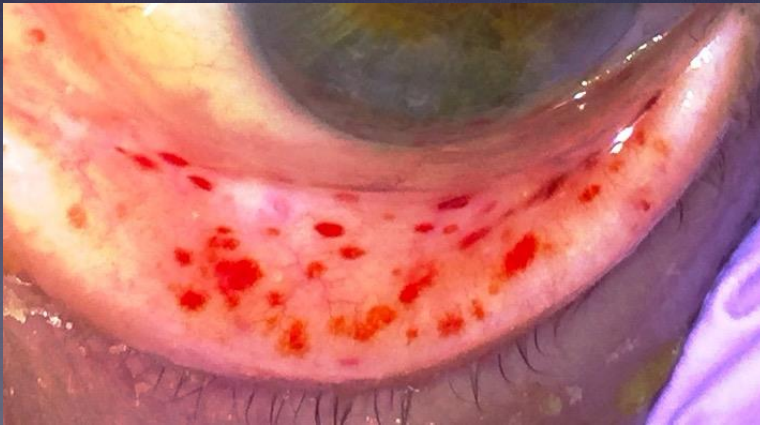
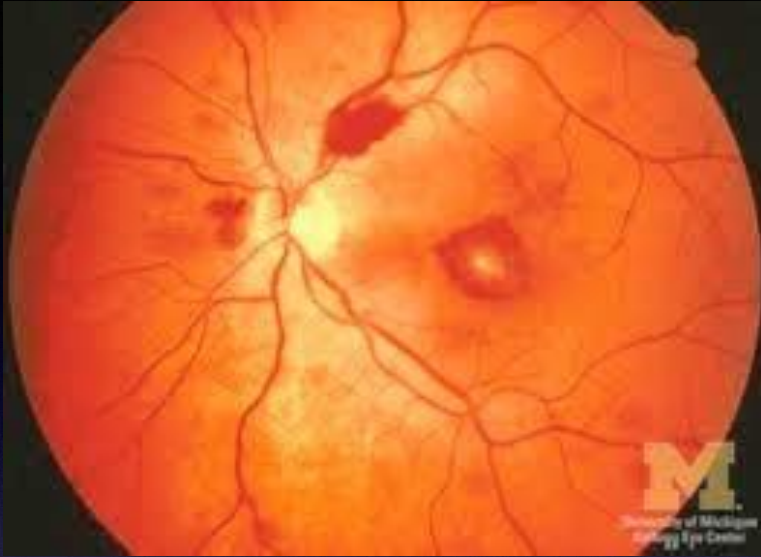
*Durak et al. Am J Med 1994; 96:200 (added echocardiograms to criteria)
Li et al. CID 2000;30:633

