HEADACHE

WHEN TO TAP?

WHEN TO SCAN?

SEMI

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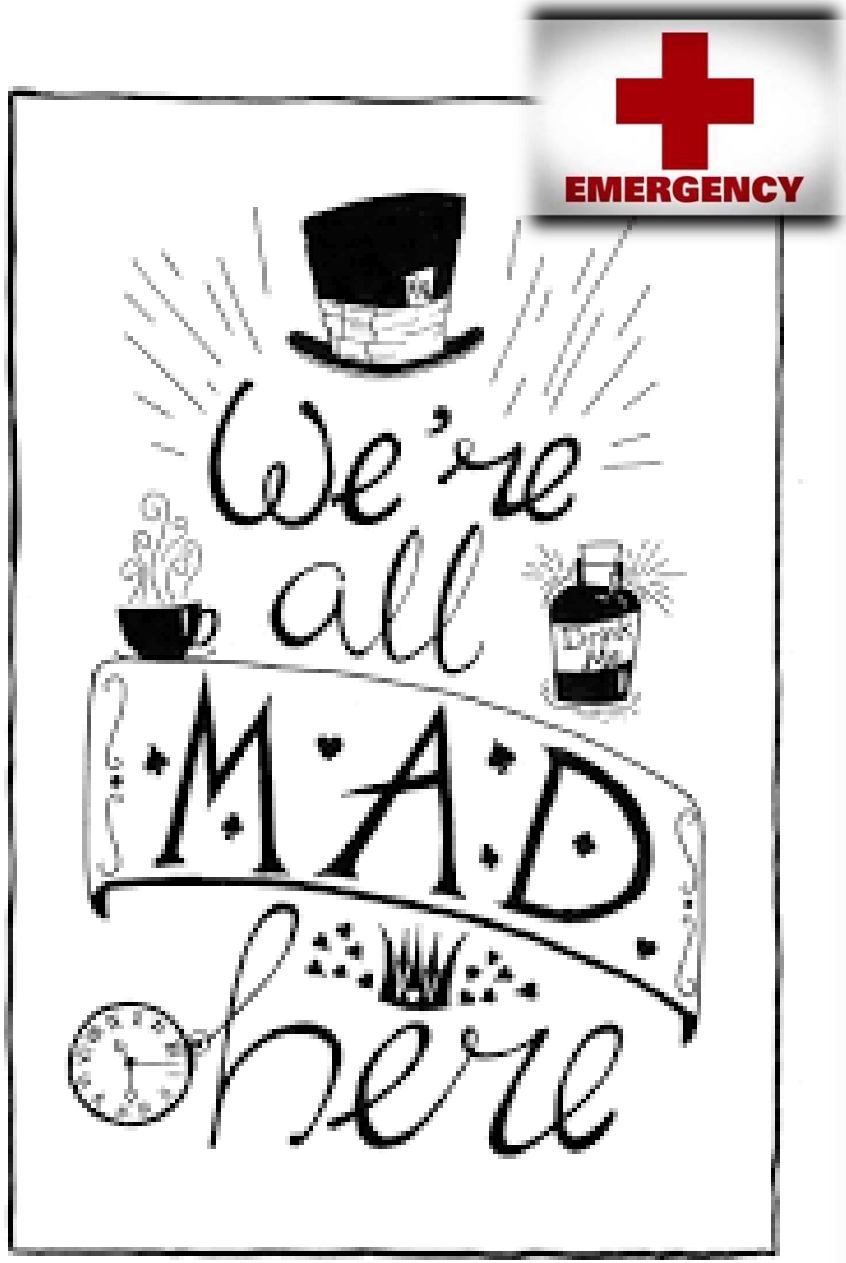
DISCLOSURE


We Are All Mad Here
A Film by Tim Burton
Alice in Wonderland
You're Invited to a Very Important Date 3/5/10
In Theatres, Disney Digital 3D™ and IMAX® 3D.

MY TALK

1. WHEN TO TAP?
2. WHEN TO SCAN?
3. IS THAT ALL?


EMERGENCY
We're all M.A.D. here


We Are All Mad Here
1
Alice in Wonderland
You're invited to a very important date 3/5/10
IN THEATRES, DISNEY DIGITAL 3D™ AND IMAX® 3D.

