Patient Presentation and Didactic

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Chief Complaint

Patient K:

“I feel weak, Doc.”
History of Present Illness

Patient K is an 80 WF with a h/o CHF, PUD, and mitral valve replacement 2 years prior, who presented to her PCP c/o fatigue for 3 weeks, malaise, subjective fever, abdominal pain, and R hip pain. Patient K admits lacking the energy needed to do routine tasks at home. She denies N/V, weight loss, sick contacts, travel. Hip pain is exacerbated by movement and relieved by rest. Her PCP measured an INR of 8 and (+) BCx for gram (+) cocci, and sent her as a direct admit to HH.
Relevant History

- **PMH**: CHF, PUD, mitral valve replacement, chronic back pain.
- **Surgical**: MedTronic mitral valve 2003
- **Meds**: Digoxin, Protonix, Coumadin, Actonel, Xanax
- **All**: NKFDA
- **Social**: Married. Three children. Denies smoking/ETOH/illicit drugs.
- **Family**: SLE, CVA
Review of Systems

Gen: (+) fatigue, malaise. (-) weight change.
HEENT: (-) HA.
CV: (-) CP, palpitations.
Pulm: (-) cough, SOB, wheezing.
GI: (+) constipation, abdominal pain. (-) diarrhea, melena, hematochezia, tenesmus.
GU: (-) dysuria, discharge.
MS: (+) generalized weakness, R hip pain.
Neuro: (-) paresthesia, anesthesia.
Physical Exam

VS: T 97.6, BP 101/70, P 62, R 18, SAT 98% RA

Gen: NAD. Pt laying supine, talking with family. AO*4.

HEENT: PERRLA / EOMI. Anicteric. No conjunctival petechiae. Mucous membranes moist. No lymphadenopathy, JVD, carotid bruit. Funduscopic exam WNL.

CV: RRR. II/VI systolic ejection murmur that radiates to axilla, best heard at the apex with patient in left lateral decubitus position. Loud closing snap.

Pulm: Unlabored breathing. Normal percussion. CTA (B).
Physical Exam

**Abd**: Soft. Mildly tender to palpation LLQ. Nondistended. Bowel sounds heard.

**GU**: Normal sphincter tone. Hemoccult (-).

**MS**: R hip (-) for swelling / erythema / tenderness to palpation. R hip (+) nonradiating pain on straight leg raise, but (-) pain on int/ext rotation.

**EXT**: Cyanotic toes. No clubbing or edema. Weak pedal pulses (B). No palm or sole lesions. No splinter hemorrhages.

**Neuro**: CN II-XII grossly intact. No focal findings.
Lab: CMP

Na: 138
K: 4.5
Cl: 103
HCO3: 24
BUN: 13
Cr: 0.6
Gluc: 86
Ca: 7.6
TP: 6.0
Alb: 2.9
Alk Phos: 201
AST: 23
ALT: 8
Lab: CBC

**WBC**: 12.1  
**Hg**: 10.9  
**Hct**: 36.3  
**Plt**: 274  

**Neut**: 82%  
**Lymp**: 9.4%
Lab: U/A

Sp Gr: 1.027
Gluc: neg
**Ketone**: 5
Protein: trace
Bili: neg

Nitrite: neg
WBC: 3
**Blood**: large
RBC: 223
Bact: small
Casts: 6
Lab: Coagulation

PT: 79.3
INR: 9.5
PTT: 102.4

Lab: ESR

ESR: 58
Findings:

- Cardiomegaly
- Mild costophrenic blunting (B)
- Sternal wire sutures
- Prosthetic MV

Impression:

- No acute disease
- Mild CHF changes
Findings:

- Nonobstructive bowel gas pattern
- Bony degenerative changes
- Large amount of stool

Impression:

- No acute disease
- DJD
Rx for G(+) cocci bacteremia

**Vancomycin** 1400 mg Q day
- MRSA coverage

**Rifampin** 300 mg Q 8h
- Staph adjunct

**Gentamicin** 380 mg Q 6h
- Strep and enterococcus coverage

Maintain INR 2.3 – 3.5
Lab: Miscellaneous

**TSH**: 1.01  
**PROBNP**: 1433

**T4**: 1.49  
**Digoxin**: 0.9

**AM Cortisol**: 10.5

**BCx**: (+) Strep viridans

...Bacteremia only or endocarditis?

