Management Headaches in Children and Adolescents

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Board Member of IHS

Disclosures

- Co-opted Trustee of IHS
- Representative of Pediatric SIG of IHS
- Chair of GMPS
- Lecturer of Novartis, Allergan, TEVA, Lilly, Abdi İbrahim İlaç, Ali Raif İlaç
- Headache Advisory Board of Novartis, Allergan, TEVA, Lilly

Changing life styles…

New life style !

Headache & Under 18 yrs of age

- Not only headache
- Also
  - Abdominal dyscomfort
  - Dizziness, vertigo
  - Motion sickness
  - Behavioural disturbances
  - Sleep disturbances
  - Medical comorbidities (atopy, epilepsy, psychiatric disorders, rheumatological disorders, vascular comorbidities, etc)

Additional sources of anamnesis

- Teacher observation
- Nanny observation
- Friend observation
- **Headache diary**
- **Picture of headache**
- Neuropsychological evaluation by professional's
- Social worker observations

History checklist

- **L**ocation of maximum pain
- **Q**uality – allow child to use own words
- **I**ntensity – assessed by effect on behaviour
- **D**uration of headache attacks
- **F**requency of headache attacks
- **O**ther symptoms – loss of appetite, nausea, vomiting, light and noise intolerance
- **E**ffects of activities – physical, education and pleasure

Observation of the children

- Behavior > words
- For example;
  - Could not watch TV during headache attack is this mean that child has photophobia and phonophobia, severe headache attack?
  - Withdraw playing for a while, mean that agravated headache attacks by physical activity
  - Could not eat anything in mornings mean that having a nausea and highly supported migraine
  - Frequent sniffle because of frequent rhino sinusitis mean that possible association between migraine and atopic disorders

Define diagnosis
Episodic Headaches

- Tension type headache
- Migraine without aura (90%)
- Migraine with aura (10 to 15%)
  - Visual * (commonest)
  - Parasthesia
  - Vestibular symptoms (brainstem aura)
  - Hemiparesis (motor aura)
  - Dysphasia (motor aura)
- Rare entities/Short duartion
  - Trigeminal autonomic cephalgia (TAC) eg Cluster
  - Primary stabbing headache

Migraine

1.1 Migraine without aura

1.2 Migraine with aura

- 1.2.1 Migraine with typical aura
- 1.2.2 Migraine with brainstem aura
- 1.2.3 Hemiplegic migraine

1.3 Chronic migraine

1.4 Complications of migraine

1.5 Probable migraine (all criteria save one)

1.6 Periodic syndromes or episodic syndromes closely related to migraine

Case 1: 9 year-old girl

Headache for 5 months

- 1-2 attacks per month
- Attacks last 3 to 4 hours
- Pain is severe enough to stop activities
- Headache is throbbing and mainly bi-frontal , rarely unilateral

No aura symptoms

Associated symptoms

- Loss of appetite
- Nausea
- Light, noise and odor intolerance
- Motion sickness

Relieving factors

- Rest, sleep, massage, cold compress
- Paracetamol

* Normal neurological examination

Migraine without aura (ICHD-3)

At least 5 headaches lasting **2-72 hours** plus

Some shorter

At least two of the following:

- Unilateral location
- Pulsating quality
- Moderate or severe intensity
- Aggravation by walking or similar routine activity

>50% bilateral

Many can't describe pain

Infer intensity from behaviour

At least one of the following

- Nausea and/or vomiting
- Photophobia and phonophobia

Nausea 90%, vomiting 60%

Sleep or massage helps

Pallor or atypical cranial autonomic features

Migraine with typical aura (ICHD-3)

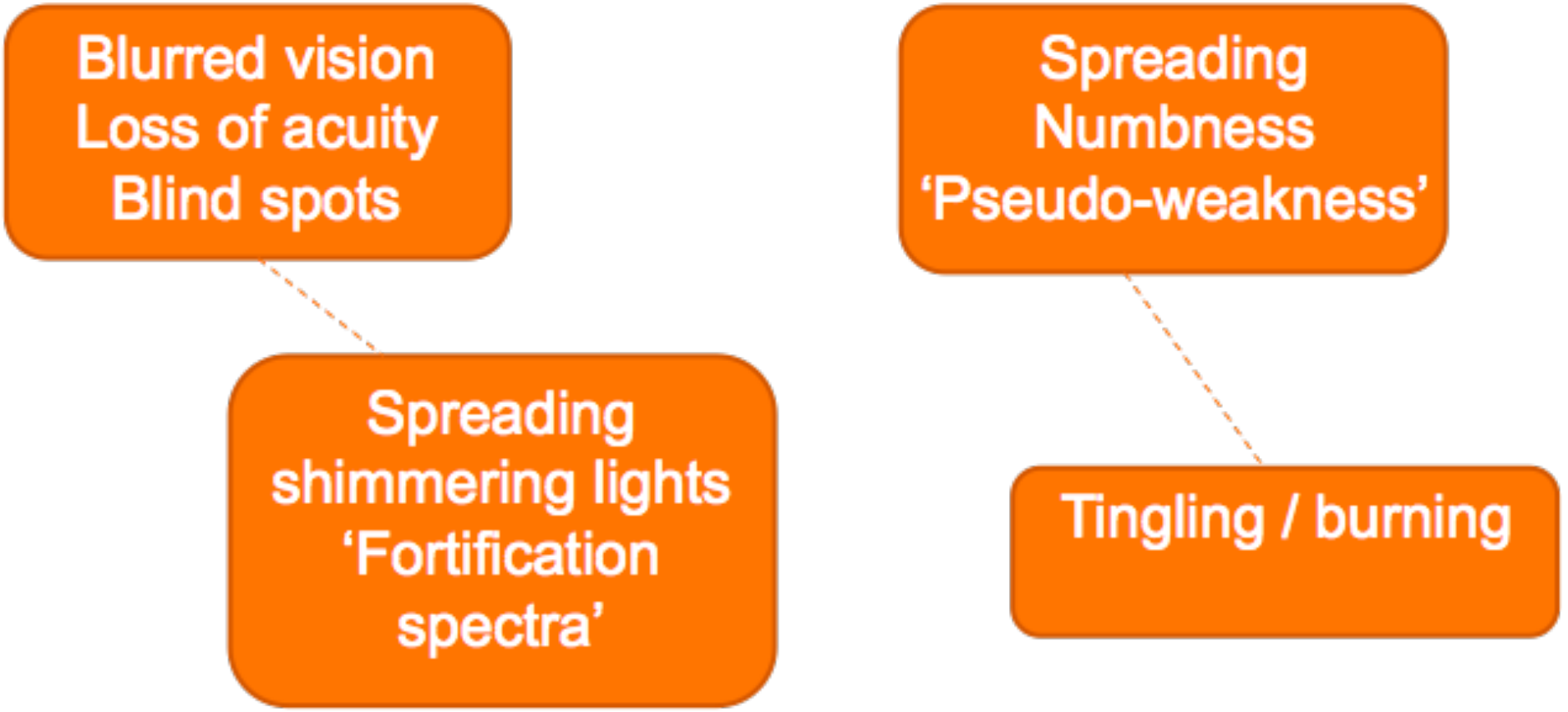
At least **2** attacks of headache with aura as below

The aura consists of visual, sensory, speech symptoms commonly or rarely unilateral motor, brainstem or retinal symptoms

Aura consists of 3 / 4 of the following:

- symptoms develop over >5 min and / or in succession
- each symptom lasts less than than 60 minutes
- at least one aura symptom is unilateral
- headache follows aura within 60 minutes

Migraine with 'typical aura'



Not a 'typical' aura

Rapid onset of aura (seconds)

Genuine Weakness

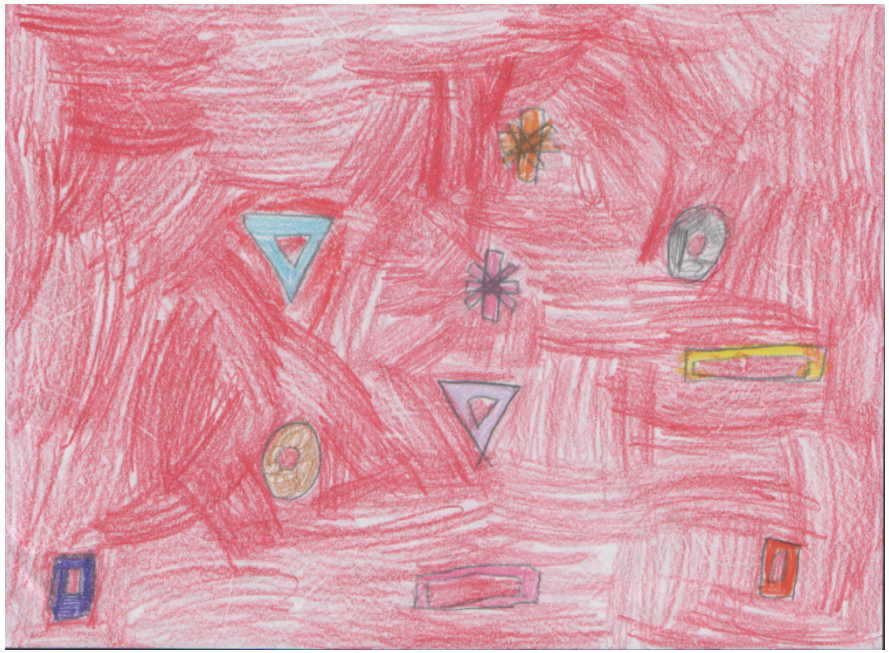
Aura > 60 mins

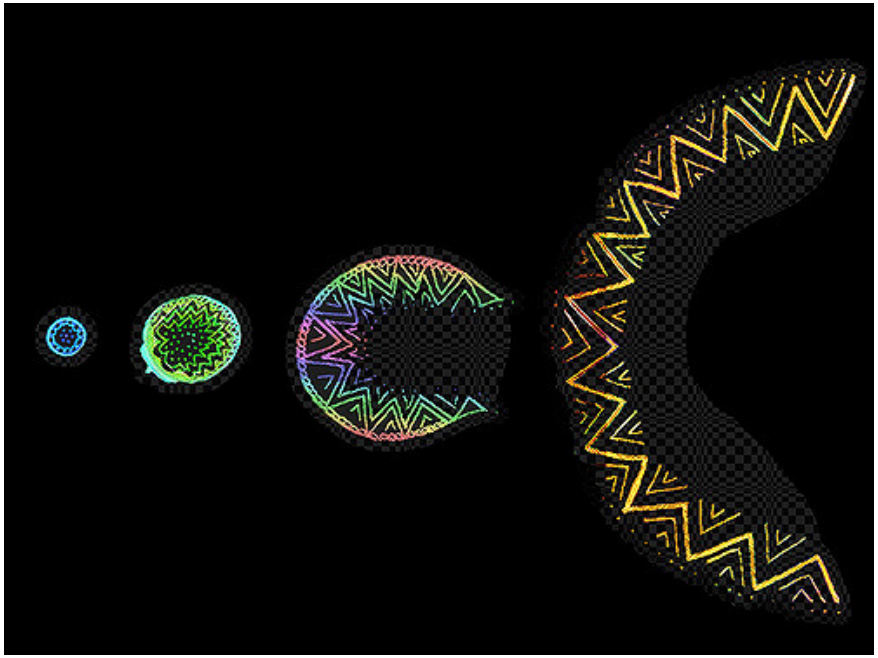
Diplopia
Vertigo
Dysarthria
Coma

No headache

Symptoms of disordered perception = 'Alice in Wonderland'

Which one is the migraine aura?





Case 2: 13 year-old boy

2 vertigo and vomiting attacks 6 months apart

Initial symptoms

- Room-spinning
- Tinnitus and drowsiness

Headache

- Severe, bifrontal, throbbing

Associated symptoms

- Nausea and vomiting
- Phonophobia
- Motion sickness
- Positive family history of migraine

Relieving factors

- Sleep helps

Examination between attacks

- Normal

Migraine with brainstem aura

- Commonly seen in patients who also have migraine with typical aura
- ICHD-3 require that 2 attacks have to have occurred, and suggest excluding TIAs

dysarthria
vertigo
tinnitus / hypoacusis
diplopia
ataxia
decreased level of consciousness

	Migraine in Adult	Migraine in Children	TTH in Children
Site	Temporal	Frontal	Frontal
Laterality	Unilateral	Bilateral	Bilateral
Pain	Moderate to severe	Mild to severe	Mild to Severe
Time	4 to 72 Hours	Minutes to hours	Minutes to hours
Nature of pain	Throbbing/Stabbing	Any form	“Band like”/Compressive
Associated symptoms	Nausea or Vomiting Photophobia or Phonophobia	Not always	No associated symptoms
Aura	1/3	Rare	Not present
Disability	High	High	Mild to moderate