ED APPROACH HEADACHE

CC: HEADACHE

KILLER HEADACHES

SAH, MENINGITIS, CVST

POTENTIALLY DANGEROUS HEADACHES

MASS, IIH, TEMPORAL ARTERITIS, AC GLAUCOMA, CERVICAL ARTERY DISSECTION, CO POISONING

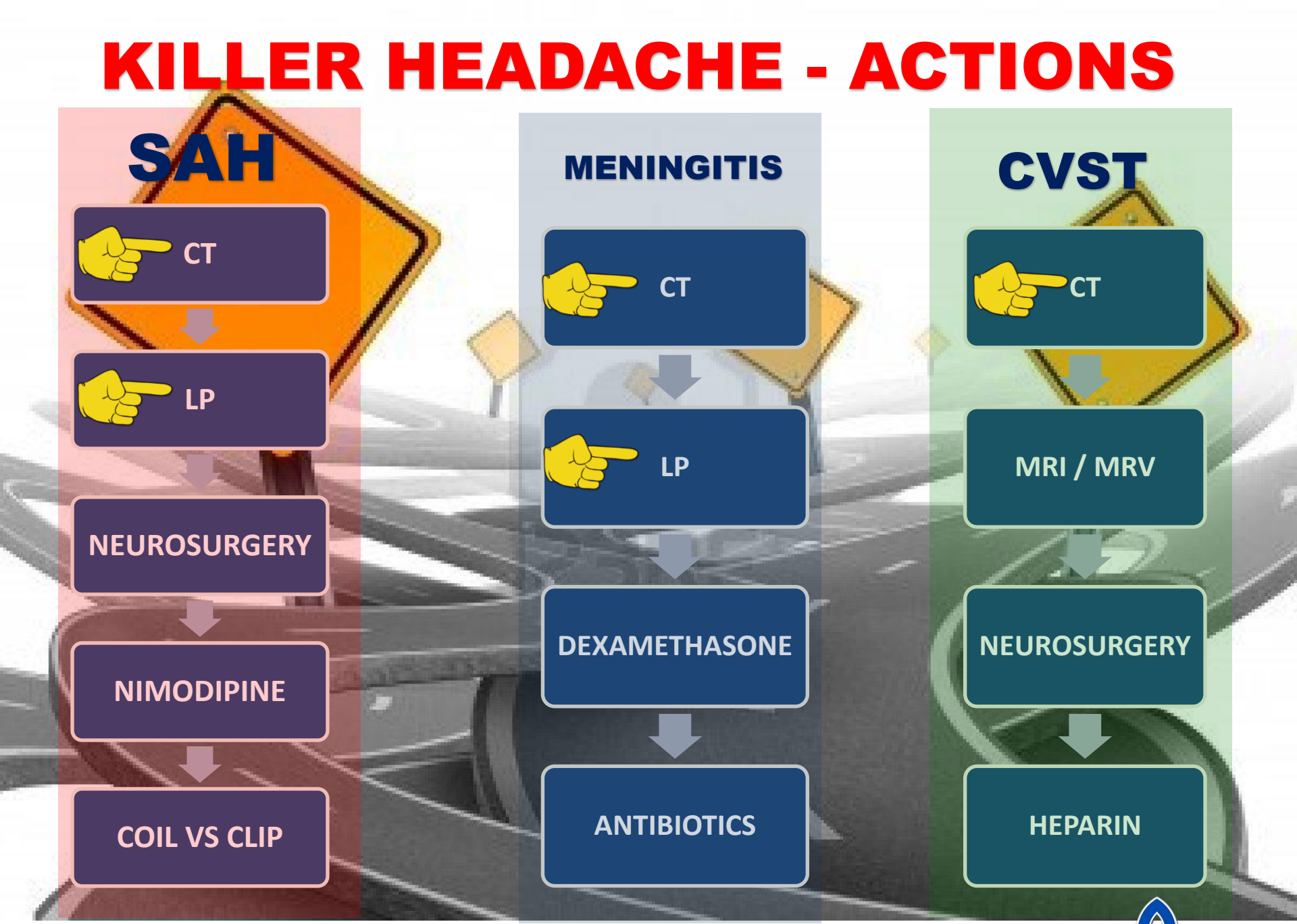
URGENT HEADACHES

AC SINUSITIS, OBSTRUCTIVE HYDROCEPHALUS, POST TRAUMATIC, DRUG RELATED, NEURALGIAS

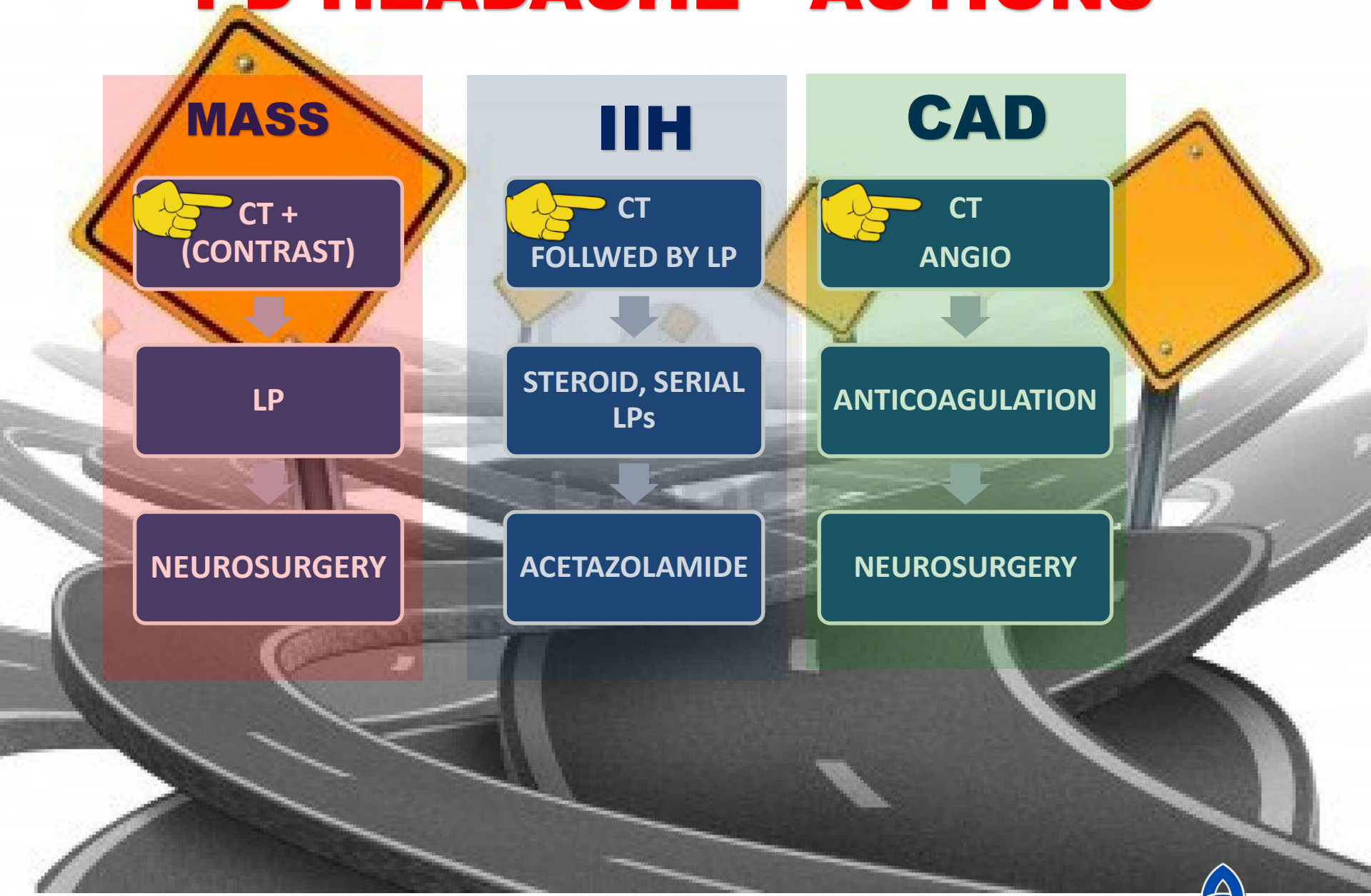
PRIMARY HEADACHES

MIGRAINE, TENSION HEADACHE, CLUSTER HEADACHE

KILLER HEADACHE - ACTIONS



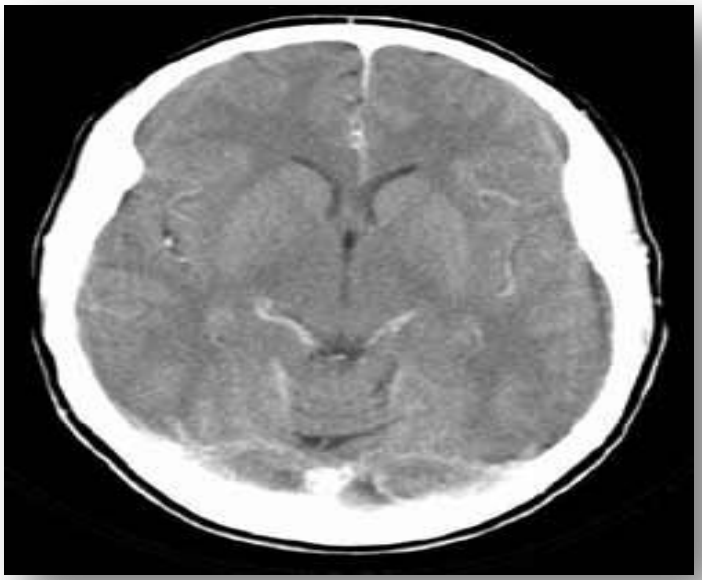
PD HEADACHE - ACTIONS



