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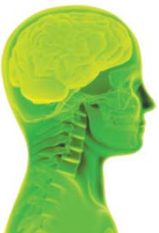
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Center for Children's Health

Pediatric  
Brain and Spine Center



Barry E. Kosofsky, MD, PhD  
Adapted from Wayne Blount, MD

- ▶ Primary care perspective
- ▶ The approach to a child with headache
- ▶ Types of headaches
- ▶ Who gets what work-up
- ▶ Who needs a referral
- ▶ Who needs brain imaging

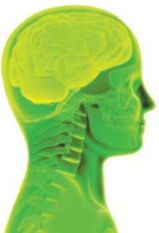


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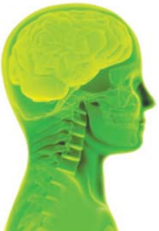
- ▶ Guidelines and recommendations are for adults
- ▶ No Pediatricians on panel
- ▶ Kids can't describe pain as well as adults
- ▶ Same type H/A presents differently in kids



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- ▶ Acute
- ▶ Acute Recurrent
- ▶ Chronic Progressive
- ▶ Chronic non–progressive
- ▶ Mixed



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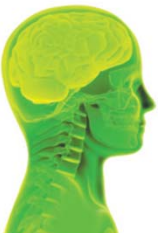
# History Physical Labs Imaging



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- ▶ The 7 characteristics of EVERY symptom
- ▶ Most important one of the 7 for H/As
- ▶ H/A Diary (“month at a glance”)



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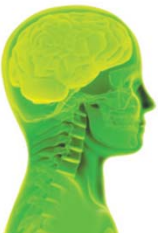
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▶ HEENT

- TRAUMA
- INFECTION

▶ COMPLETE NEURO EXAM

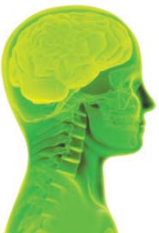


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- ONLY 2 OF 150 CHILDREN HAD OCCIPITAL H/As & BOTH HAD POSTERIOR FOSSA TUMORS
- > 60% OF CHILDREN WITH SURGICALLY REMEDIABLE CONDITIONS WERE UNABLE TO DESCRIBE THEIR PAIN: A SIGN OF DECREASED VERBAL SKILL & MENTAL STATUS?
- ALL KIDS WITH SERIOUS PATHOLOGIC PROCESSES HAD NEUROLOGIC SIGNS



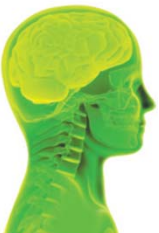
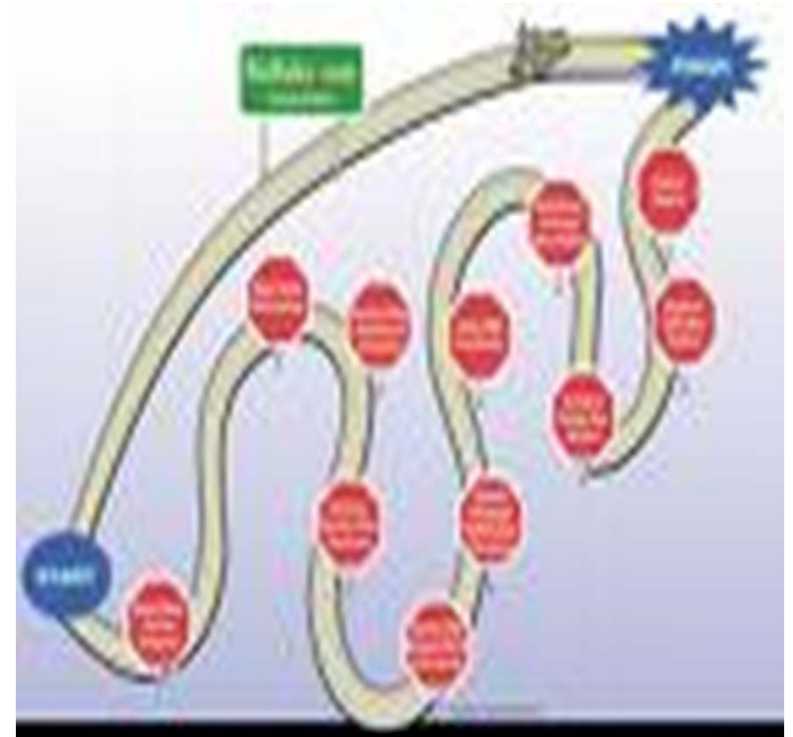
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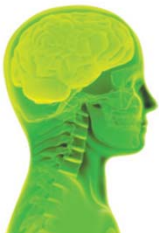
- ▶ Acute
- ▶ Acute recurrent
- ▶ Chronic progressive
- ▶ Chronic non–progressive



