KANSAS INITIATIVE FOR STROKE SURVIVAL

A PROJECT BY AND FOR KANSANS

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Endocarditis and stroke treatment

"First Tuesdays" Lecture Series

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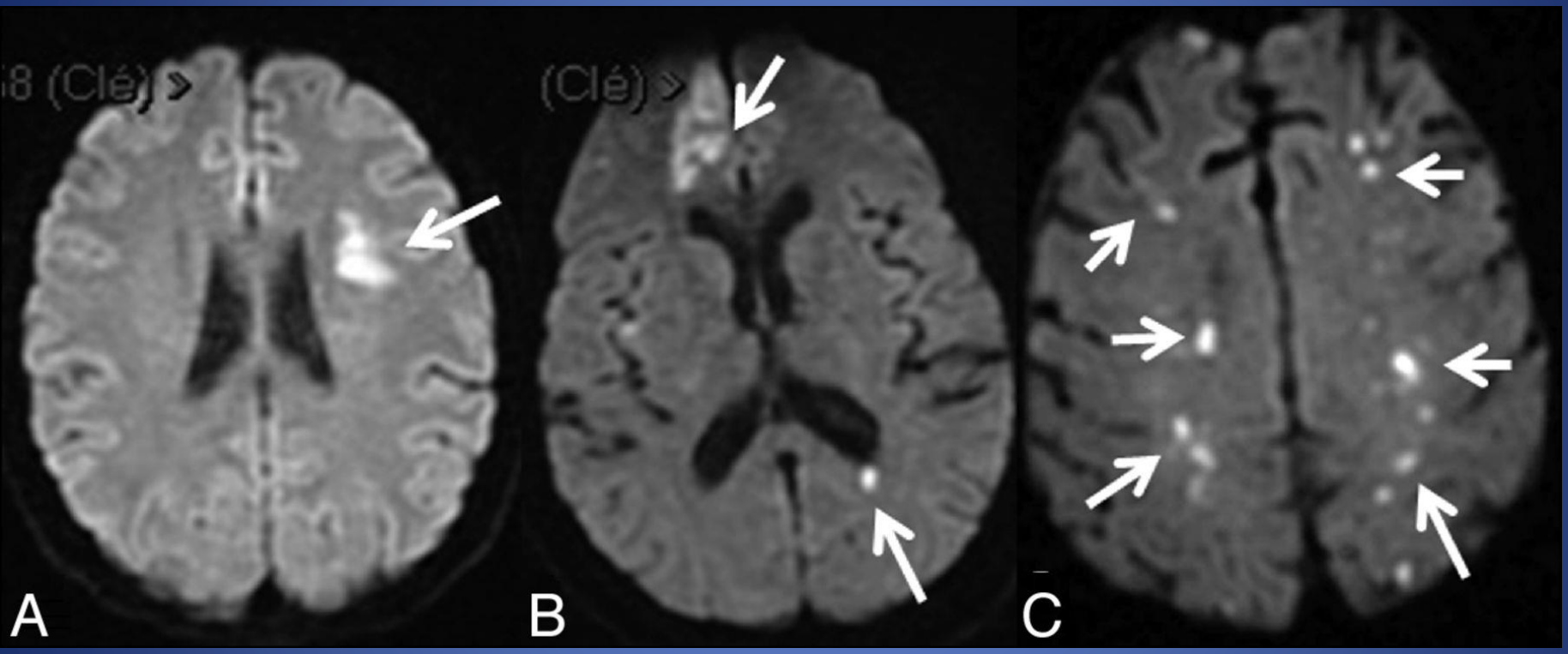
Introduction and Goal of “First Tuesdays”

- 1st Tuesday of the month, 12-12:30 PM
- WILL GIVE 0.5 CREDIT CE
- Didactic lecture series as part of the Kansas Initiative for Stroke Survival (KISS)
- Updates in Practice and FAQ’s on Acute Stroke Care
- 20 minute didactic, 10 minutes for questions/discussion.