Secondary causes of acute headache in children and adolescents

A. Any headache fulfilling criterion C

B. A ed to be able to cau

C. E t least two of the follo

1 n to the onset e p

2

with improvemer of

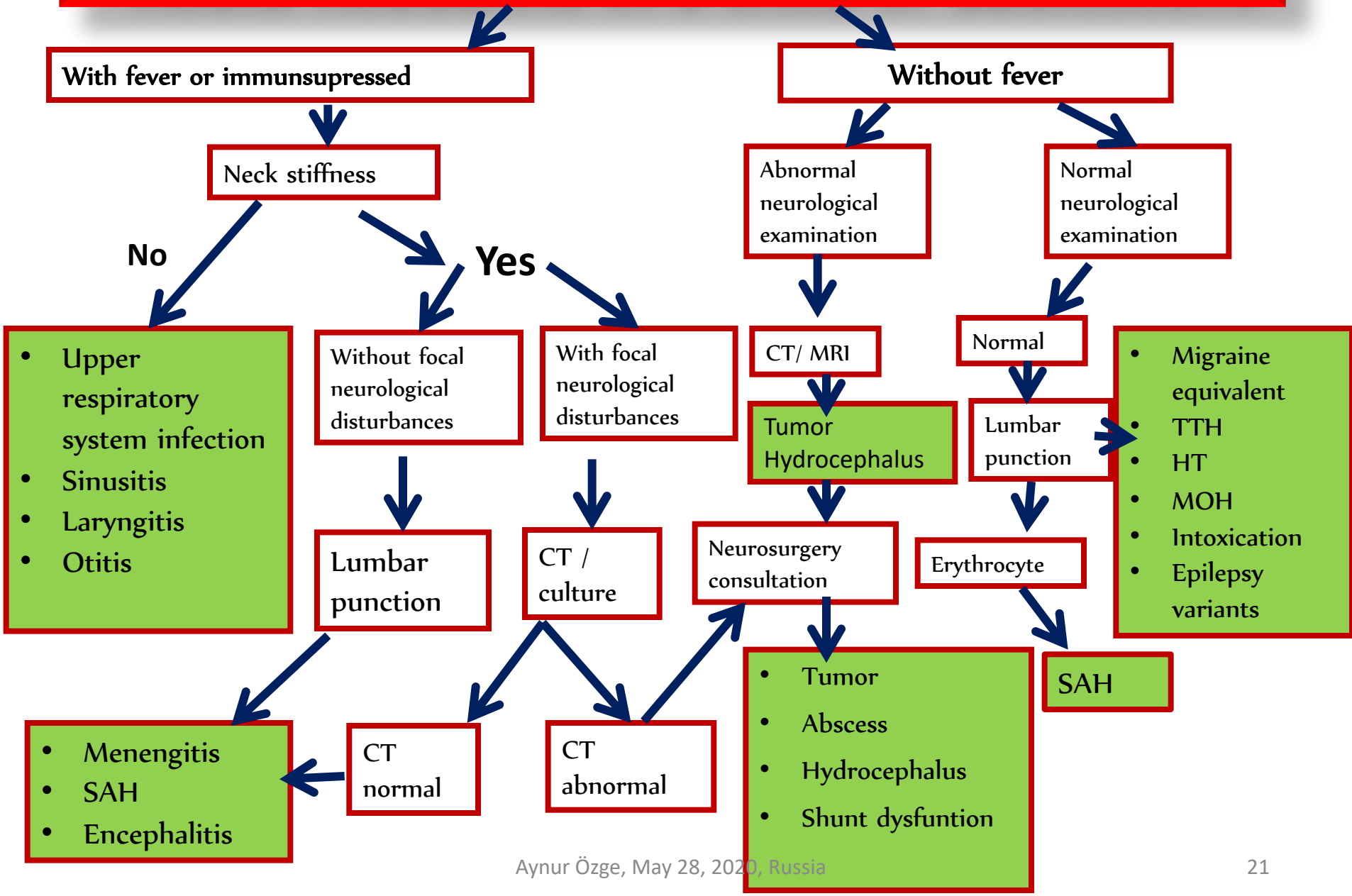
3 causative disorder

4

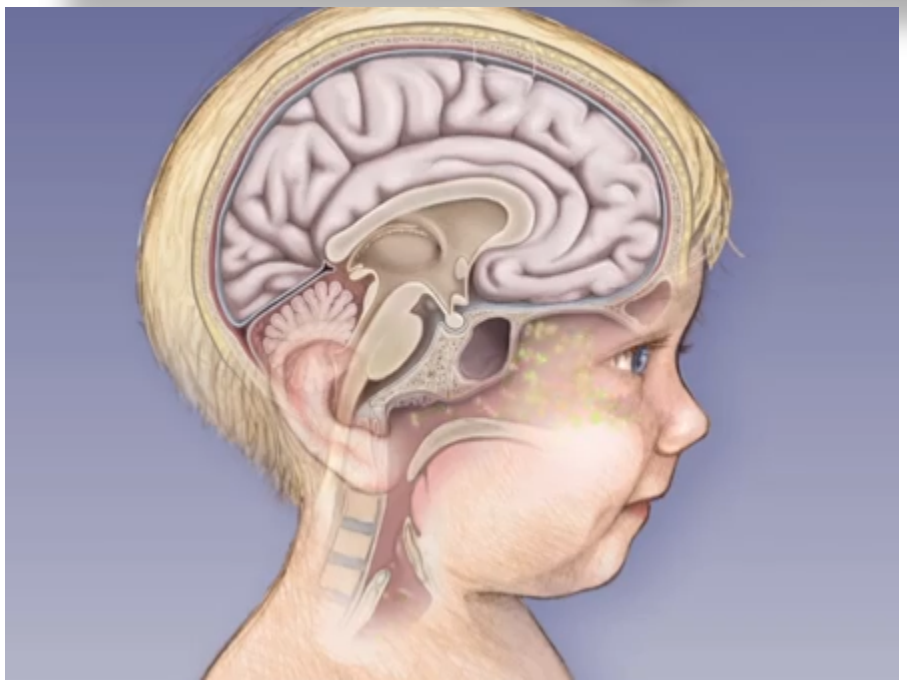
D. Not better accounted for by another ICHD-3 diagnosis.

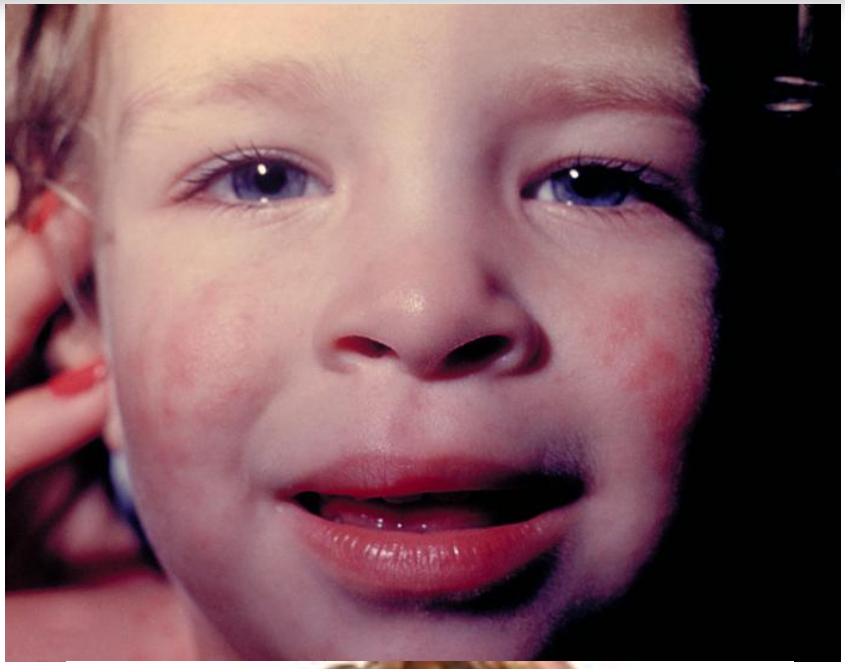
Differentiate a cause of secondary headache disorders