In the absence of direct tissue examination…

- **Major criteria**
  - (+) BCx for typical pathogen
  - (+) Echocardiogram findings OR new murmur

- **Minor criteria**
  - Predisposition to IE
  - T > 100.4
  - Vascular phenomena
  - Immunologic phenomena
  - Microbiologic evidence

Dx requires: 2 major – OR – 1 major + 3 minor – OR – 5 minor
Prosthetic Valve Endocarditis (PVE): Pathogenesis

- **Early infection**
  - Perioperative contamination
  - Nosocomial infections (staph epi/aureus, gram negative aerobes, candida)
  - High rate of valvular complications

- **Late infection**
  - Transient bacteremia
  - Similar pathogens as native valve endocarditis (strep viridans, staph epi/aureus, gram negative bacilli)
  - Fewer valvular complications
PVE: Complications

• **Valvular dysfunction (50% incidence)**
  – High risk in bioprosthetics
  – Suggested by new murmur, HF, fever x 10d, EKG change
  – 50% mortality with surgery; 99% mortality without surgery
  – 15% recurrence rate; 25% require repeat surgery

• **Systemic emboli (40% incidence)**
  – Frequency higher in vegetations >10 mm diameter
  – Present as CVA, MI, end organ damage
  – Anticoagulation / thrombolysis
BE: Conjunctival petechiae
BE: Splinter hemorrhages

Nonblanching red-brown subungual streaks

http://medocs.ucdavis.edu/
BE: Janeway lesions

Nonpainful, blanching, erythematous macules on palms and soles

UCSD Catalog of Clinical Images. http://medicine.ucsd.edu
BE: Osler’s nodes

Painful violaceous nodules on finger and toe pads

UCSD Catalog of Clinical Images. http://medicine.ucsd.edu
BE: Roth’s spots

Exudative, edematous, hemorrhagic retinal lesions

Spencer. *Ophthalmic Pathology*, 4th ed. CD-ROM
Pt K’s IE checklist

• Physical findings:
  – Splinter hemorrhages
  – Janeway lesions
  – Osler nodes
  – Conjunctival petechiae
  – Roth’s spots

→ ALL NEGATIVE
**TTE vs TEE**

- **TTE**
  - Preferred for ventricular surfaces of valves

- **TEE**
  - Preferred for atrial / aortic surfaces of valves
  - Superior for viewing MV or perivalvular complications

- Disagreement between ID and cardiology

(-) TTE & (-) TEE has >90% negative predictive value
TEE: Normal heart example

http://www.kumc.edu/kumcpeds/cardiology/allechos.html
TEE: PVE example

http://www.medscape.com
Pt K’s checklist

• **IE physical findings**
  – Splinter hemorrhages
  – Janeway lesions
  – Osler nodes
  – Conjunctival petechiae
  – Roth’s spots

• **TEE**
  – MV vegetations

→ ALL NEGATIVE

→ NEGATIVE
Does Pt K meet criteria for IE?

**Major criteria**
- (+) BCx for typical pathogen
- (+) Echocardiogram findings OR new murmur

**Minor criteria**
- Predisposition to IE
- T > 100.4 (97% sens)
- Vascular phenomena

Dx requires: 2 major – OR – 1 major + 3 minor – OR – 5 minor

Pt K does NOT meet criteria for IE
Findings:

- Moderate joint erosion
- Sclerosed femoral head and neck

Impression:

- No acute disease
- Moderate DJD
Additional development in Pt K

(+) BCx x2 for Strep bovis on day 3
Strep bovis

Characteristics
• G(+) cocci (Group D strep)
• Minor colonic flora constituent in normals (2-10%)
• Accounts for 12% of IE
• Risk factors: HIV, liver dz

Treatment
• Very susceptible to PCN
• Pt K treated with PCN G 4,000,000 uu IV Q4h
• Gentamicin stopped upon discharge
Strep bovis & colonic neoplasia

Data
- More likely to find Strep bovis in someone with existing colon CA than vice-versa.
- 15-25% of Strep bovis bacteremias have concomitant colon CA

Link unknown
- Which is the cause and which is the effect?
- Innoculating S. bovis in rat colons increases the rate of crypt cell proliferation, mutation, and adenomas

Conclusion: Evaluate all Strep bovis bacteremias for colon neoplasia
Water-soluble Contrast Enema

Findings:

- Contrast opacification extends to cecum
- Diffuse diverticulosis
- No filling defects

Impression:

- No evidence of diverticulitis, stricture, or mass effect
Pt K’s Colonoscopy
Bullets dodged by Pt K

- **IE**
  - Splinter hemorrhages
  - Janeway lesions
  - Osler nodes
  - Conjunctival petechiae
  - Roth’s spots

- **MV vegetation / injury**

- **Septic emboli / arthritis**

- **Strep bovis bacteremia**
  - Colonic neoplasia

→ ALL NEGATIVE

→ NEGATIVE

→ NEGATIVE

→ NEGATIVE
Take-home points

- PVE is 1\textsuperscript{st}, 2\textsuperscript{nd}, and 3\textsuperscript{rd} on the differential for febrile illness in patients with prosthetic valves

- Physical findings of BE
  - petechiae, splinter, Janeway, Osler, Roth

- Correlation between Strep bovis bacteremia and colonic neoplasia
References


• Spencer. Ophthalmic Pathology, 4th ed. CD-ROM