need to know

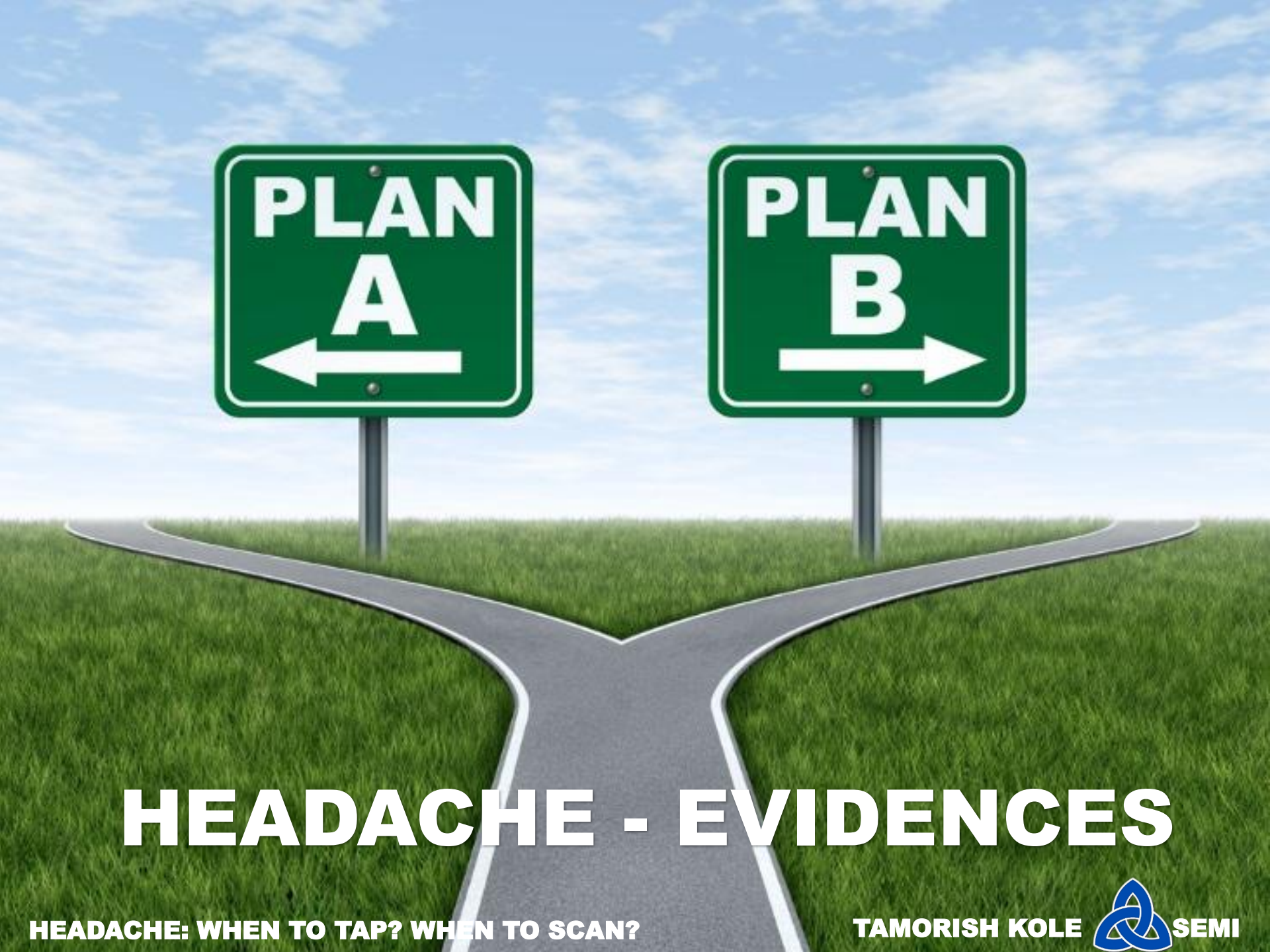
HEADACHE CC:

- SAH
- MENINGITIS
- CVST
- MASS
- IIH
- CAD



"if you don't know where you want to go, then it doesn't matter which path you take."

alice in wonderland



HEADACHE - EVIDENCES

Clinical Policy: Critical Issues in the Evaluation and Management of Adult Patients Presenting to the Emergency Department With Acute Headache

From the American College of Emergency Physicians Clinical Policies Subcommittee (Writing Committee) on Critical Issues in the Evaluation and Management of Adult Patients Presenting to the Emergency Department with Acute Headache:
Jonathan A. Edlow, MD (Chair)
Peter D. Panagos, MD
Steven A. Godwin, MD
Tamara L. Thomas, MD
Wyatt W. Decker, MD

Volume 52, no. 4 : October 2008 Annals *of* Emergency Medicine

Emergency physicians were either "uncomfortable" or "very uncomfortable" with performing a lumbar puncture without a head CT scan in 49.6% patients.

They were "very comfortable" with performing a lumbar puncture with a head CT scan in only 10.2% of patients with acute headache.