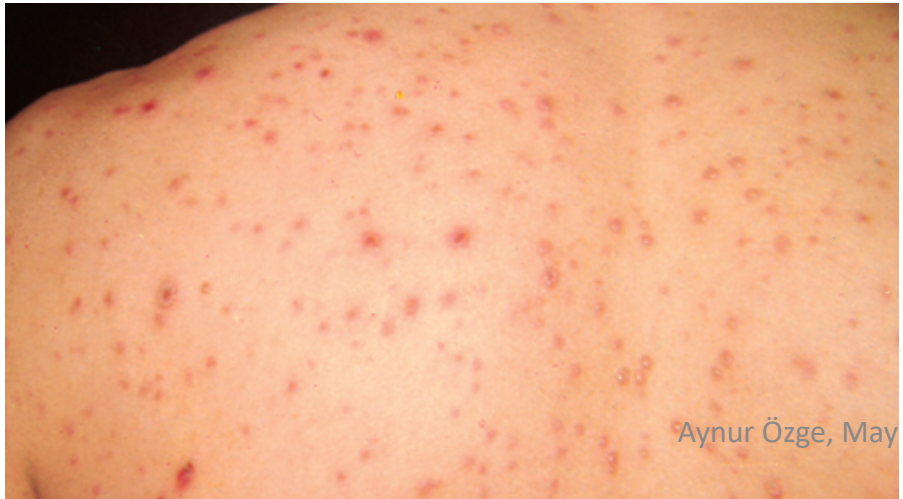
Acute headache in a child or adolescent



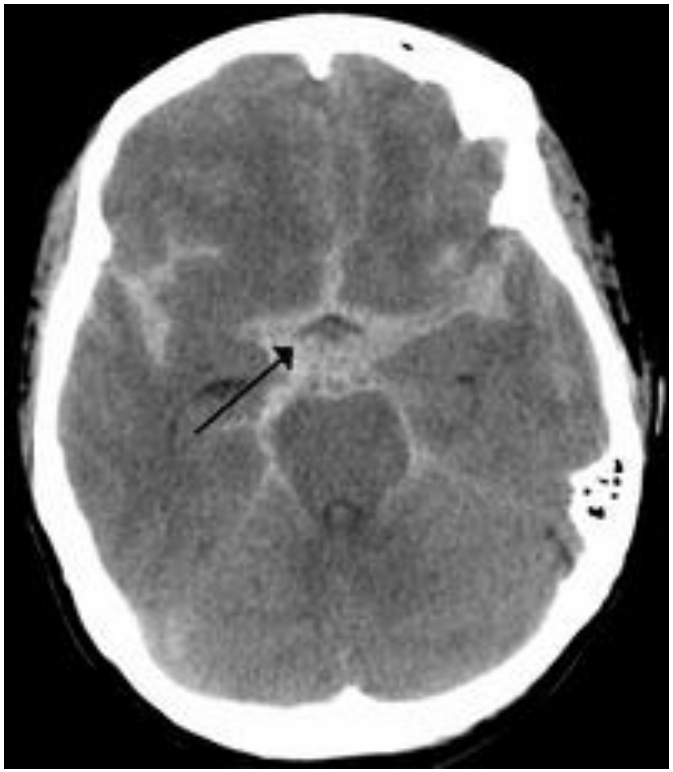
Meningitis & Encephalitis

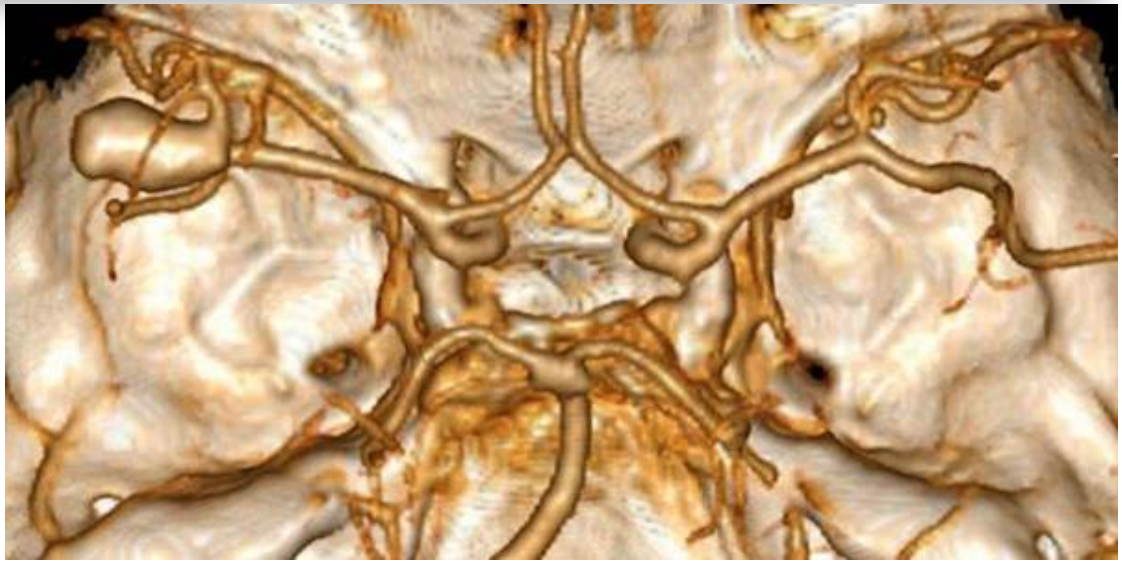


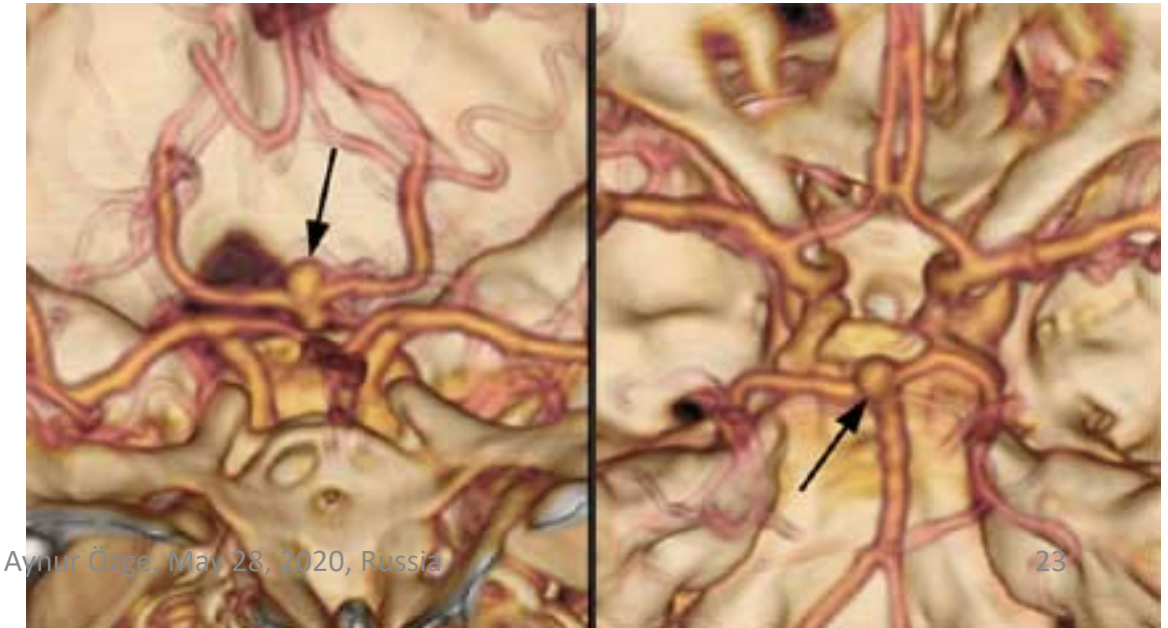




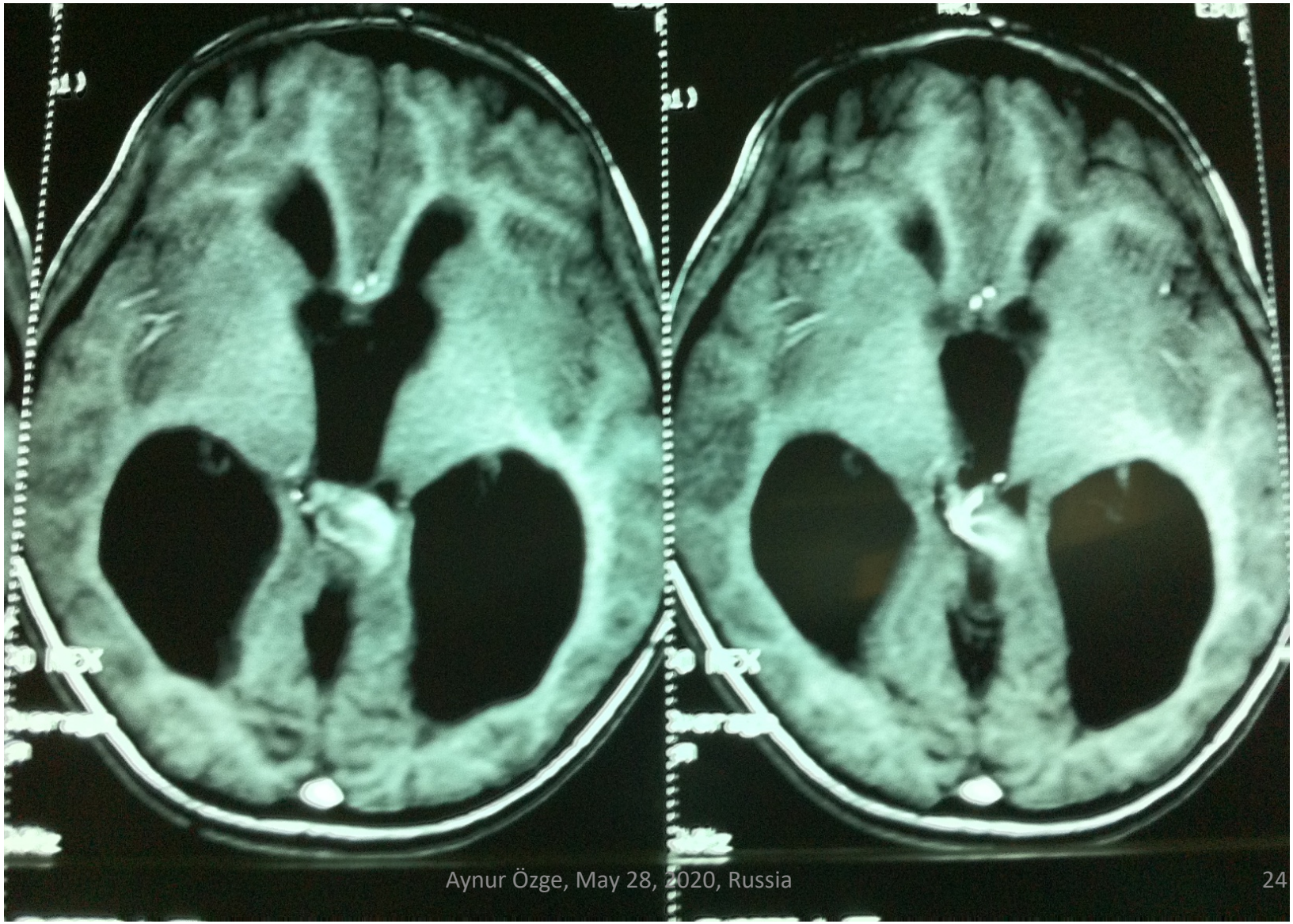
Paediatric SAH

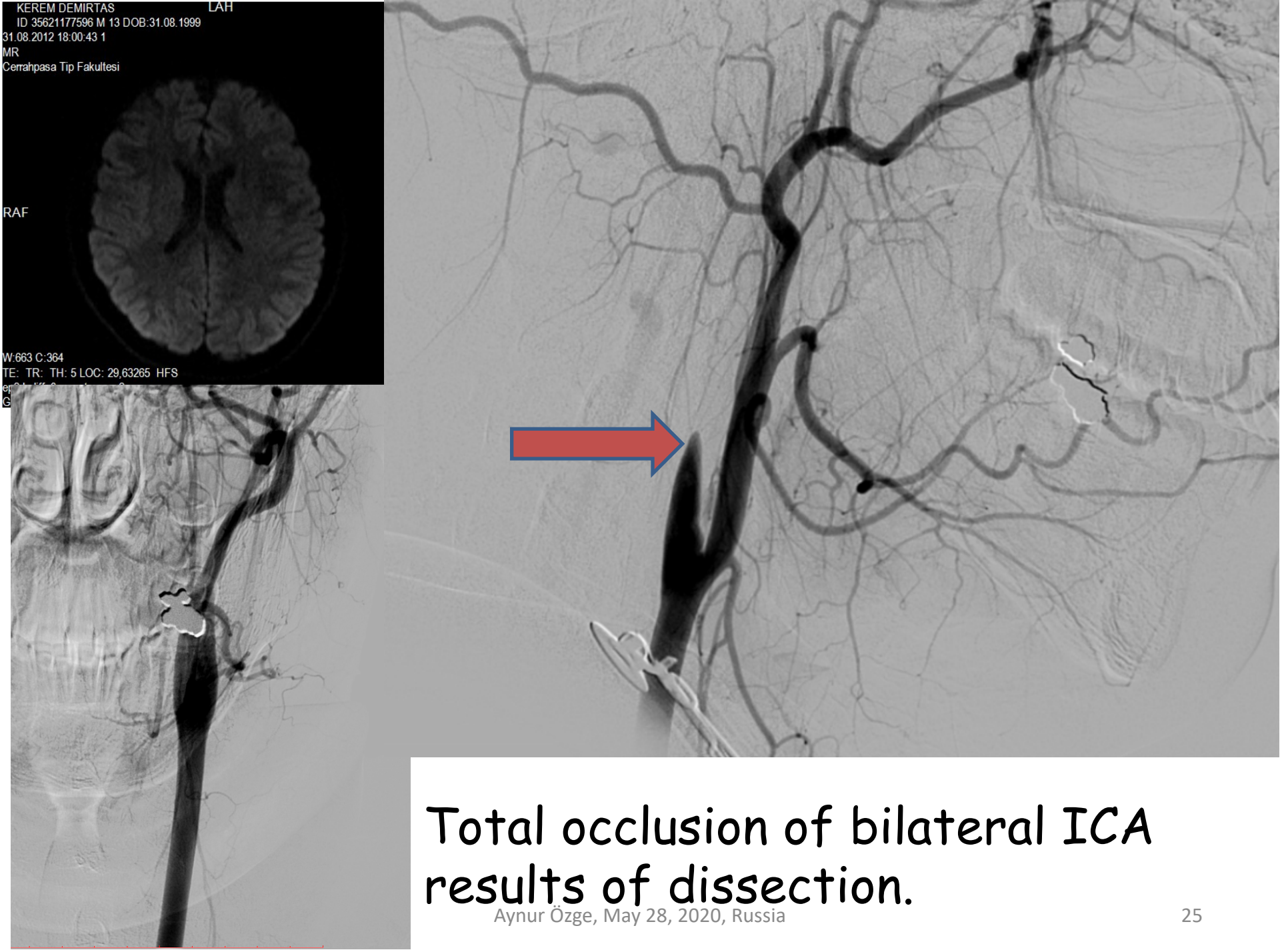






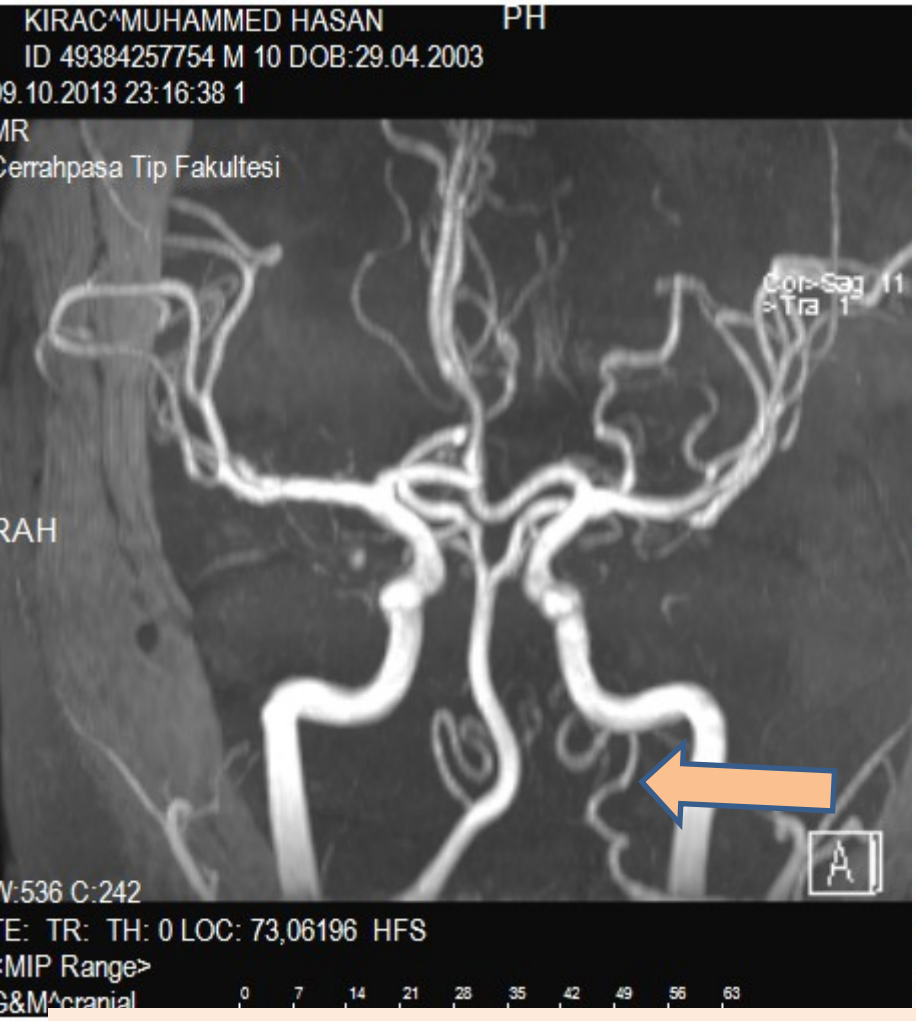
Galen vein aneurysm

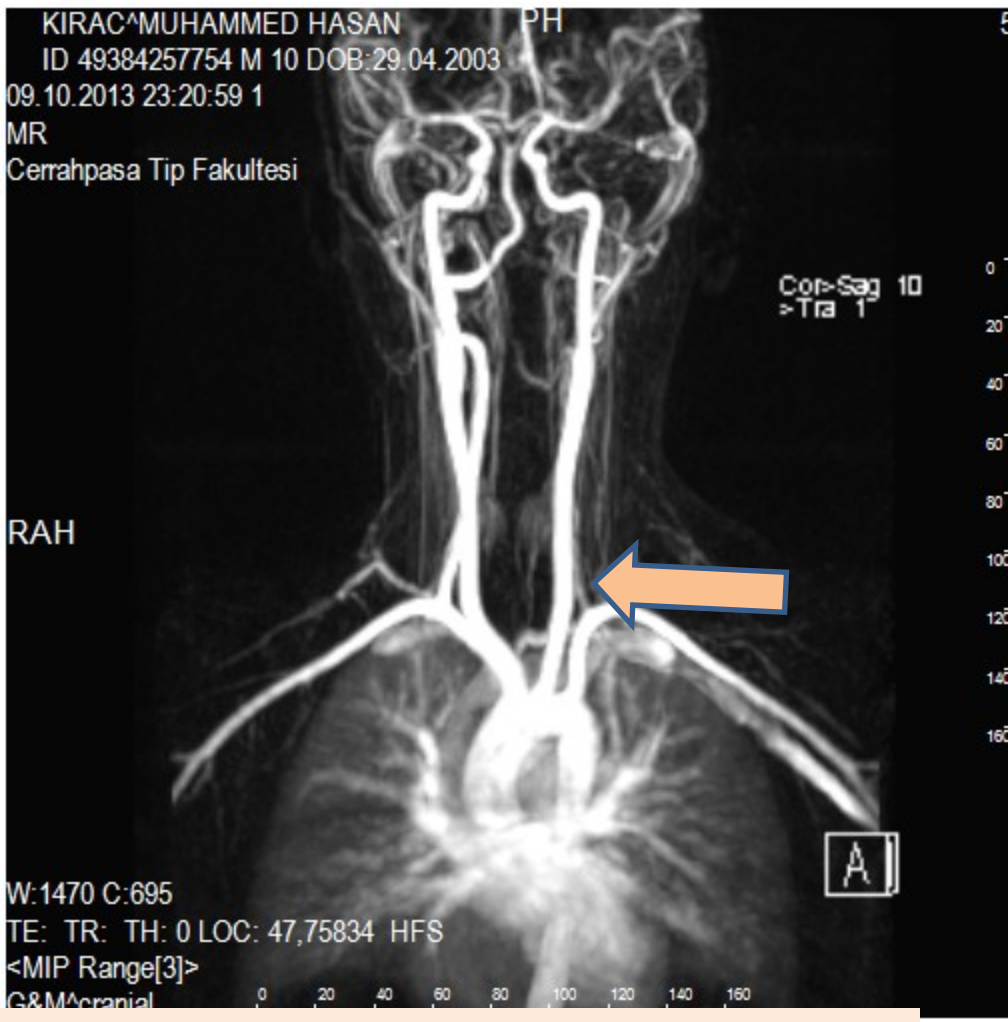




Total occlusion of bilateral ICA results of dissection.