Modified Duke Criteria for Endocarditis

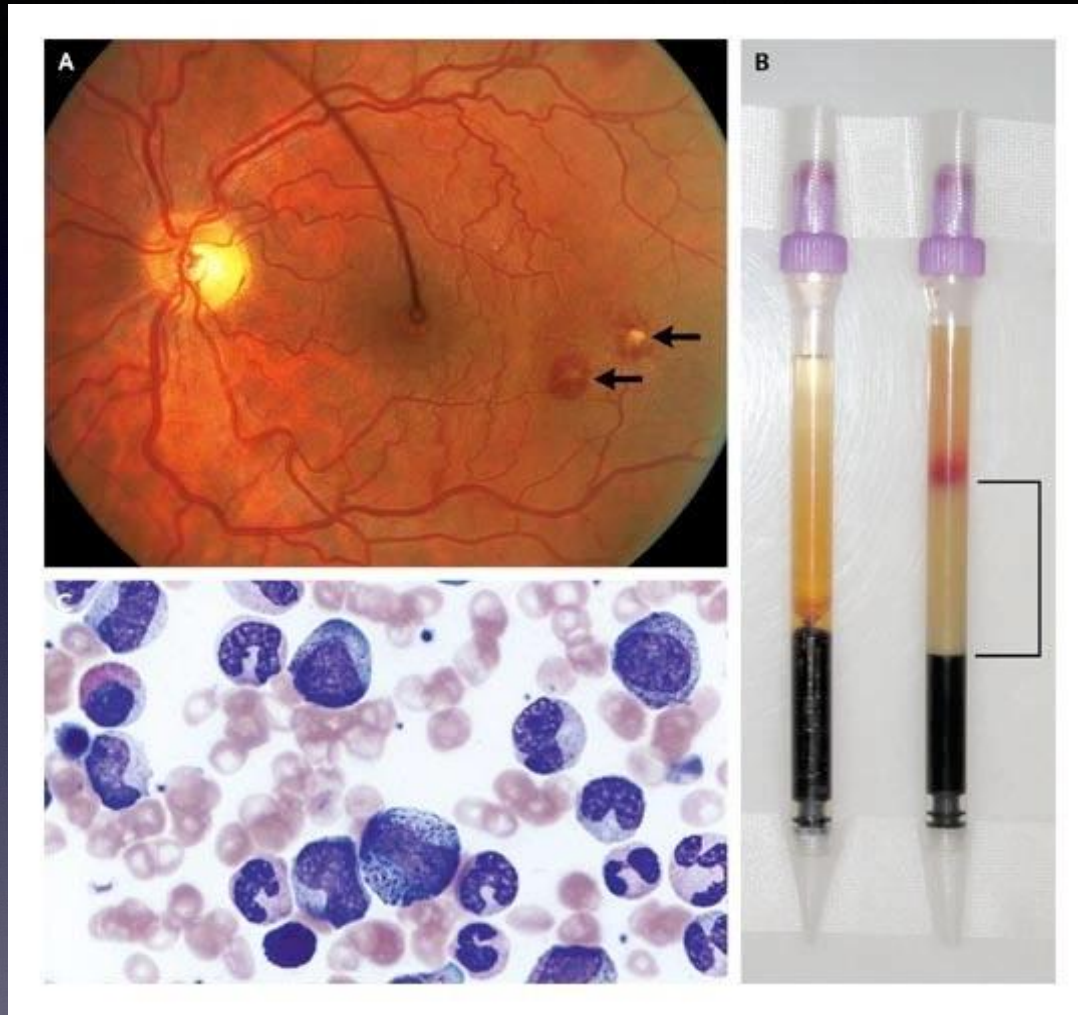
- Definite Endocarditis:
 - + histology
 - + Gram stain or cultures from surgery or at autopsy
 - Two major clinical criteria
 - One major + 3 minor criteria
 - Five minor criteria
- Possible Endocarditis
 - One major + one or two minor clinical criteria
 - Three minor clinical criteria

“Soft” signs / “peripheral stigmata” of I. E.

- Unexplained fever, weight loss, anemia of chronic disease, elevated ESR
- Roth spots
- Conjunctival, mucosal hemorrhages
- Splinter hemorrhages
- Osler nodes (tender; immune complexes; pads of fingers and toes)
- Janeway lesions (non-tender; embolic; culture positive; palms and soles)
- Microscopic hematuria
- Splenomegaly