Perry JJ, Stiell IG, Wells GA, et al. Attitudes and judgment of emergency physicians in the management of patients with acute headache. *Acad Emerg Med*. 2005;12:33-37.

ACEP 2008 Headache Clinical Policy: Clinical Questions and Guideline Recommendations

Methodology: Recommendation Strength

Level A recommendations.

Generally accepted principles for patient management that reflect a high degree of clinical certainty (ie, based on strength of evidence Class I or overwhelming evidence from strength of evidence Class II studies that directly address all of the issues).

Level B recommendations.

Recommendations for patient management that may identify a particular strategy or range of management strategies that reflect moderate clinical certainty (ie, based on strength of evidence Class II studies that directly address the issue, decision analysis that directly addresses the issue, or strong consensus of strength of evidence Class III studies).

Level C recommendations.

Other strategies for patient management that are based on preliminary, inconclusive, or conflicting evidence, or in the absence of any published literature, based on panel consensus.

ACEP 2008 Headache Clinical Policy: Clinical Questions and Guideline Recommendations

Does a response to therapy predict the etiology of an acute headache?

Which patients with headache require neuroimaging in the ED?

Does lumbar puncture need to be routinely performed on ED patients being workedup for nontraumatic subarachnoid hemorrhage whose noncontrast brain computed tomography (CT) scans are interpreted as normal?

In which adult patients with a complaint of headache can a lumbar puncture be safely performed without a neuroimaging study?

Is there a need for further emergent diagnostic imaging in the patient with sudden-onset, severe headache who has negative findings in both CT and lumbar puncture?

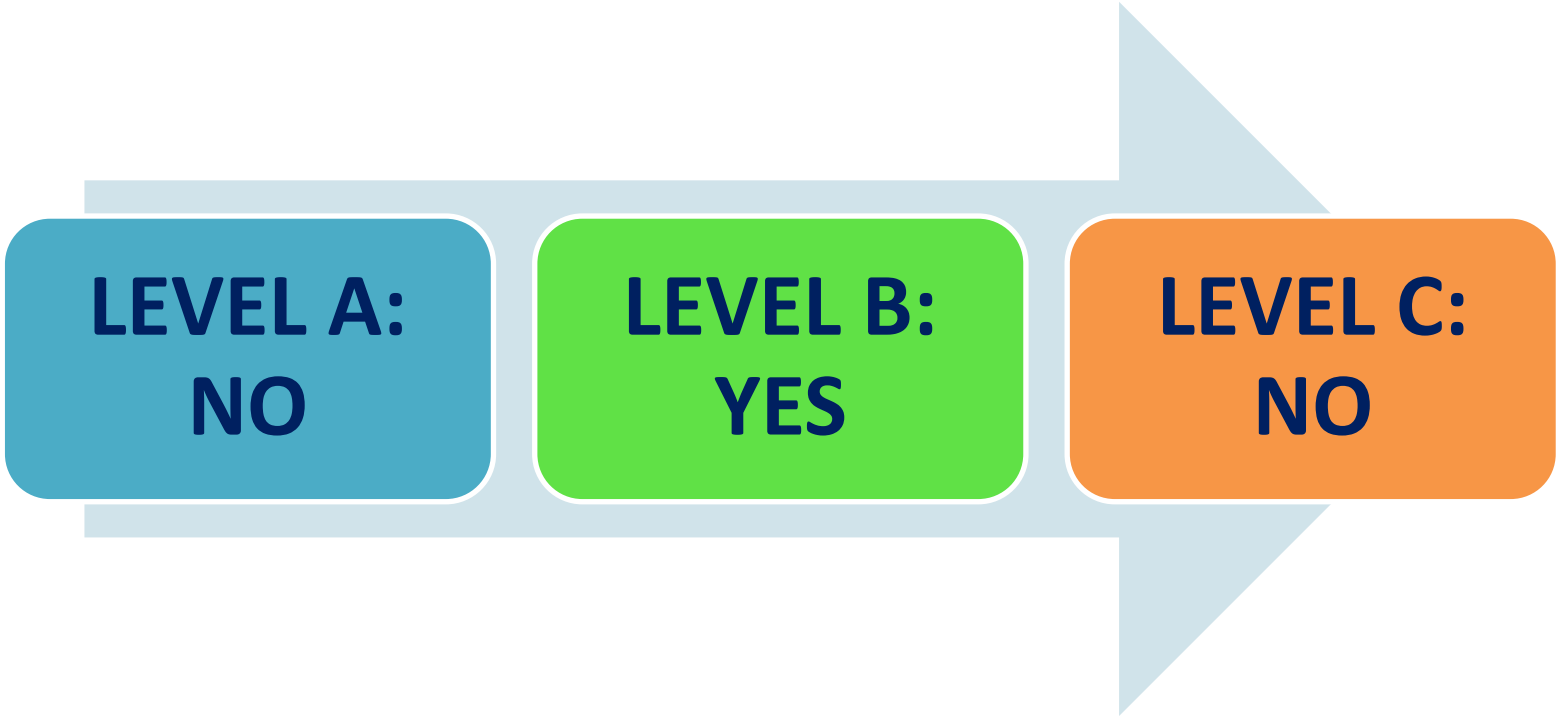
MY TALK

1

WHEN TO TAP?