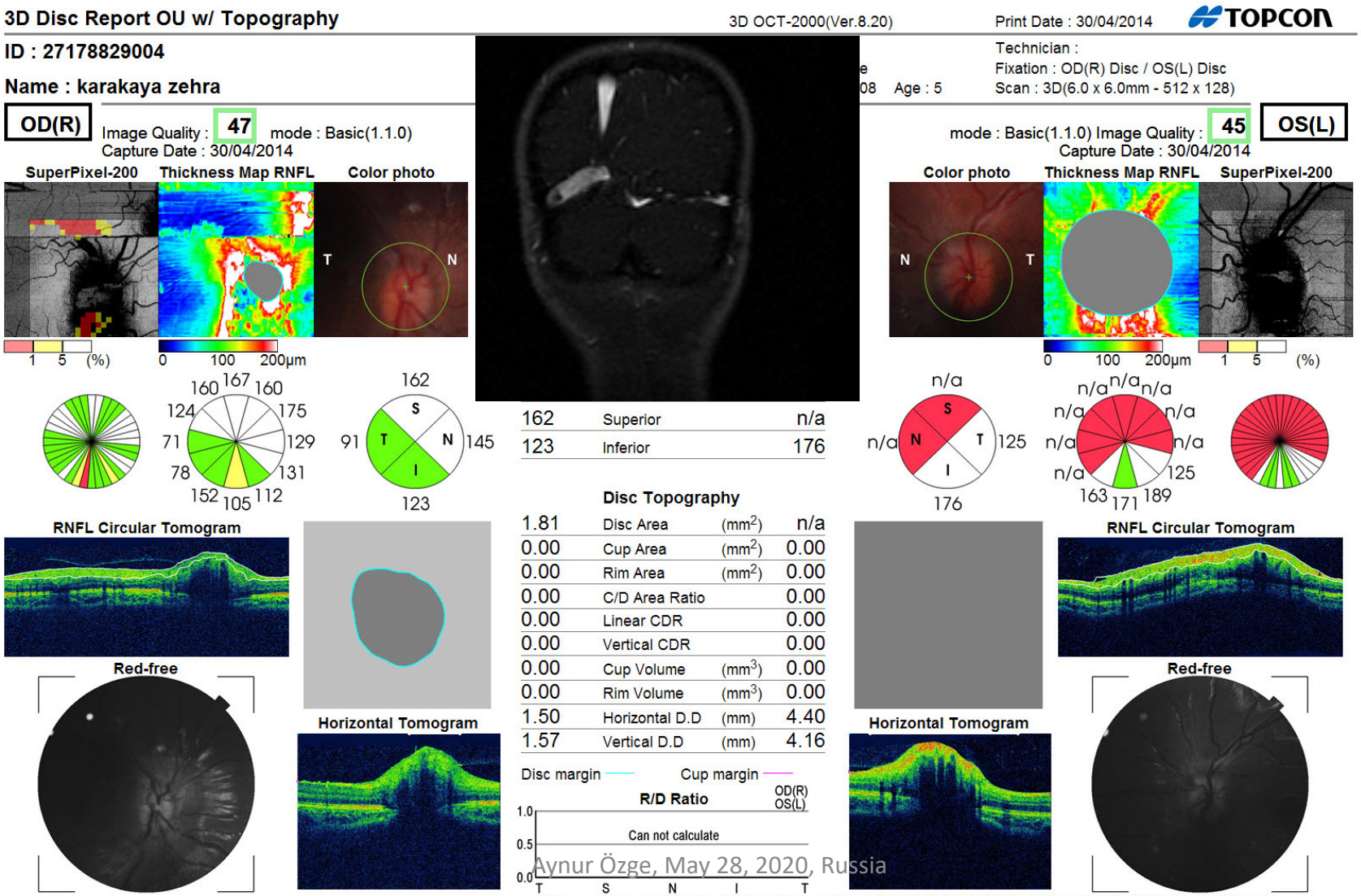
Vertebral artery dissection





!!! Especially children with connective tissue disorders, whiplash trauma history or some genetically abnormalities.

Venous sinus thrombosis- right transverse sinus



The general principles of management of primary headache disorders in children and adolescents

- Establish the diagnosis
- Look for possible comorbidities
- Ask for triggers
- Share real expectations procedure with the child and family
- Use a headache diary

- **Choose non-pharmacological procedures first and then life style regulations, includes regular meals, sufficient fluid intake, physical exercise and sleep**
- **In pharmacological approach, prefer minimum drug, minimum duration and minimum side effect depending on the comorbididtes.**

Migraine

Attack management

Drug	Licensed for	Single dose	Maximum dose	Minimum interval	Dose form
Ibuprofen	All ages	10–20mg/kg	40mg/kg/day	2 hours	Oral suspension Effervescent tablet
Paracetamol	All ages	10–15mg/kg	60mg/kg/day	2 hours	Rapid tablet Oral suspension
Sumatriptan	>12 years	10mg (20–39kg) 20mg (>39kg)	20mg/day 40mg/day	2 hours	Nasal spray
Rizatriptan	>18 years	5mg (20–39kg) 10mg (>39kg)	10mg/day 20mg/day	2 hours	Tablet
Zolmitriptan	>18 years	2.5mg 5mg	5mg/day 10mg/day	2 hours	Nasal spray Tablet
Prochlorperazine	Weight >10kg	0.10–0.30mg/kg 0.1–0.15mg/kg	0.4–0.5mg/kg/day Max single dose 10mg	4 hours	Tablet Injection solution

Abu ARafeh I. Progress in Neurology and Psychiatry July/August 2014

- **If necessary ! (commonly shorter than 1 hour)**
- **Together with antiemetic**
- **Proper dose and form**
- **Check the overuse !**

Wash-out/ Bridge therapy

- Hydration
- Corticosteroids *(dexametazone or prednizolone)*
- Antiemetics *(metoclopramide/domperidone)*, neuroleptics
- Sleep *(amitriptiline,mirtazapine)*
- Saving drugs (limited doses of analgesics)
- Co-morbidity management like anxiety, depression etc.
- Interventional procedures

Curr Pain Headache Rep (2016) 20: 14
DOI 10.1007/s11916-016-0538-z

CHILDHOOD AND ADOLESCENT HEADACHE (S EVERS, SECTION EDITOR)

Chronic Migraine in Children and Adolescents

Aynur Özge[1] · Osman Özgür Yalın[2]

Migraine prevention

- Medical
  - Beta-blockers (Propranolol, atenolol)
  - TAD
    - Amytriptiline
    - Nortriptiline
  - Ca-channel blockers
    - Cinnarizine: bedtime 1.5 mg/kg/day or 50 mg/day (> 30 kg)
  - Antiepileptics
    - Topiramate
    - Valproate
    - Lamotrigine
  - SNRIs
    - Venlafaxine
    - Duloxetine
- Cognitive Behavioral Therapy
- Neuromodulation Devices
- Supplements (Riboflavin, Coenzyme Q10, Magnesium, Melatonin)

Migraine prevention

Prophylactic medications are recommended

- When migraine attacks are occurring with sufficient frequency (usually 3–4 per month) and severity to impact a patient's daily function or quality of life (e.g. missing school).
- To minimize adverse effects of the prophylactic medications, they are started at the lowest dose and titrated upward as needed.
- They have to give a through time period (at least 4–6 months), and
- Both of the comorbidities and side effects of the mentioned drug have to be taken into consideration

Migraine prophylactic management

Drug	Total daily dose	Dose frequency	Evidence
Flunarizine	5–10mg	Once per day	DB, PC, RTs
Topiramate	1–2mg/kg	Once per day	DB, PC trials
Pizotifen	0.5–1.5mg	Once per day	DB, open trials
Propranolol	1–3mg/kg	Twice per day	DB, open trials
Amitriptyline	0.25–1mg/kg	Once per day	Open trials
Sodium valproate	500–1000mg	Twice per day	DB, open trials
Cyproheptadine	2–8mg	One or two doses per day	Open trials

DB: double blind; PC: placebo controlled; RTs: randomised trials.

- Make a good collaboration
- Monitored side effects
- Be careful for interaction
- Consider comorbidities
- Sustained at least 6 months except Flunarizine

Abu ARafeh I. Progress in Neurology and Psychiatry July/August 2014

Prophylactic managements…

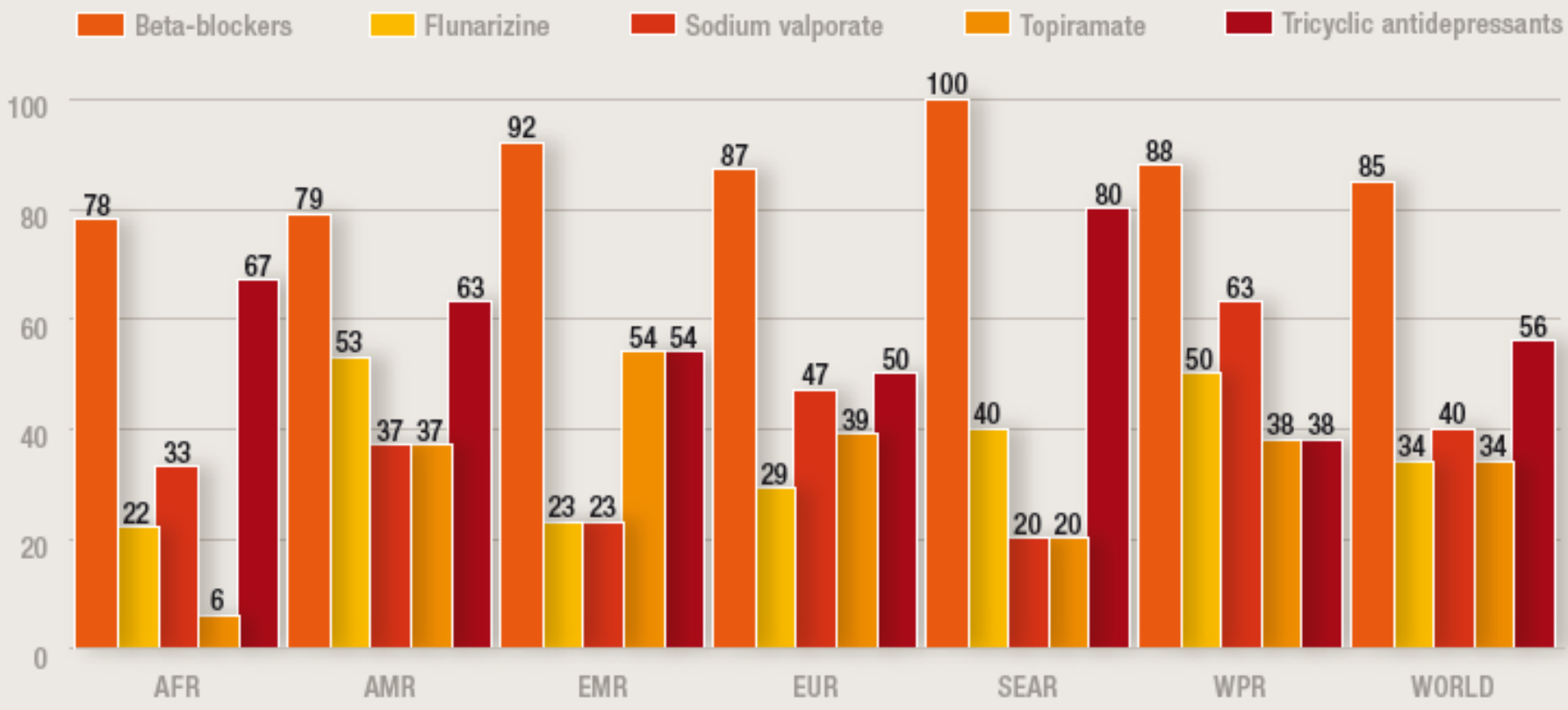


FIG. 6.12 Most-preferred prophylactic drugs for migraine, worldwide and by WHO region (median % of individual responses)

Mom, I have a headache

Case 3- *AT, 17 Y, girl, living with her mother and 11 yrs sister, 11th Grade of High school, Low academic success, referred by family physician*

- Sustained pain problems all the body,
  - Pain areas all over the body for 5 years
  - Especially on the back, lowback and limbs
  - Asthenia , she can not rest comfortably, sleep and adjustment problems
  - Psychiatric evaluation; Internalizing problems, bipolar disorders?, suicide risk?
  - Ibuprofen and paracetamol more than 20 tablet each month for the last year
  - Headache?