Neurological complications of infective endocarditis

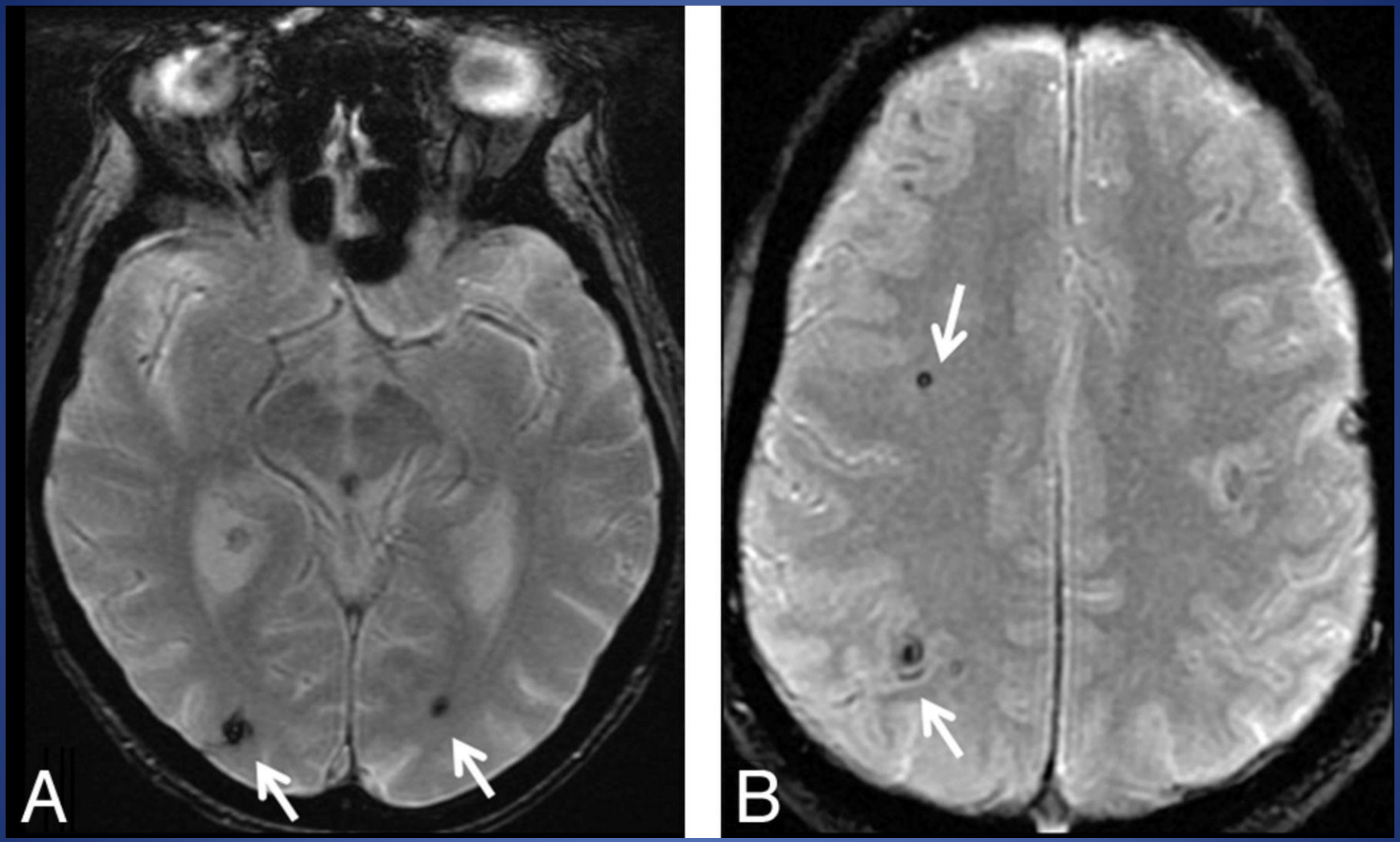
- **Ischemic stroke**
- **Cerebral bleed**
  - **Can include combination of strokes + bleeds**
- Meningitis
- Brain abscess
- **Mycotic aneurysm**
- In one study, 108 of 198 (55%) of patients with left sided infective endocarditis experienced neurological complications.
  - More commonly with staph aureus, mitral valve infection, increase size of vegetation (>10 mm), mobile vegetation