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○ Viral Illness	39.2%
○ Sinusitis	16%
○ Migraine	15.6%
○ Post-traumatic	6.6%
○ Viral meningitis	5.2%
○ Strp Pharyngitis	4.9%
○ Tension	4.5%
○ Other	7.7%

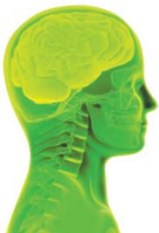


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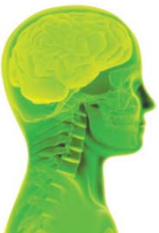
- ▶ SERIOUS NEUROLOGICAL DISEASES ARE FOUND IN 6 – 7 % OF PEDIATRIC H/As
- ▶ All had abnormal findings on Hx or P.E.



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- ▶ Cephalic Infections
  - (Meningitis, Encephalitis & Brain abscess)
- ▶ Non-cephalic Infections
  - Most Common Reason
- ▶ Trauma
  - 29% kids with head trauma had HA
- ▶ Unruptured AVM
  - 12/100,000
  - “Thunderclap”

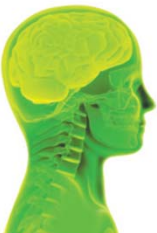


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- HTN: Overcalled
- Change in ICP: Neurologic exam
- Cavernous Vein Thrombosis: Neurologic exam
- Drugs: H2 blockers, steroids, TCN, ETOH, CO, OCPs, TMP–SMZ, MSG, Nifedipine, Cocaine, XTC and ‘Club Drugs’
- Stroke: Neurologic exam
- Ocular Disease: Uveitis, Glaucoma

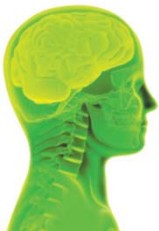
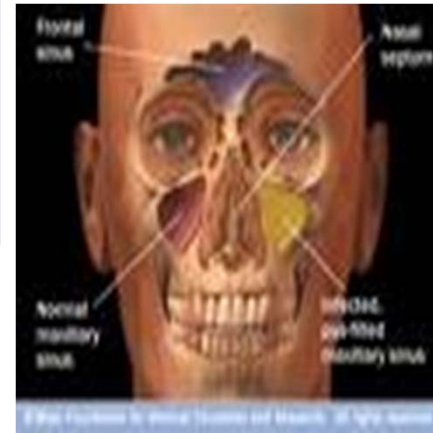
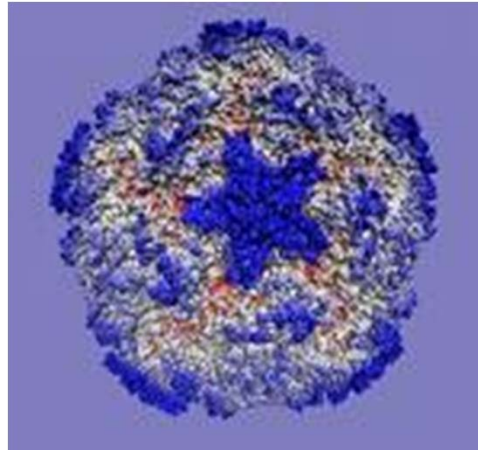


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- ▶ Viral
- ▶ Sinusitis
- ▶ Pharyngitis
- ▶ Ocular

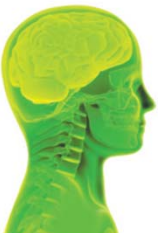


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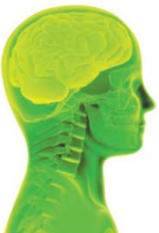


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## ▶ Migraine vs. Tension-type

- Both Can Be:
  - Episodic
  - Bilateral
  - No aura
  - Brought on by stress
  - Assoc with neck pain
- But Distinguishable: Check FH, H/O Car Sickness, Food Triggers, Noise And Light Sensitivity, Nausea/Vomiting