Case- continue

- **Headache;**
  - Started 5 years ago after menarch, and last year she had more than 20 headache days
  - Attacks; located on periorbital, sometimes unilateral, described as pressing or throbbing quality with a distrubing her daily living activity (VAS>8), 1-3 hours duration, associated photo-phonophobia, nausea, osmophobia, diziness, motion sickness and cranial allodynia
  - Neither prodrom nor aura
  - Triggers; stress, sleep problems, letting starving, menstrual cycle (1st day of mens), noise, electronic overuse

Case- continue

- Past med history: Atopic rhinitis, atypical abdominal pain attacks at 3-4 yrs, low self-esteem, depressive mood, generalized anxiety disorders
- Family history: Divorced parents, father alcohol abuse, mother and grandmother has migraine
- Medications: Essitalopram, amitriptilin, ibuprofen, paracetamol
- Low water consumption, unregular and unhealthy diet, BMI 26.2 kg/m2, smoking on the last years ½ pack per day

Case- continue

- Ex: Normal
- Neurologic Ex: Cutanous allodynia (V1), Trigger points (pericranial, GON)
- Lab : Normal including immunological and whole rheumatological screen
- Cranial MR: Normal (mucosal thickness reported and consulted with ENT dx allergic rhinosinusitis)

Headache diagnosis?

FIRST Secondary causes should be excluded!

Also;

- Chronic migraine
- Chronic TTH
- Medication overuse headache
- Fibromyalgia related headache
- TMJ dysfunction related headache

Chronic headache Dx

Daily headache or ≥15 day/month

YES ↓

More than 10 analgesic per month → YES → **Medication overuse headache**

NO ↓

Increased by exercise? Associated photo-phonophobia, nausea, vomiting ? → YES → **Chronic Migraine**

NO ↓

Always one-sided headache attacks? → YES → **Hemcrania Continua**

NO ↓

Definite day for chronic headache transformation? → YES → **New Daily Persistent Headache**

NO ↓

Chronic Tension Type-Headache

LiptonRB. The differential diagnosis of chronic daily headaches: an algorithm-based approach. J Headache Pain. 2007
Manzoni GC, et al. Chronic migraine classification: current knowledge and future perspectives. J Headache Pain. 2011

1.3 Chronic migraine

A. Headache (tension-type-like and/or migraine-like) on ≥15 days per month for >3 months and fulfilling criteria B and C

B. Occurring in a patient who has had at least five attacks fulfilling criteria
B-D for 1.1 Migraine without aura and/or criteria
B and C for 1.2 Migraine with aura

C. On ≥8 days per month for >3 months, fulfilling any of the following:

1. **criteria C and D for 1.1 Migraine without aura**
2. **criteria B and C for 1.2 Migraine with aura**
3. **believed by the patient to be migraine at onset and relived by a triptan or ergot derivative**

D. Not better accounted for by another ICHD-3 diagnosis

CM in children

Original Article

Cephalalgia
An International Journal of Headache
International Headache Society

Cephalalgia
0(00) 1–11

DOI: 10.1177/0333102409351797
cep.sagepub.com
SAGE

Epidemiological-based childhood headache natural history study: After an interval of six years

Aynur Ozge[1], Tayyar Sasmaz[1], Sema Erol Cakmak[1], Hakan Kaleagasi[1] and Aksel Siva[2]

Antonaci et al. The Journal of Headache and Pain 2014, 15:15
http://www.thejournalofheadacheandpain.com/content/15/1/15

The Journal of Headache and Pain
a SpringerOpen Journal

REVIEW ARTICLE Open Access

The evolution of headache from childhood to adulthood: a review of the literature

Fabio Antonaci[1*], Cristina Voiticovschi-Iosob[2,3], Anna Luisia Di Stefano[4], Federica Galli[1], Aynur Ozge[5] and Umberto Balottin[1,6]

- Epidemiological based CM prevalence is 1.7%
- Prevalence increases by age
- Migraine in father and sister increases the prevalence in individuals
- Pain frequency, severity and duration increases the prevalence
- Associated risk factors are; anxiety dis, depression low socio-economic status

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CHILDHOOD AND ADOLESCENT HEADACHE (S EVERS, SECTION EDITOR)

Chronic Migraine in Children and Adolescents

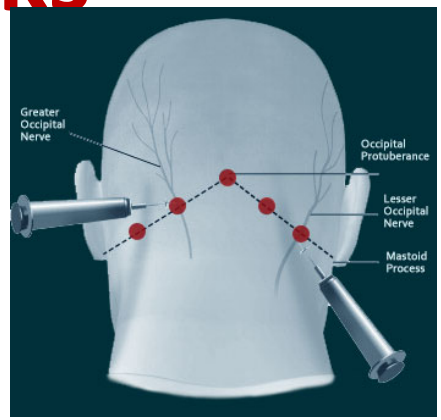
Aynur Özge[1] · Osman Özgür Yalın[2]


OKUL
ÜZÜNTÜ
PROJE ÖDEVİ
STRES
EV ÖDEVİ
BORÇ

Management of our cases

- Lifestyle changes, (diet, drink, sleep, exercise, leisure time, mother colloboration, school consultation)
- Headache diary !!!
- STOP analgesics
- Psychiatric management including sleep, anxiety, depression
- Migraine proflaxic med. (topiramat)
- Interventions (Bridge therapy GON blokage, trigger point injections and BOTOX)

Peripheral nerve blocks



- GON Blockage
- LON Blockage
- Supraorbital, infraorbital nerve Blockages
- Gasser ganglion Blockage
- Trigger point injections
- Dry-needle injections
- Neuromodulation procedures etc.

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DOI 10.1007/s11916-016-0538-z

CHILDHOOD AND ADOLESCENT HEADACHE (S EVERS, SECTION EDITOR)

Chronic Migraine in Children and Adolescents

Aynur Özge[1] · Osman Özgür Yalın[2]

Accepted: 8 September 2016
DOI: 10.1111/ane.12692

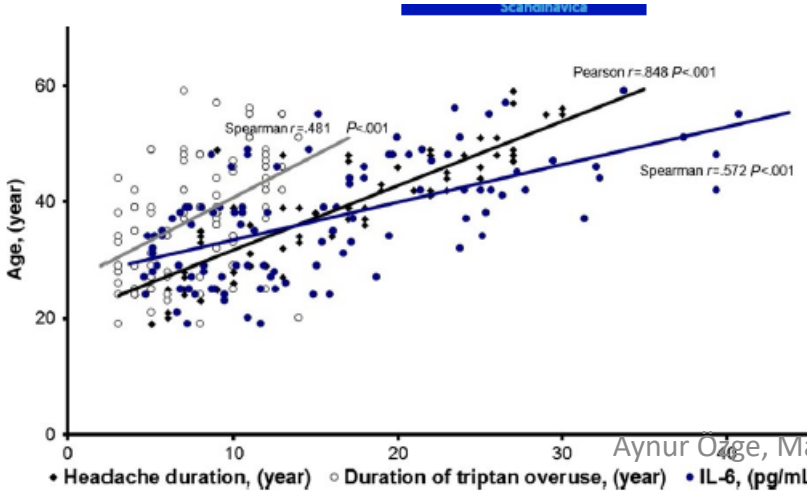
ORIGINAL ARTICLE

WILEY Acta Neurologica Scandinavica

Greater occipital nerve block in the treatment of triptan-overuse headache: A randomized comparative study

Ö. Karadaş[1] | A. Ö. Özön[2] | F. Özçelik[3] | A. Özge[4]

- GON block administration with local lidocaine following discontinuation of acute treatment has been found to be an effective method in TOH treatment
- There is also a decrease in IL-6 levels was observed in repeated GON block administration
- **Goal**: Minimum headache day…



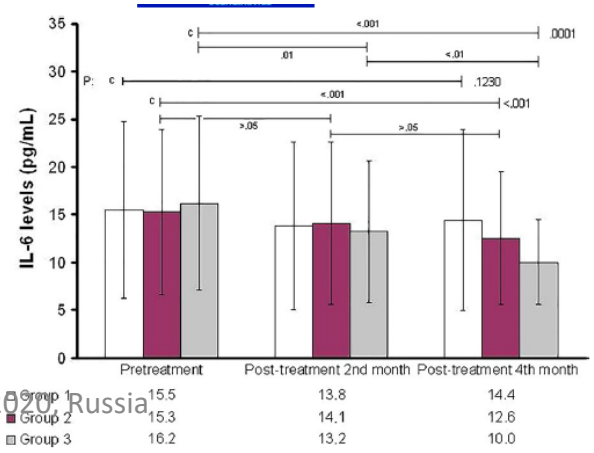
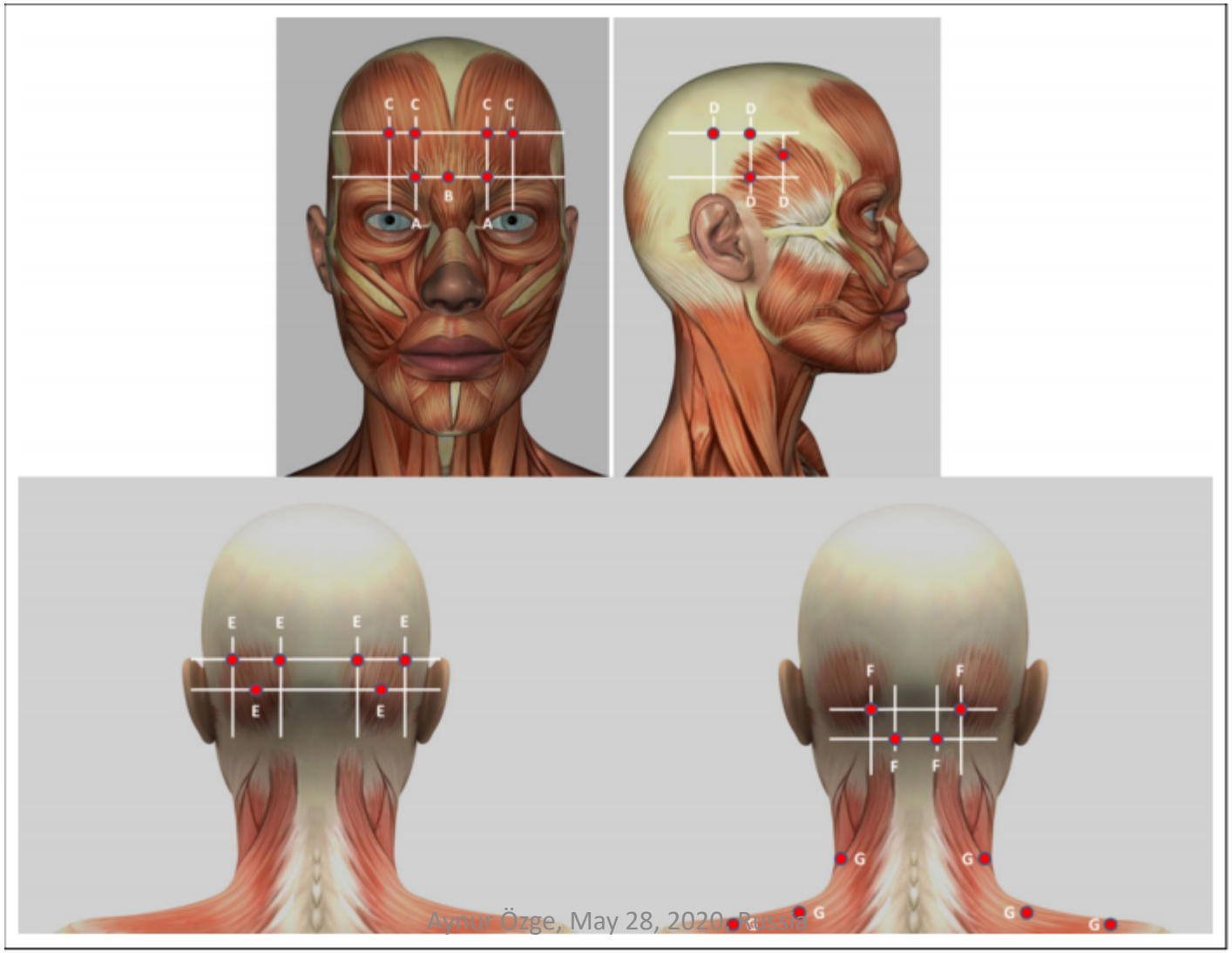


FIGURE 2 Graphic showing statistical comparison and results of age-based IL-6 levels in pretreatment, post-treatment second and fourth months

Onabotulinum toxin-A (PREEMPT protocol)



mABs (CGRP) (be caution !)

Avoiding

- Blood-brain barrier such as recent meningitis, neurosurgery
- Central nervous system injury such as stroke
- Recent peripheral nerve injury
- Known immunodeficiency or who are receiving immunosuppressive medications,
- Structural heart defects, cardiomyopathy, pulmonary hypertension, coronary artery disease (from conditions such as Kawasaki's), and history of or significant risk factors for stroke.