Romain et al, *Crit Care Med* 2011

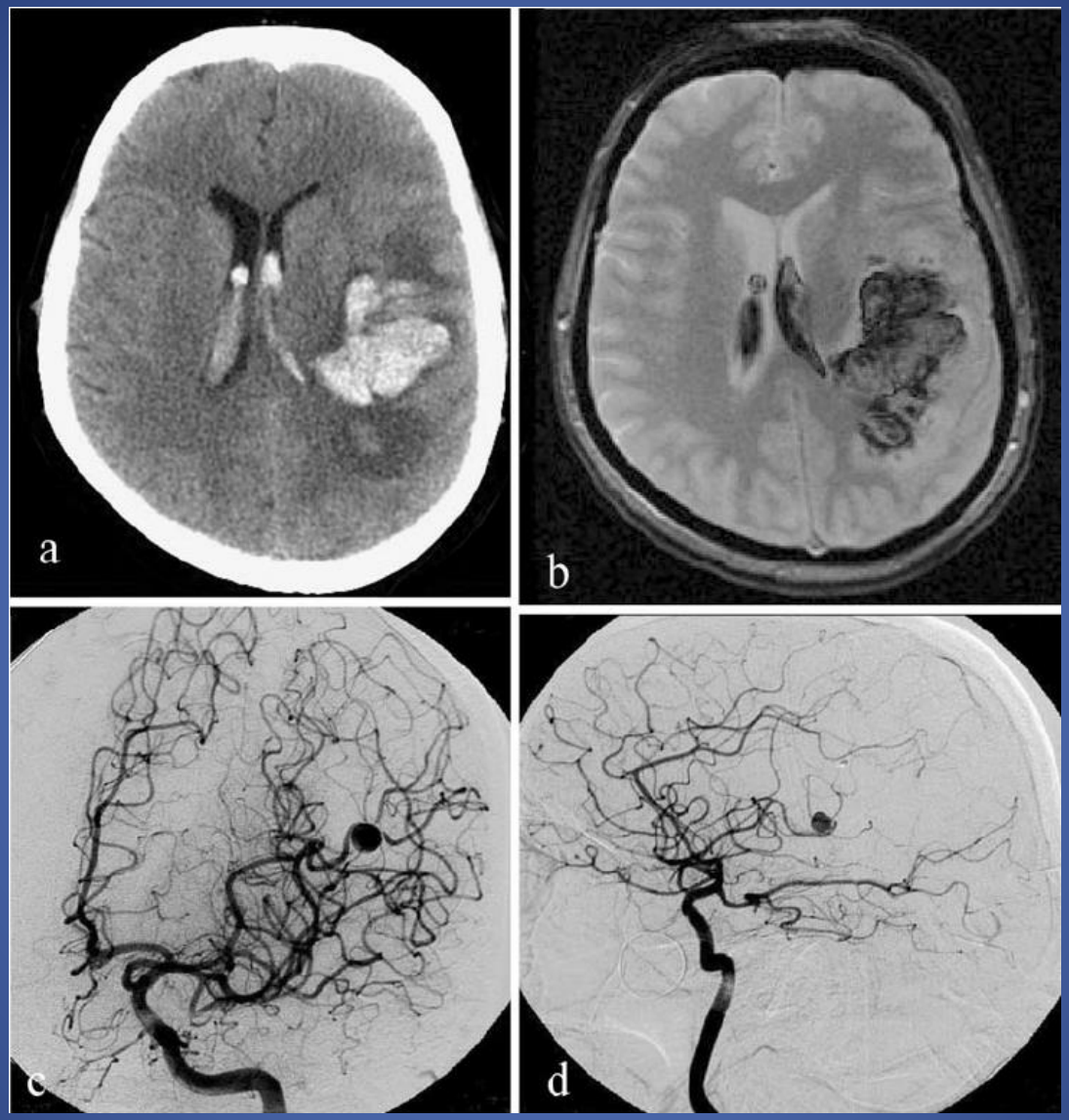


Hess et al, *AJNR* 2013

Aziz et al, *JTD* 2011



Hess et al, *AJNR* 2013



Colen et al, *Eur Rad* 2008

Acute treatment of ischemic stroke

- Previous trials of tPA have excluded patients with endocarditis
- Diagnosis of endocarditis may not be evident at initial presentation
- Using nationwide data, study analyzed 222 patients who were treated with tPA who had stroke due to endocarditis compared with >130K patients without