ACEP 2008 Headache Clinical Policy: Clinical Questions and Guideline Recommendations

3. Does lumbar puncture need to be routinely performed on ED patients being worked up for non-traumatic subarachnoid hemorrhage whose non-contrast brain CT scans are interpreted as normal?



ACEP 2008 Headache Clinical Policy: Clinical Questions and Guideline Recommendations

3. Does lumbar puncture need to be routinely performed on ED patients being worked up for non-traumatic subarachnoid hemorrhage whose non-contrast brain CT scans are interpreted as normal?

LEVEL B: YES

In patients presenting to the ED with sudden-onset, severe headache and a negative noncontrast head CT scan result, lumbar puncture should be performed to rule out subarachnoid hemorrhage.

ACEP 2008 Headache Clinical Policy: Clinical Questions and Guideline Recommendations

3. Does lumbar puncture need to be routinely performed on ED patients being worked up for non-traumatic subarachnoid hemorrhage whose non-contrast brain CT scans are interpreted as normal?

CT- ED

LIMITATIONS

- The technical inability of scanners to identify small hemorrhages in areas obscured by artifact or bone
- The inability to diagnose idiopathic intracranial hypertension, meningitis, or carotid or vertebral artery dissection, some cases of cerebral venous sinus thrombosis and pituitary apoplexy, and spontaneous intracranial hypotension
- The varied levels of expertise of the reader
- Spectrum bias in small-volume subarachnoid haemorrhage
- Decreased sensitivity for blood in the setting of anemia
- Decay in sensitivity with time.

ACEP 2008 Headache Clinical Policy: Clinical Questions and Guideline Recommendations

4. In which adult patients with a complaint of headache can a lumbar puncture be safely performed without a neuroimaging study?

LEVEL A: NO

LEVEL B: NO

LEVEL C: YES

ACEP 2008 Headache Clinical Policy: Clinical Questions and Guideline Recommendations

4. In which adult patients with a complaint of headache can a lumbar puncture be safely performed without a neuroimaging study?

LEVEL C: YES

Adult patients with headache and exhibiting signs of increased intracranial pressure (eg, papilledema, absent venous pulsations on funduscopic examination, altered mental status, focal neurologic deficits, signs of meningeal irritation) should undergo a neuroimaging study before having a lumbar puncture.

In the absence of clinical findings suggestive of increased intracranial pressure, a lumbar puncture can be performed without obtaining a neuroimaging study.

ACEP 2008 Headache Clinical Policy: Clinical Questions and Guideline Recommendations

4. In which adult patients with a complaint of headache can a lumbar puncture be safely performed without a neuroimaging study?

Adult patients with headache and exhibiting signs of increased intracranial pressure (eg, papilledema, absent venous pulsations on funduscopic examination, altered mental status, focal neurologic deficits, signs of meningeal irritation) should undergo a neuroimaging study before having a lumbar puncture.

1) CT prior to lumbar puncture is a common clinical practice.
2) Subtle signs of increased ICP that are not clinically evident may be detected on CT, causing the lumbar puncture to be deferred.
3) Papilledema may not be reliably noted in routine clinical practice.
4) CT can detect other headache etiologies besides those that are diagnosed by LP.

MY TALK

WHEN TO SCAN?

ACEP 2008 Headache Clinical Policy: Clinical Questions and Guideline Recommendations

2. Which patients with headache require neuroimaging in the ED?

LEVEL A: NO

LEVEL B: YES

LEVEL C: YES

ACEP 2008 Headache Clinical Policy: Clinical Questions and Guideline Recommendations

2. Which patients with headache require neuroimaging in the ED?

Emergent studies are those essential for a timely decision regarding potentially life-threatening or severely disabling entities.

Urgent studies are those that are arranged prior to discharge from the ED (scan appointment is included in the disposition) or performed prior to disposition when follow-up cannot be assured.

Routine studies are indicated when the study is not considered necessary to make a disposition in the ED.

ACEP 2008 Headache Clinical Policy: Clinical Questions and Guideline Recommendations

2. Which patients with headache require neuroimaging in the ED?

LEVEL B: YES

1. Patients presenting to the ED with headache and new abnormal findings in a neurologic examination (eg, focal deficit, altered mental status, altered cognitive function) should undergo emergent non-contrast head CT.