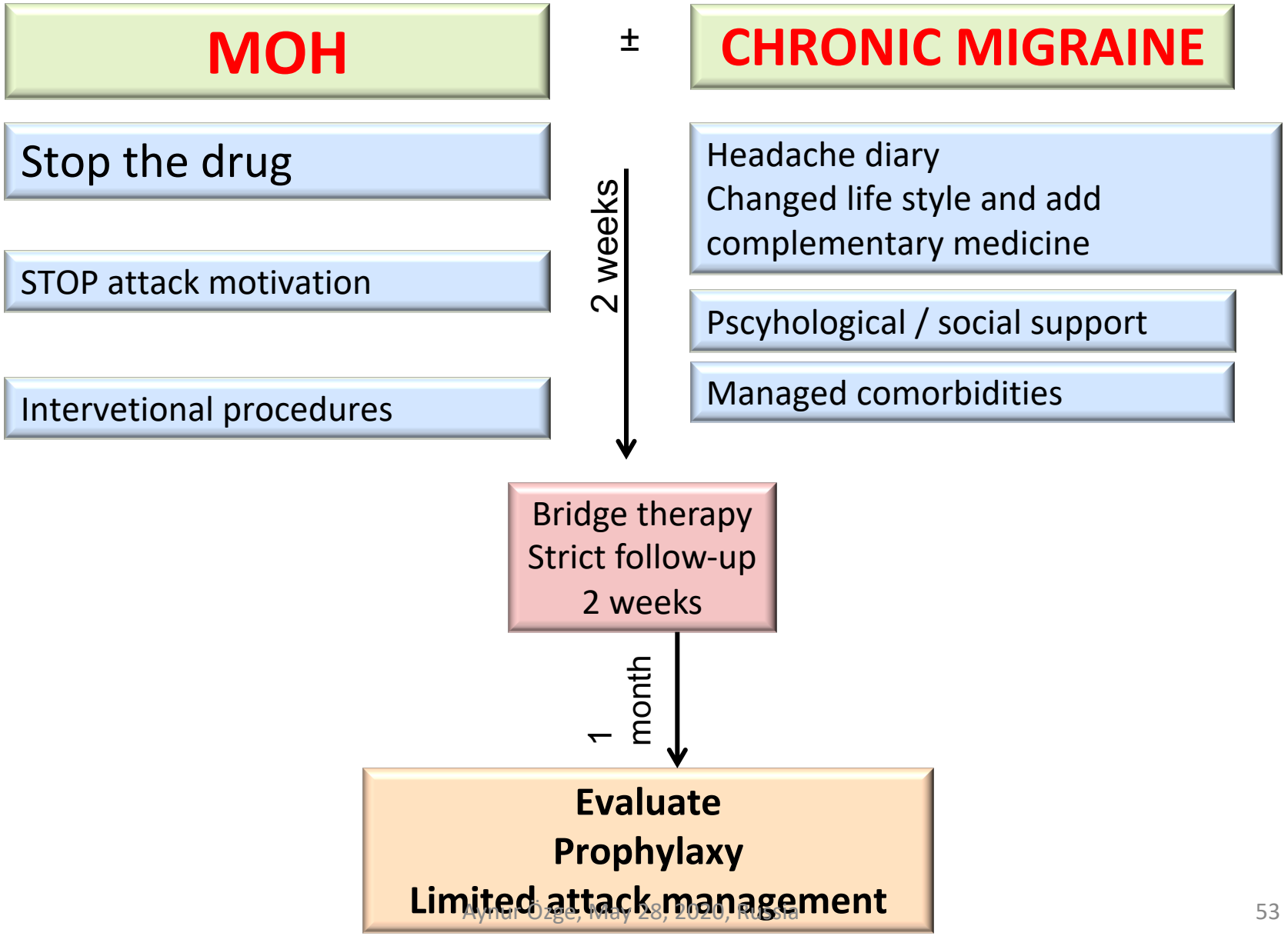
Should be used with caution

- Known bone diseases or significant osteopenia.
- Monitor weight and BMI in children and adolescents

COMMENT:

- Anti-CGRP mAbs have been shown to be effective for migraine prevention in adults and have not raised major safety issues, though long-term safety data are not yet available for children and adolescents

Exclude secondary headaches and other primary headache disorders



Prognosis

Original article

Determining of migraine prognosis using latent growth mixture models

Bahar Tasdelen, Aynur Ozge, Hakan Kaleagasi, Semra Erdogan and Tufan Mengi

Best prognostic indicator of CM;

- Associated nausea, vomiting, photophobia combination
- Severe attacks (VAS ≥8)
- Long attack duration (>20 hours).

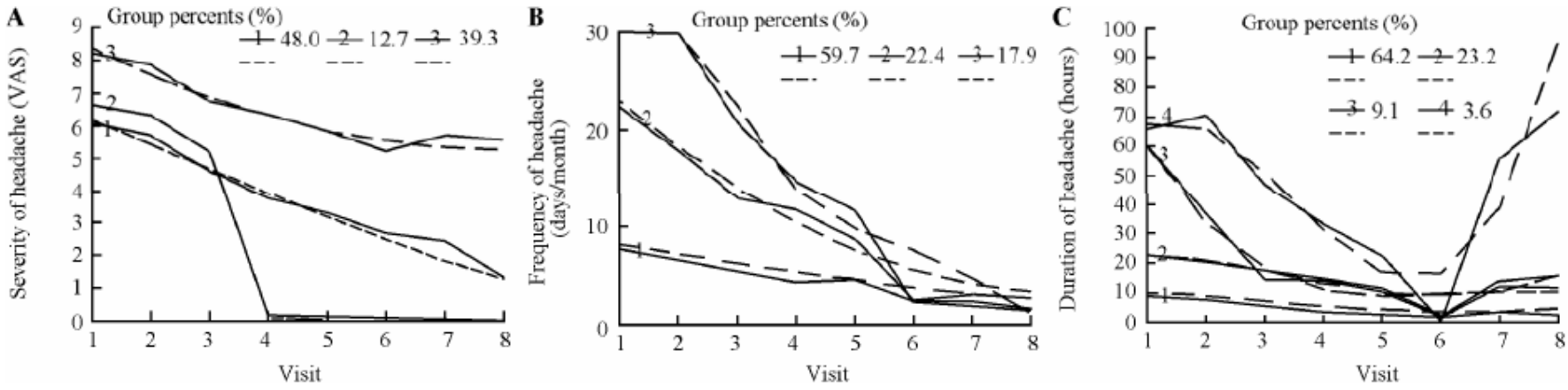


Figure. Actual and predicted trajectories for the severity (**A**), frequency (**B**), and duration (**C**) of headache.

Journal of Neurological Sciences [Turkish] **33:(1)**# 47; 185-193, 2016
http://www.jns.dergisi.org/text.php3?id=946

Review

Quality of Life in Children and Adolescents With Primary Headache Disorders

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- Chronic headache disorders causes negative effect on school performance, as well as emotional status.
- They perform lesser than their capabilities and their careers are negatively affected in the long-term.
- Accompanying symptoms such as depression, somatization, anxiety also impair the quality of life.
- Early identification and treatment of headache is essential.

Curr Pain Headache Rep (2016) 20: 9
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CHILDHOOD AND ADOLESCENT HEADACHE (S EVERS, SECTION EDITOR)

Life style

Lifestyle Factors and Migraine in Childhood

Antonio Russo[1,2,3] · Antonio Bruno[1] · Francesca Trojsi[1,2] · Alessandro Tessitore[1,2] · Gioacchino Tedeschi[1,2,3]

- Obesity and Migraine
- Alimentation and Migraine
- Technology and Migraine
- Sleep and Migraine
- Weather and Migraine
- Psychological Disorders and Migraine
- Family stressful life events, family conflicts, and social problems need to be fully considered !!!

Martelletti *et al. The Journal of Headache and Pain* 2014, **15**:47
http://www.thejournalofheadacheandpain.com/content/15/1/47

The Journal of Headache and Pain
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CONSENSUS ARTICLE **Open Access**

Refractory chronic migraine: a Consensus Statement on clinical definition from the European Headache Federation

Paolo Martelletti[1,2*], Zaza Katsarava[3,4], Christian Lampl[5], Delphine Magis[6], Lars Bendtsen[7], Andrea Negro[1], Michael Bjørn Russell[8,9], Dimos-Dimitrios D Mitsikostas[10] and Rigmor Højland Jensen[7]

- ICHD-III beta does not mentioned «refractory»
- Refractory= Sustained headache attacks even after prophylaxic medication in maximum dose, duration and combination
- Detailed consensus criteria should be discussed.

TTH

A. At least 10 episodes of headache occurring on fulfilling criteria B–D
B. Lasting from 30 minutes to 7 days
C. At least 2 of the following 4 characteristics:
   1. Bilateral location
   2. Pressing or tightening (non-pulsating) quality
   3. Mild or moderate intensity
   4. Not aggravated by routine physical activity such as walking or climbing stairs
D. Both of the following:
   1. No nausea or vomiting
   2. No more than one of photophobia or phonophobia
E. Not better accounted for by another ICHD-3

Infrequent TTH	Frequent TTH	Chronic TTH
<1 day/month	1–15 days/month	≥15 days/month

TTH

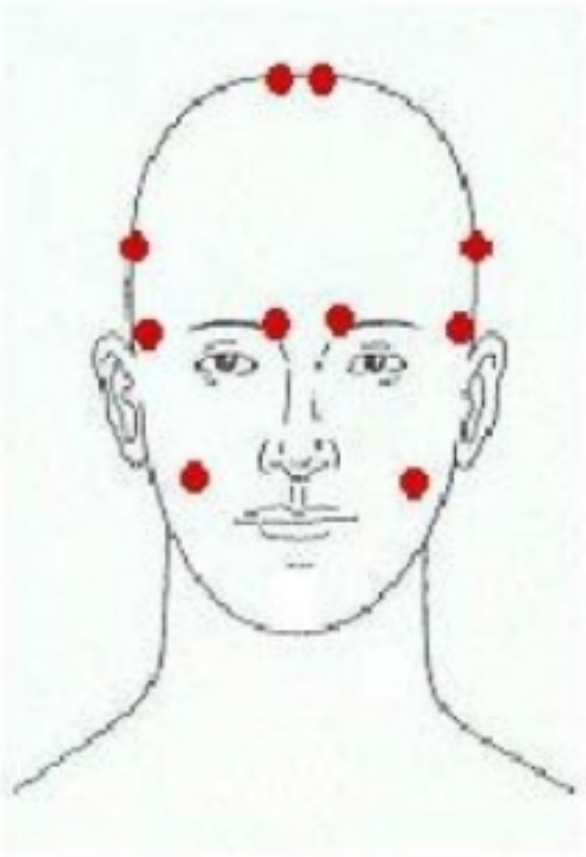
- Attack management should be behavioral management first.
- Prophylactic drugs (e.g.Amitriptyline) can be given according to comorbidities and potential side effects.

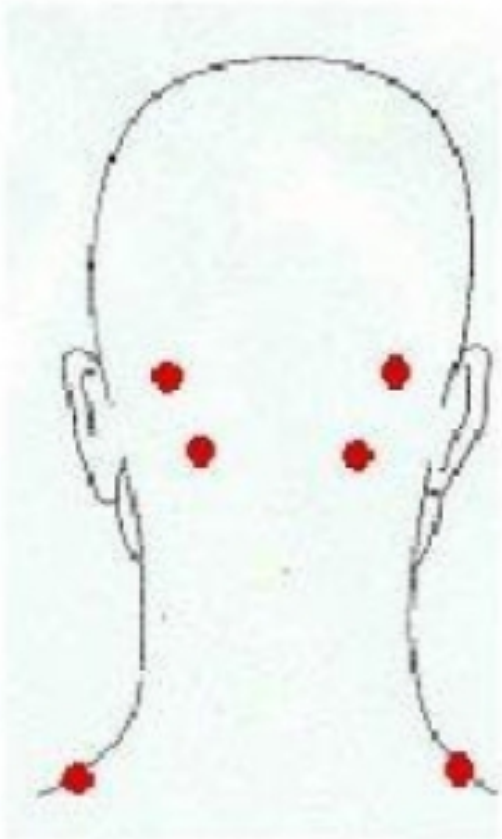
Substance	Treatment Indication	Dose	Age (years)	Level of recommendation
Paracetamol	Acute attack	1000 mg	>16	A
Aspirin	Acute attack	500–1000 mg	>15	A
Amitriptyline	Prophylaxis	1 mg/kg/day	9–15	B
Valproate	Prophylaxis (CTTH)	1000	>14	B

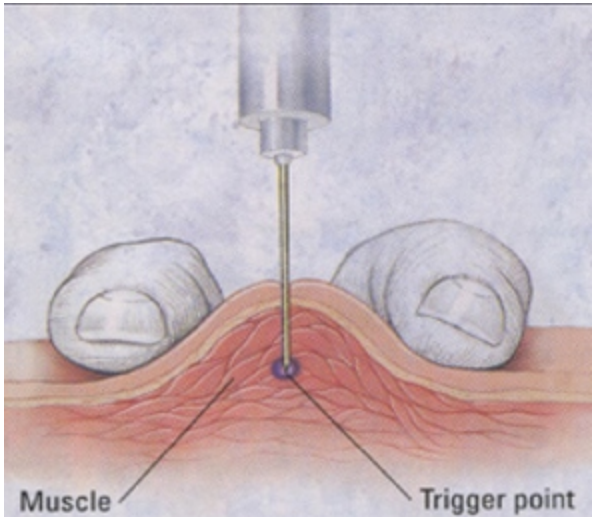
CTTH = chronic tension-type headache.