Asaithambi et al, *Stroke* 2013

Table. Interventions and Outcomes of Acute Ischemic Stroke Patients Treated With Intravenous Thrombolysis With or Without Infective Endocarditis (Table view)

	Patients With IE	Patients Without IE	*P* Value
Total	222	134 048	
Mean age (SD) in y	59 (18)	69 (15)	0.02
Women (%)	103 (46)	66 220 (49)	0.7
Interventions (%)			
Angiography	39 (17.6)	29 095 (21.7)	0.5
Thrombectomy	15 (16.8)	8263 (6.1)	0.8
Outcomes (%)			
Seizure	16 (7.2)	2247 (1.7)	0.3
Favorable outcome	23 (10)	49 572 (37)	0.01
Post-thrombolytic ICH	44 (20)	8730 (6.5)	0.006
Mean length of stay in d (SD)	14 (10)	7 (8)	0.006
Mean hospital charges in $ (SD)	120 192 (96 692)	70 045 (75 642)	0.01

Asaithambi et al, *Stroke* 2013

tPA with endocarditis?

- 20% vs 6.5% of ICH in patients with endocarditis
- Less likely to have favorable outcomes, more likely to have seizures
- High rate of ICH is attributed to mycotic aneurysm rupture, arteritis, microabscesses, and infiltration of meningeal vasculature
- Per 2018 guidelines: For patients with AIS and symptoms consistent with infective endocarditis, treatment with IV alteplase should NOT be administered because of the increased risk of intracranial hemorrhage (Class III, LOE C)

Asaithambi et al, *Stroke* 2013; Power et al, *Stroke* 2018

Mechanical thrombectomy?

- Literature review showed 26 cases of mechanical thrombectomy in infective endocarditis:
  - 50% affected mitral valve
  - Mostly MCA occlusions
  - Successful recanalization in 18 out of 19 reported
  - Median improvement in NIHSS was 12
  - One case of postprocedure vasospasm, otherwise no adverse effects, including ICH

Sloane et al, *Stroke and Cerebrovasc Dis* 2020

Mechanical thrombectomy?

- Study with 28 patients from 5 comprehensive stroke centers: comparison of thrombectomy in patients with endocarditis vs from Afib
  - 28 cases vs 84 matched controls with Afib
  - Successful reperfusion in 85.7%
  - Symptomatic ICH overall was 8%, similar between cases and control
  - 3-month favorable outcome occurred less frequently in endocarditis group