2. Patients presenting with new sudden-onset severe headache should undergo an emergent head CT.

3. HIV-positive patients with a new type of headache should be considered for an emergent neuroimaging study.

ACEP 2008 Headache Clinical Policy: Clinical Questions and Guideline Recommendations

2. Which patients with headache require neuroimaging in the ED?

LEVEL C: YES

Patients who are older than 50 years and presenting with new type of headache but with a normal neurologic examination should be considered for an urgent neuroimaging study

MY TALK

3

IS THAT ALL?

ACEP 2008 Headache Clinical Policy: Clinical Questions and Guideline Recommendations

5. Is there a need for further emergent diagnostic imaging in the patient with sudden-onset, severe headache who has negative findings in both CT and lumbar puncture?

LEVEL A: NO

LEVEL B: YES

LEVEL C: NO

ACEP 2008 Headache Clinical Policy: Clinical Questions and Guideline Recommendations

5. Is there a need for further emergent diagnostic imaging in the patient with sudden-onset, severe headache who has negative findings in both CT and lumbar puncture?

LEVEL B: YES

Patients with a sudden-onset, severe headache who have negative findings on a head CT, normal opening pressure, and negative findings in CSF analysis do not need emergent angiography and can be discharged from the ED with follow-up recommended.

ACEP 2008 Headache Clinical Policy: Clinical Questions and Guideline Recommendations

5. Is there a need for further emergent diagnostic imaging in the patient with sudden-onset, severe headache who has negative findings in both CT and lumbar puncture?

Patients with a sudden-onset, severe headache who have negative findings on a head CT, normal opening pressure, and negative findings in CSF analysis do not need emergent angiography and can be discharged from the ED with follow-up recommended.

The CT and LP testing regimen is adequately sensitive for the diagnosis of SAH.

This diagnostic approach is a reasonable standard of care, not requiring further testing.

The medical literature includes over 800 patients in case series that had no sequelae related to SAH when the CT and LP are negative for CNS hemorrhage.

If emergent angiography, CTA, or MRA were used when the CT and LP were negative in ED headache patients, then false positive findings such as incidental non-leaking aneurysms or vasospasm could be detected, making final disposition difficult.


EMERGENCY


How long is
Forever?
Sometimes,
just one
Second.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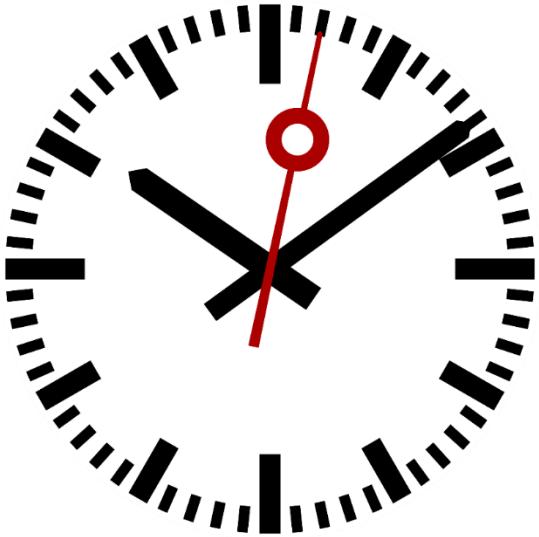


CT TIMINGS IN HEADACHE

CT within 6 hours (BMJ 2011;343:d4277)

i. Overall CT sensitivity is 93% (Sensitivity after 6h is 86%)

ii. CT **within 6 hours** of HA onset → Sensitivity 100%, Specificity 100%, NPV 100%

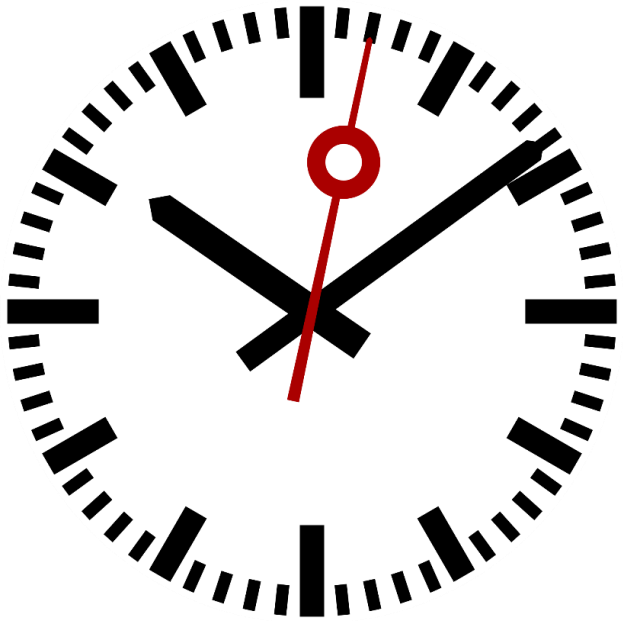
iii. Prospective cohort study

CT within 6 hours (Stroke 2012;43:2115)

i. CT within6 hours of HA onset → Sensitivity 100% with 2 caveats

ii. Caveat1: <6h rule only applies to pts with HA (not neck pain)

iii. Caveat2: Experienced neuroradiologists needed to interpret CT



LP TIMINGS IN HEADACHE

Timing: Results depends on timing of HA (J Emerg Med 2002;23:67-74)