Parisi P et al, Acta Pædiatrica 2011 100, pp. 491–495

Trigger point injections

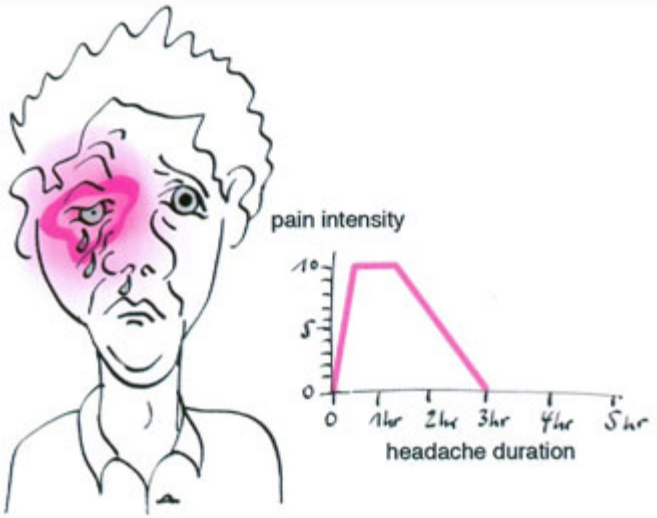






TACs- Cluster headache

- The estimated prevalence of cluster headache in the pediatric population (age 0-18 years) ranges from 0.09% to 0.1%
- Average delay of 6.6 years in the diagnosis of cluster headache.

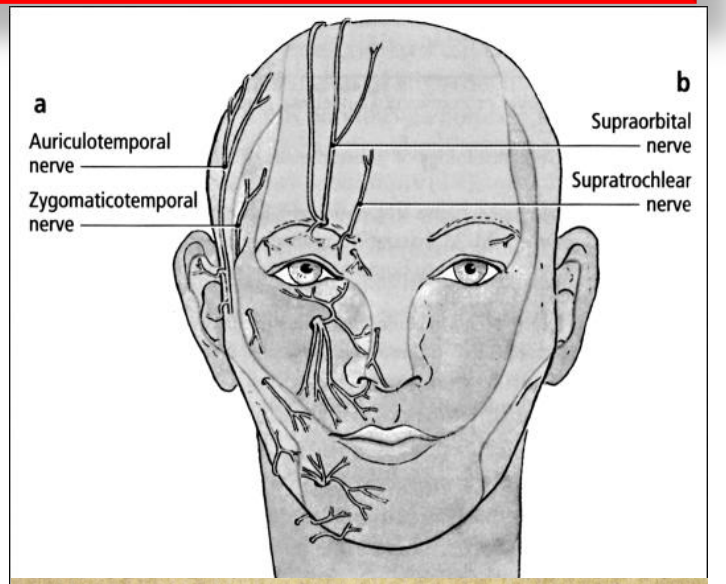


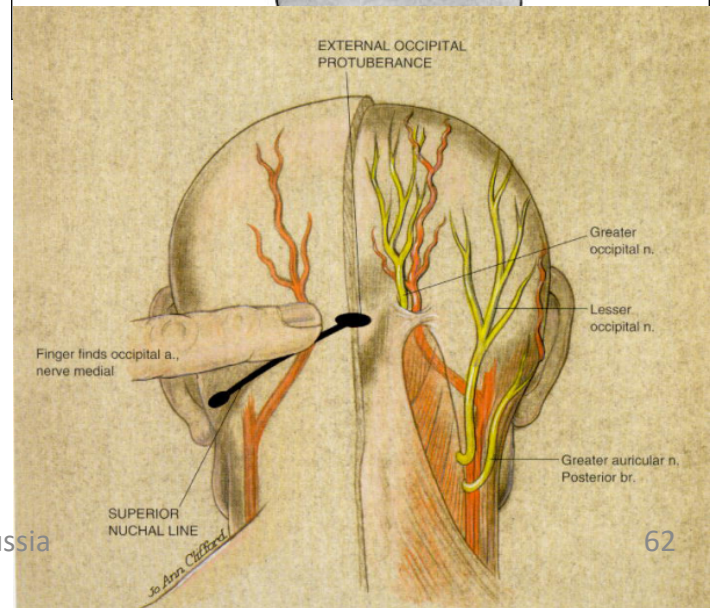
Cluster Headache Symptoms:
-Pain Around One Eye
-Tearing of the Eye
-Drooping of the Eyelid
-Stuffy Nose
-Pain in the Temple

www.neckpainsupport.com

TACs- Cluster headache

- **Attack management**
  - Oxygen
  - Sumatriptan
- **Prophylactic drugs**
  - Verapamil
  - Prednizon/prednizolon
  - Metiserjide
  - Lithium
  - Topiramate
  - NSAİİs
- **Interventions**





Chronic progressive headaches

- Hydrocephalus

Each of the application please consider secondary causes associated with primary headache disorders

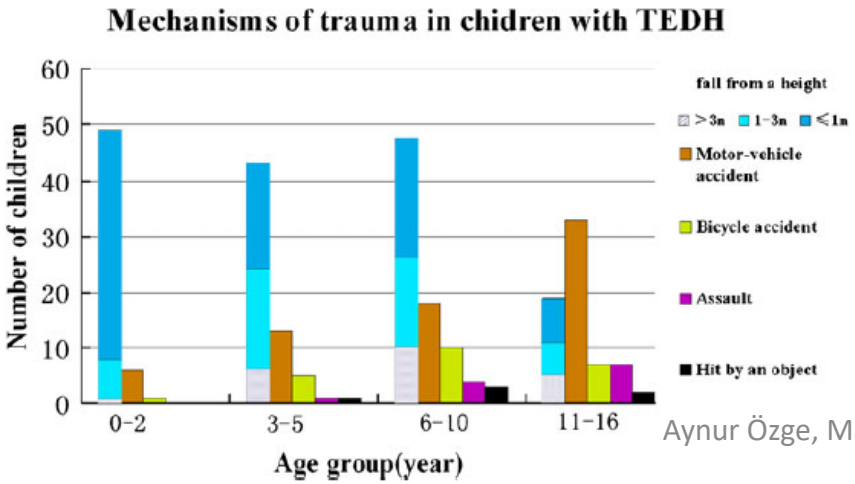
Posttraumatic headaches

- After cranial trauma →30-70% frequency
- If headache was associated with

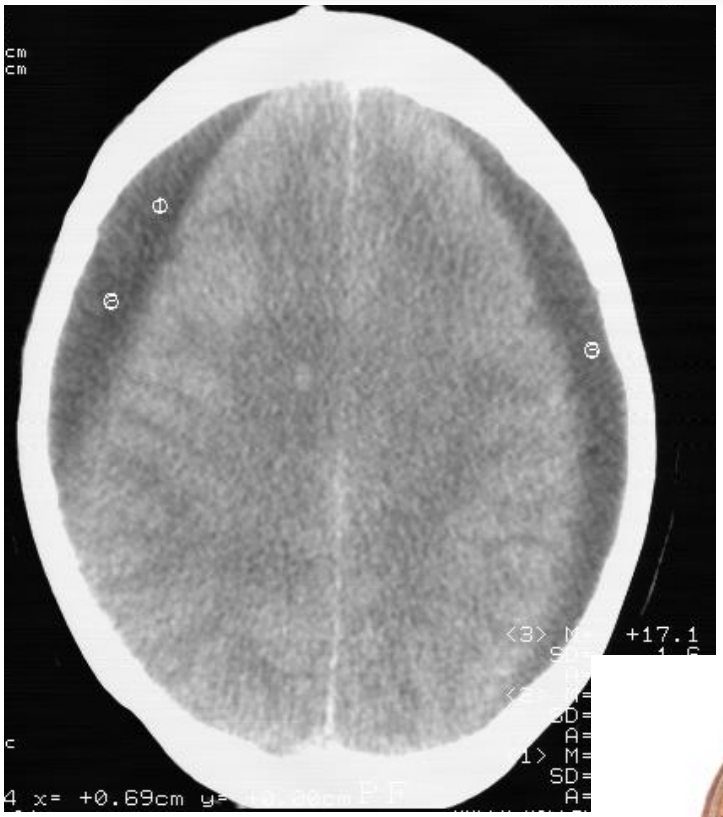
amnesia or focal neurological signs always neuroimaging required.

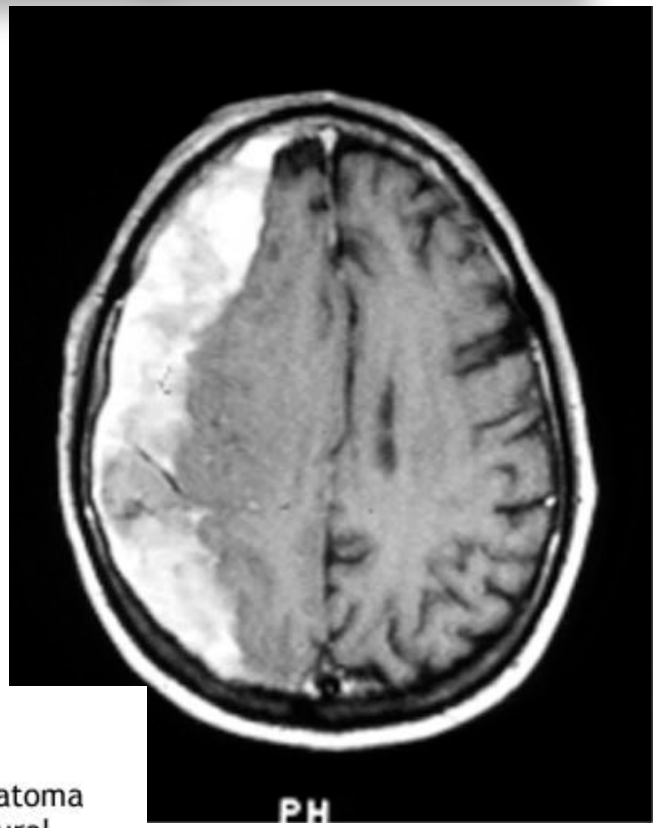
- May be a part of «posttraumatic stress disorders»…