Sibon et al, *Int J Stroke* 2020

Long term management

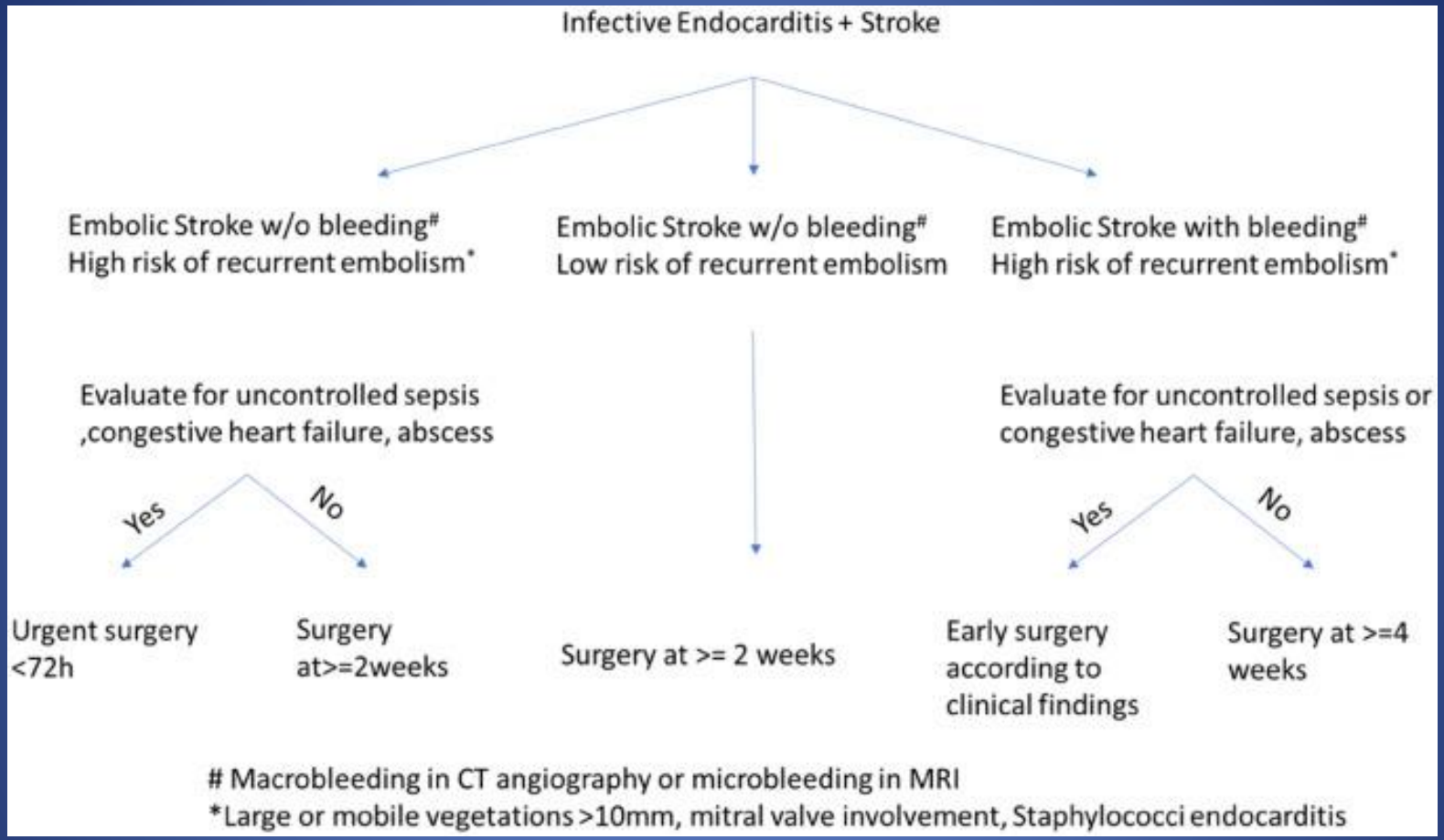
- Main treatment is targeted antibiotic therapy: lowers risk of embolic stroke from up to 50% to 6-21%, with most events occurring in the first two weeks of treatment
- There is no indication for anticoagulation or antiplatelet therapy during active phase of infective endocarditis
- In patients already on oral anticoagulation, replace this by Heparin for at least 2 weeks
- In patients already on antiplatelet therapy, no need to stop in absence of bleeding

Grecu et al, *Maedica* 2014; Sonneville et al, *Ann Intenseive Care* 2011

Neurological complications during cardiac surgery

- About half of patients with infective endocarditis undergo valve replacement during acute phase, associated in some studies with lower mortality
- Anticoagulation during and after cardiac surgery may increase risk of hemorrhage. Hypotension during procedure may also exacerbate ischemia
- Decision for surgery and timing is based on clinical assessment and multidisciplinary discussion

Sonneville et al, *Ann Intensive Care* 2011



Bonaros et al, *Eur Heart J Suppl* 2020

Clues for infective endocarditis on acute presentation

- Diagnosis in chart
- Vegetation on echocardiogram
- Heart murmur on exam
- Bacteremia
- IV antibiotic use (may not know why)
- Septic symptoms/signs
- Other physical exam features

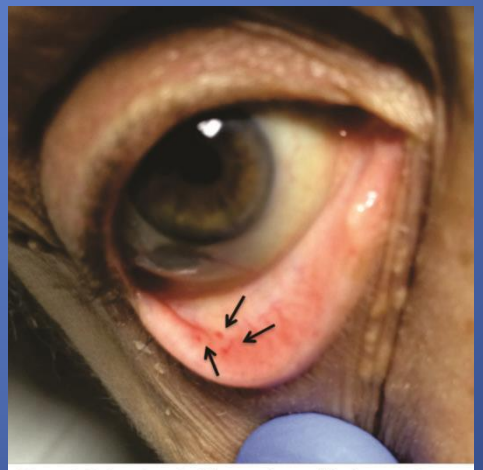


Figure 2. Subconjunctival hemorrhages (black arrows).

Questions?

- Call for help anytime!
- BAT phone: 913-588-3727
- http://www.kissnetwork.us/
- email at sslavin2@kumc.edu