Roth Spots

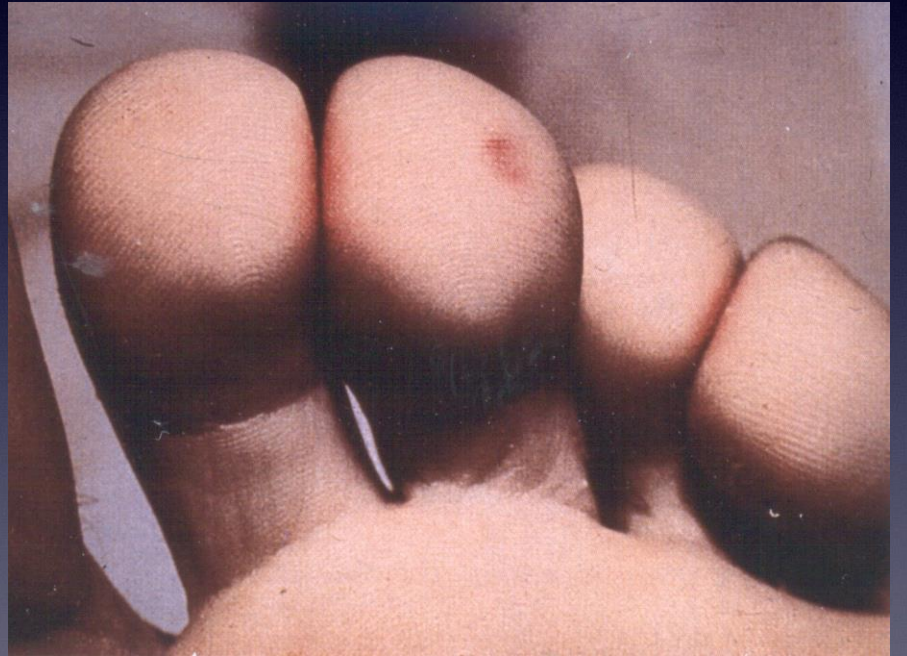


Varga Z, Pavlu J. N Engl J Med 2005;353:1041-1041.



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“Pearls”

- Multifocal “pneumonia” in an IVDA w/ positive blood cultures (usually *S. aureus*) is “right-sided” endocarditis
- *Strep. bovis/gallolyticus (pasteurianu)* bacteremia/endocarditis is highly associated w/ GI malignancy
- A + blood culture for any of the “HACEK” group of organisms is endocarditis until proven otherwise
- Most common organism (acute dx) : *S. aureus*
Reason: (prior) medical care

“Pearls”

- Indications for early surgery in left-sided endocarditis:
 - Most agreed upon - CHF from native-valve dysfunction [large vegetations, invasive dx beyond cusps/leaflets (NEJM June 28, 2012)]
 - Mobile vegetations > 10 mm
 - Failure of medical tx, major embolic events, prosthetic valves, certain organisms (fungal, pseudomonas (?), Coxiella, MDR)

Culture Negative Endocarditis

- Prior antibiotics
- Slow growing, fastidious organisms
 - NVS (nutritionally variant streptococci), now reclassified as 4 species of *Abiotrophia*
 - HACEK grp
 - *Brucella*, *Coxiella* (Q fever) spp., fungal (*Aspergillus* spp.)

Prophylaxis

Wilson et al. Prevention
of Infective Endocarditis.
Circulation. May 8, 2007

Conditions for which Prophylaxis w/ Dental Procedures Recommended

- Prosthetic valve (or prosthetic material used in valve repair)
- **Prior endocarditis**
- Congenital heart dx
 - Unrepaired cyanotic CHD
 - Completely repaired congenital heart defect w/ prosthetic material or device - for 6 mo following procedure
 - Repaired CHD w/residual defects at, or adjacent to, site of prosthetic patch
- Cardiac transplant recipients w/ valvulopathy
- NOT MVP

Procedures for which Prophylaxis Recommended

- All dental procedures that involve manipulation of gingival tissue or the periapical region of teeth, or perforation of the oral mucosa
(Routine anesthetic injections through non-infected tissue do not require prophylaxis)
- Invasive procedures of the respiratory tract that involve incision or biopsy (T&A), including incision via bronchoscopy, or to treat an established infection (drainage of abscess/empyema)
- Note: routine GI endoscopy no longer included

Prophylaxis for Dental and Respiratory Tract Procedures (target is the “viridans” strep)

- **ALL: 1 dose only, w/in 1 hr prior to procedure**
- Amoxicillin 2 gms p.o. w/in 1 hr prior to procedure
 - If unable to take p.o.:
 - ampicillin 2gm (IM or IV)
 - or.....cefazolin 1 gm (IM or IV)
 - or.....ceftriaxone 1 gm (IM or IV)
 - If allergy:
 - cephalexin 2 gms p.o. (unless anaphylaxis to PCN)
 - azithromycin/clarithromycin 500 mgs p.o.
 - or.....clindamycin 600mg p.o. (IM or IV)
 - or.....cefazolin/ceftriaxone IM or IV (unless anaphylaxis to PCN)