<12h:

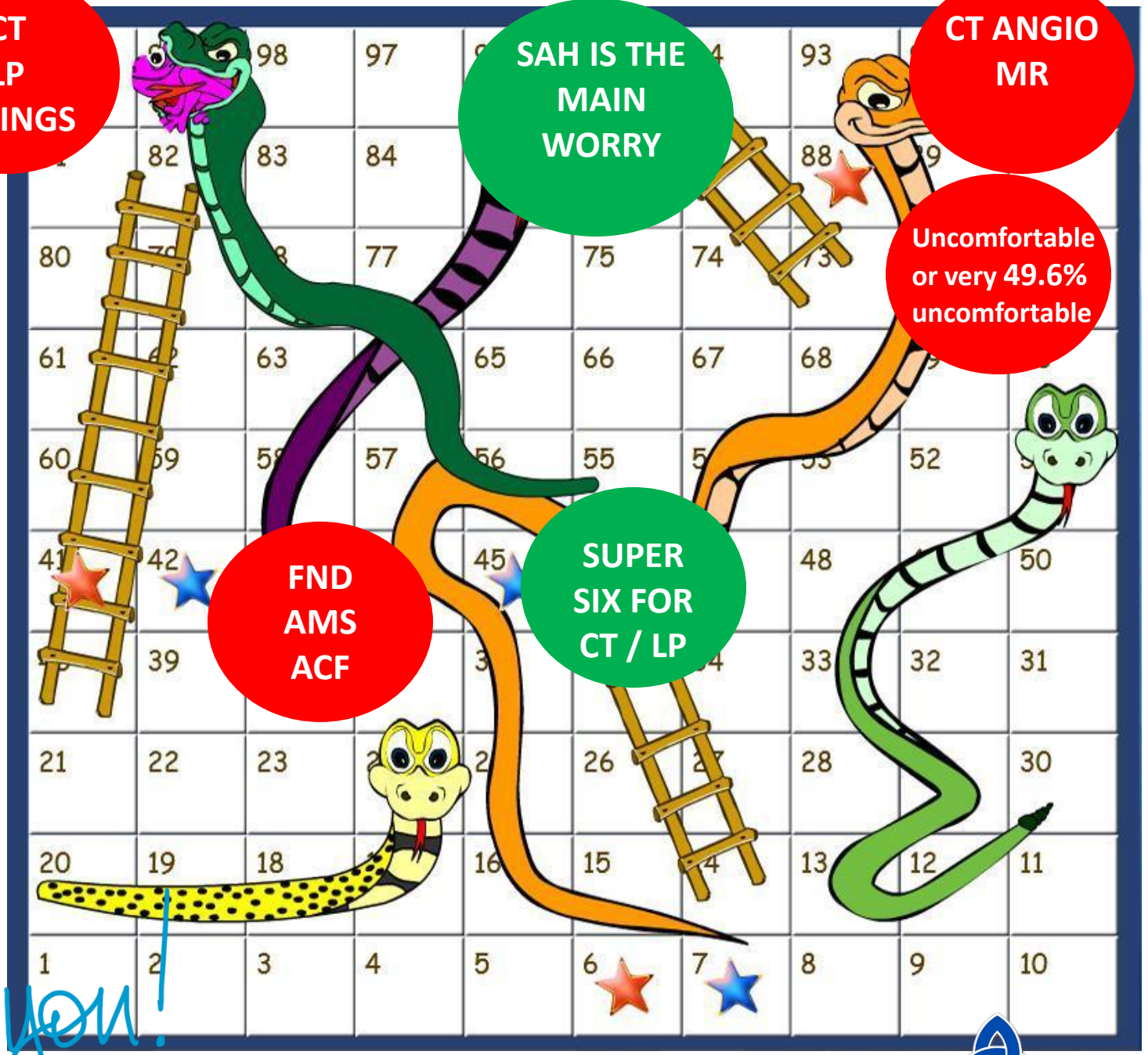
- ✓ Xanthochromia may/may not be present; large RBCs should be present
- ✓ Incompletely clearing RBCs?? (if suspected traumatic tap → repeat at different interspace)

12h-2weeks:

- ✓ Xanthochromia highly suggestive of SAH; large RBC +/- present

>2weeks: Both may be absent.

SUMMARY



thank you!

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