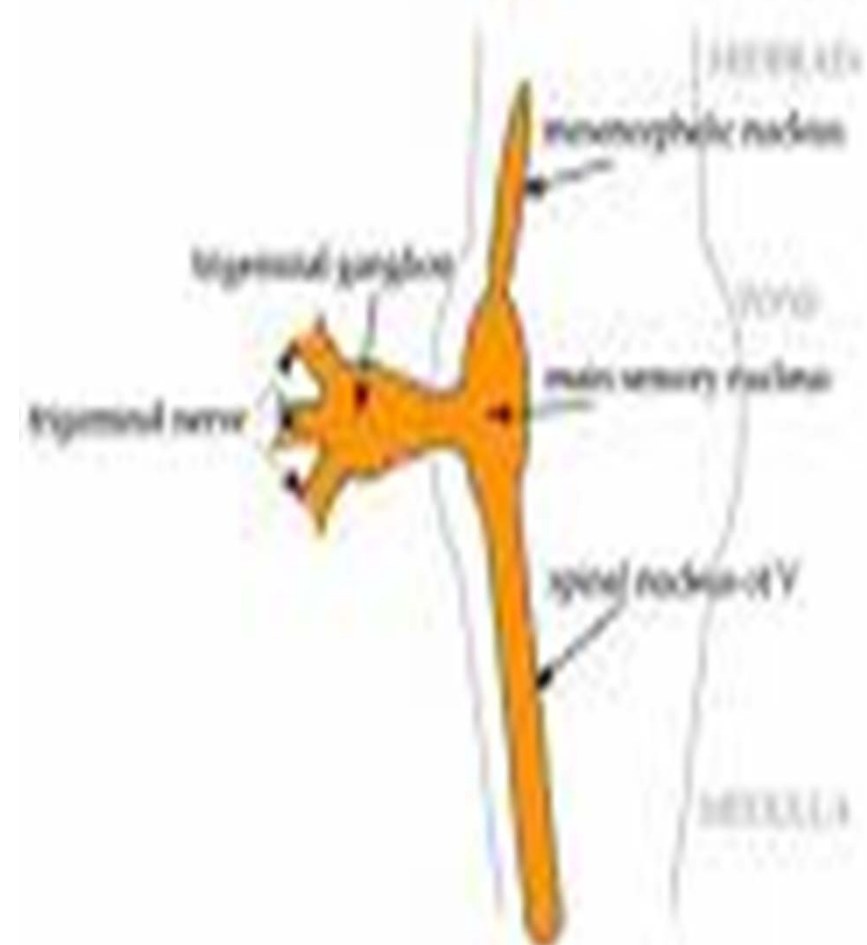


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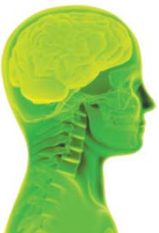
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- ▶ Receives Afferent messages and acts as a sensory relay center
- ▶ Explains referral of pain to various locations

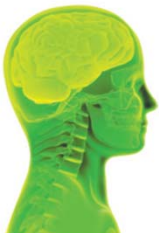
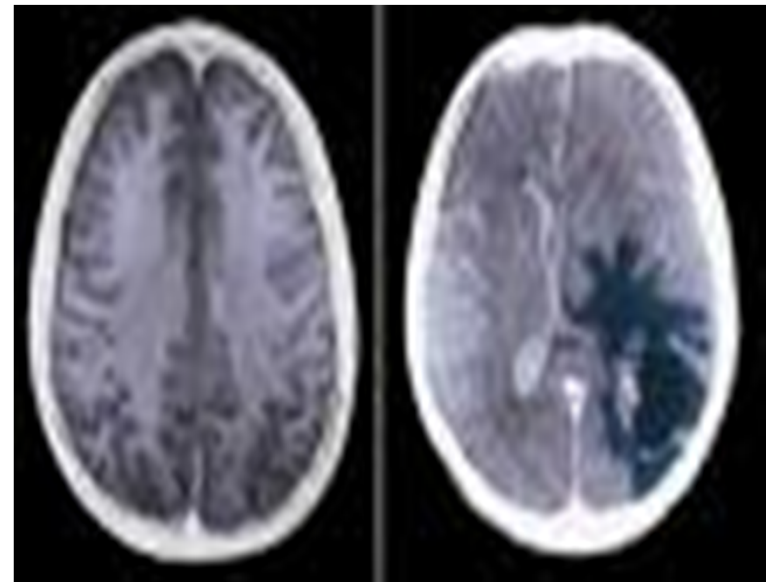


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## ► Tumors

- Positional (H/As worse at night and in early AM)
- Focality
- Change in growth pattern
- Change in vision
- Little things make it worse

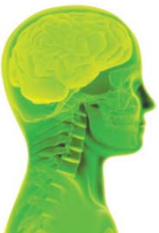


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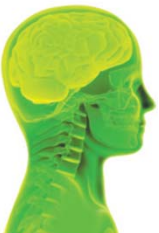
- ▶ Chronic Daily H/A
  - ▶ Chronic Tension
  - ▶ New Persistent
  - ▶ Hemicrania Continua
- 
- ▶ Let a pediatric neurologist make these diagnoses




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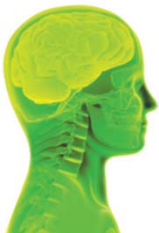
- ◉ Not very many
- ◉ EEG very seldom helpful
- ◉ Neuroimaging usually not helpful
- ◉ (NYC) Parents may insist
- ◉ **RED FLAGS**



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- ▶ Systemic sx or Secondary risk factors
- ▶ **Neuro signs: the main reason**
- ▶ Onset: Thunderclap
- ▶ Older: Adults > 50 y.o.
- ▶ Previous H/A hx: 1<sup>st</sup> H/A or different H/A

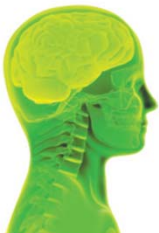


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- ◉ Presence of VP shunt
- ◉ Presence of Neurocutaneous Syndrome :
  - > Neurofibromatosis
  - > Tuberous sclerosis
- ◉ HA or emesis on awakening
- ◉ Meningeal signs
- ◉ Unvarying location of HA
- ◉ Age < 3 y.o.
- ◉ Chronic progressive pattern

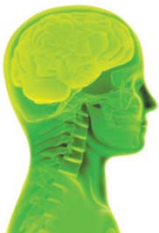


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- ▶ Sleep Hygiene: Too little, too much, chaotic
- ▶ Avoid Dietary Triggers:
  - Unsubstantiated, but easy, reasonable, cooperative
- ▶ Look for triggers
- ▶ Behavioral Relaxation
- ▶ Pharmacologic Rx



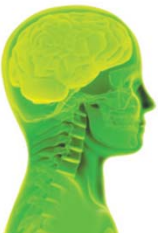
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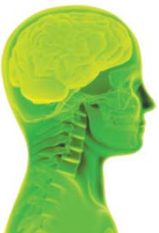
- ▶ Depends on cause:
  - Treat Infections
  - Migraine vs. Tension




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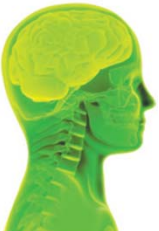
- ◉ Acetaminophen: 15 mg/kg/dose
- ◉ Ibuprofen: 7.5 mg/kg/dose
- ◉ Naproxen (or other NSAID)



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- ▶ Check PDR for FDA approval
- ▶ Studies in kids:
  - Sumatriptan
  - Zolmitriptan
  - Rizatriptan



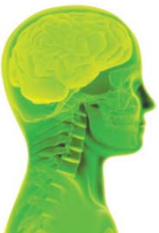
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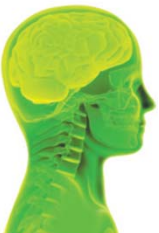
- ▶ Promethazine
- ▶ Prochlorperazine
- ▶ Metoclopramide
- ▶ Hydroxyzine



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- ▶ Give early
- ▶ Give enough
- ▶ Give for long enough:
  - Note length of usual attack from hx
  - Don't use a 4-hr med for an 8-hr H/A
- ▶ Make Rx available
- ▶ Avoid narcotics



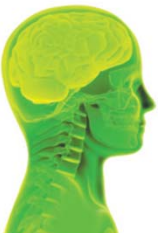
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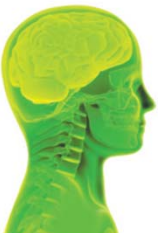
- ▶ < 30 % WILL NEED IT
- ▶ > 3 H/As PER MONTH
- ▶ DEARTH OF EVIDENCE IN KIDS
- ▶ EXTRAPOLATED FROM ADULT STUDIES



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- ▶ Cyproheptadine : 0.25–1.5 mg/kg
- ▶ Tricyclics : 1 mg/kg/day
- ▶ Beta-blockers
- ▶ NSAIDs
- ▶ Calcium channel blockers
- ▶ Anticonvulsants

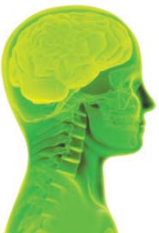


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- ▶ Unclear DX
- ▶ Complicated psychosocial dynamics
- ▶ Treatment not working
- ▶ Parental request

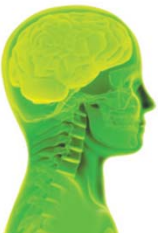


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- Rely on Hx & P.E.
- Use H/A patterns
- Think Common, but remember the rare
- Test when needed
- Tailor treatment to H/A pattern based on frequency and disability
- Refer when needed

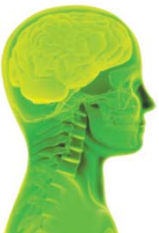


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# • QUESTIONS ?



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