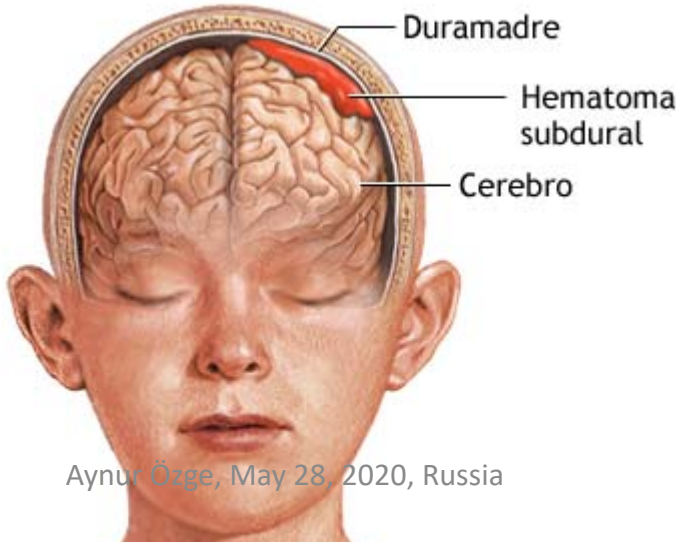
Post concusion syndrome



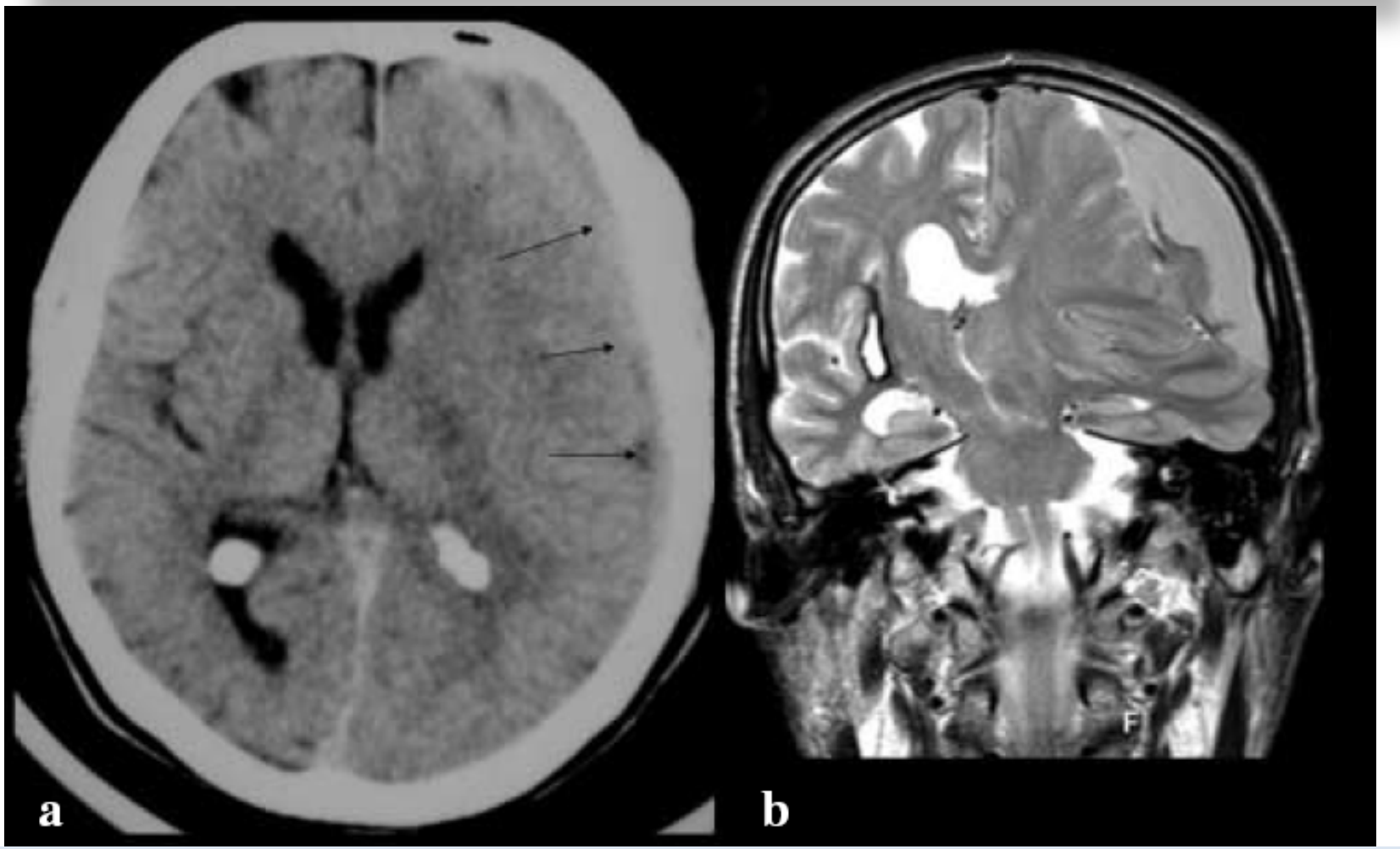
Subdural haemorrhage





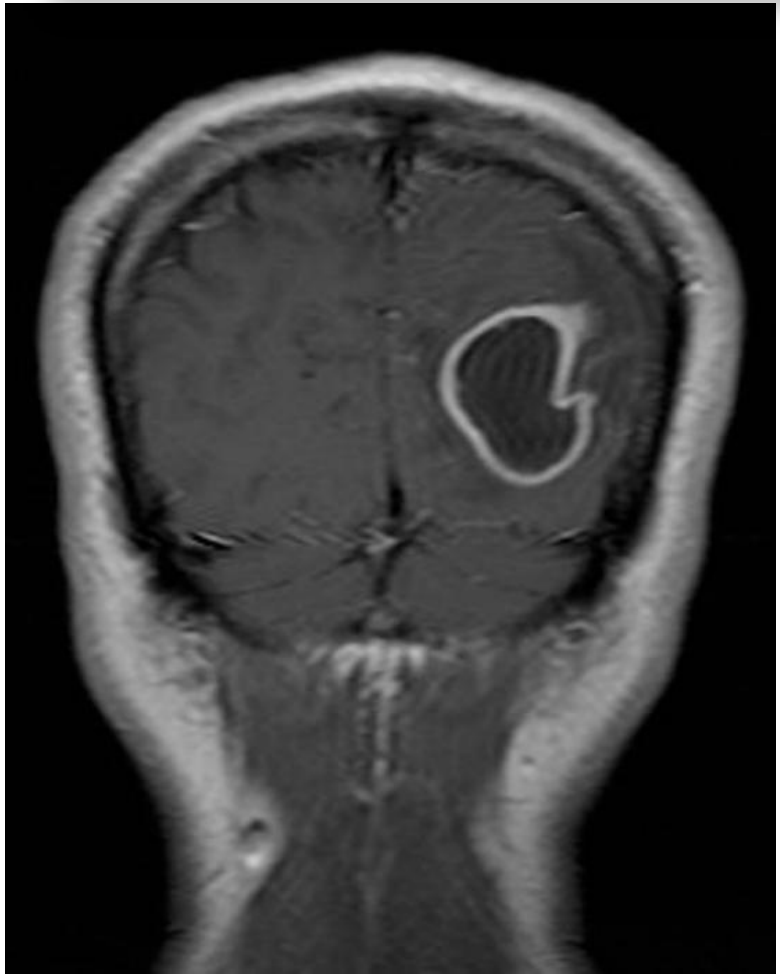


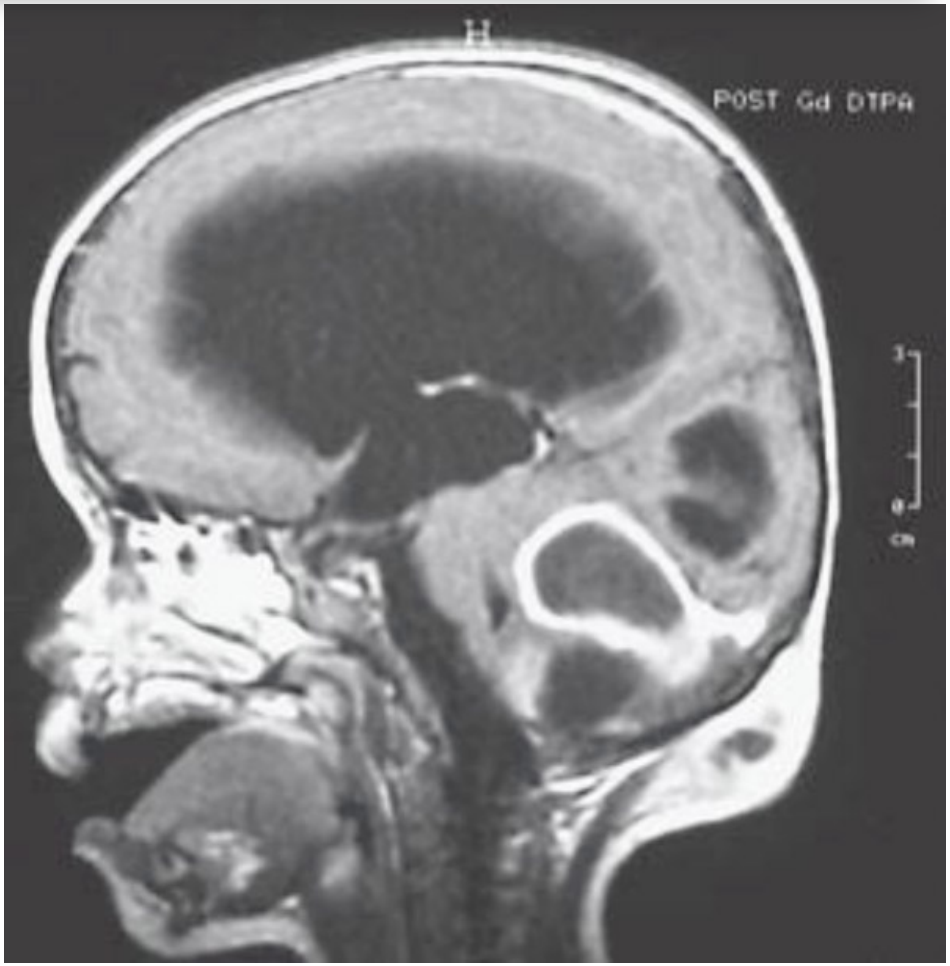
Subdural haematoma



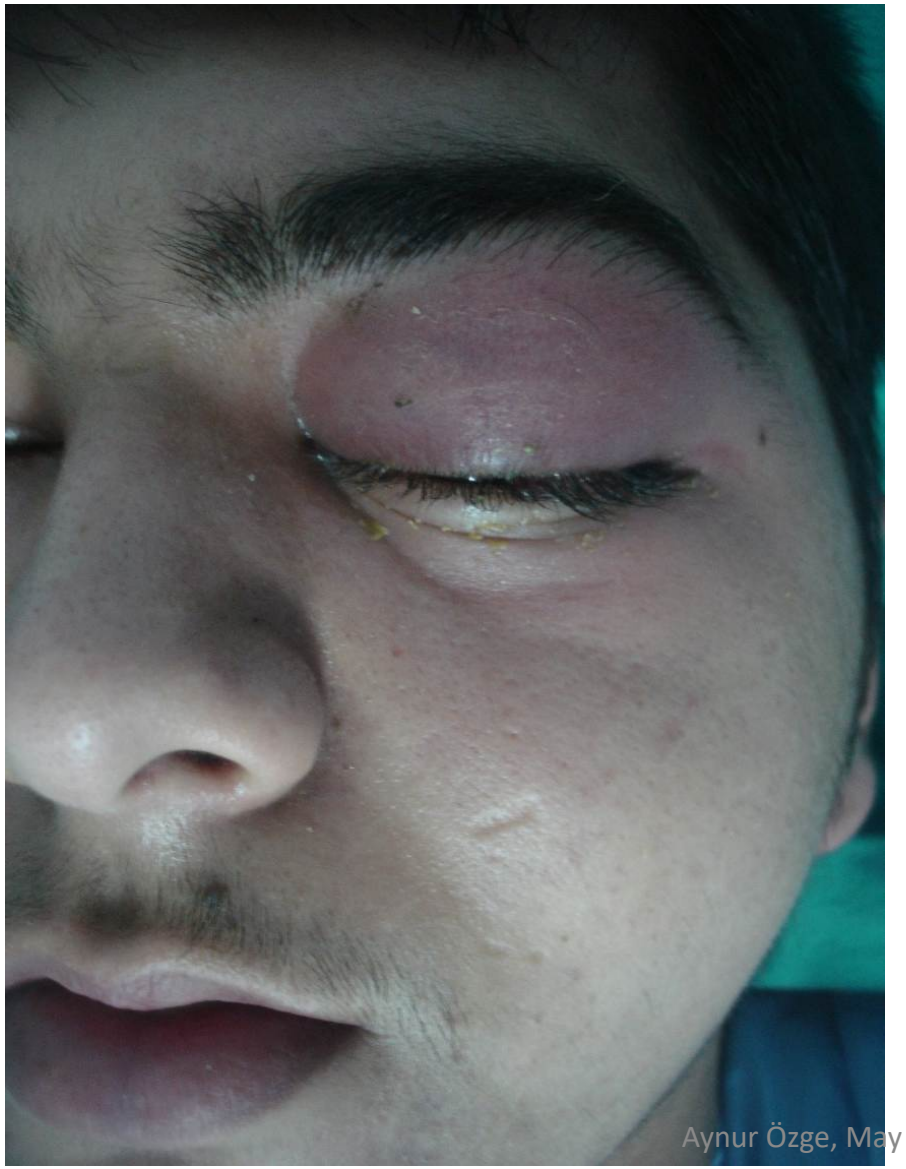
!!! After blunt trauma (fighting, motorbike accident, etc.) especially youngs with substance abuse history.

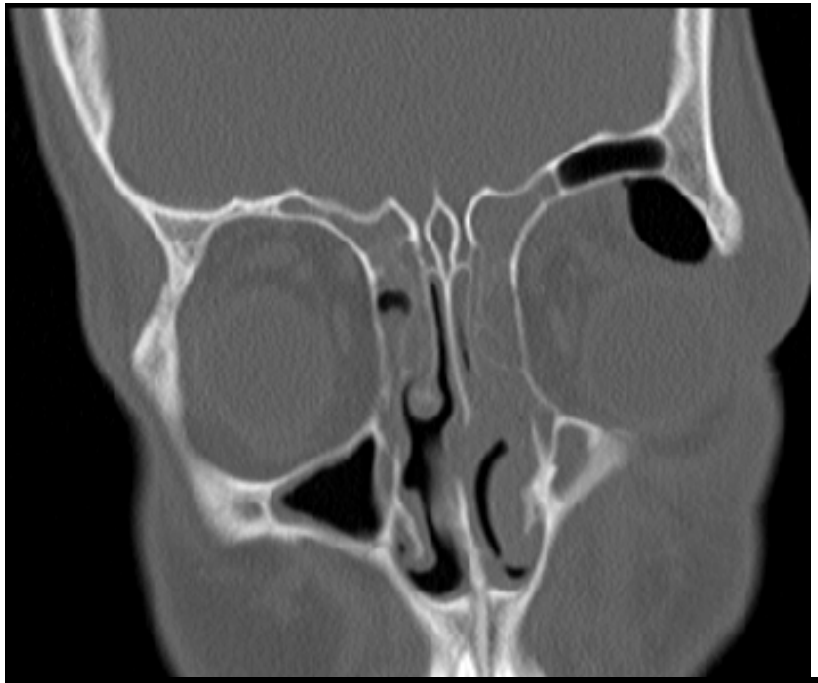
Brain abscess

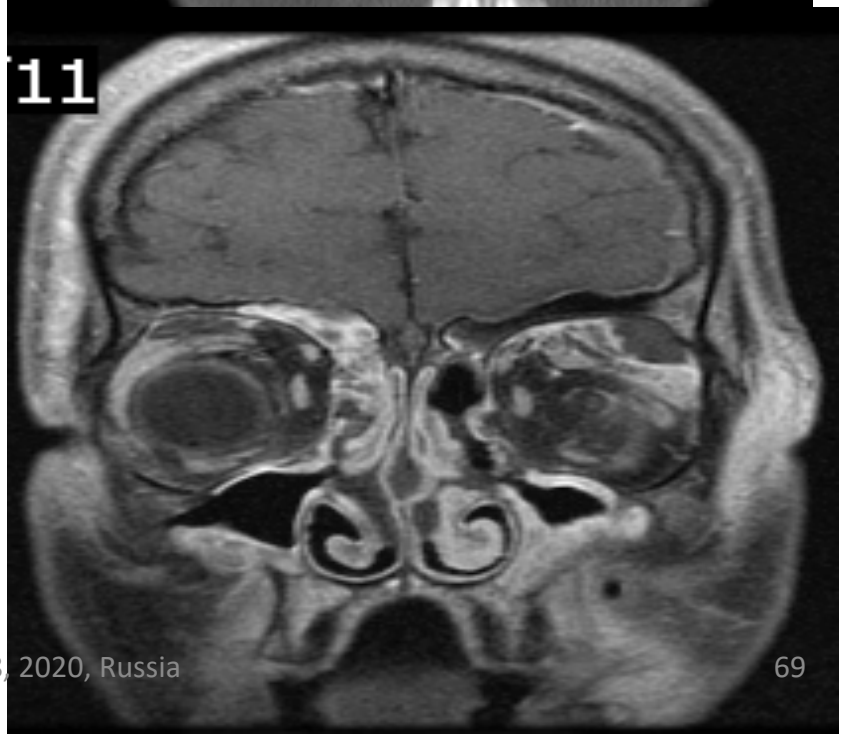




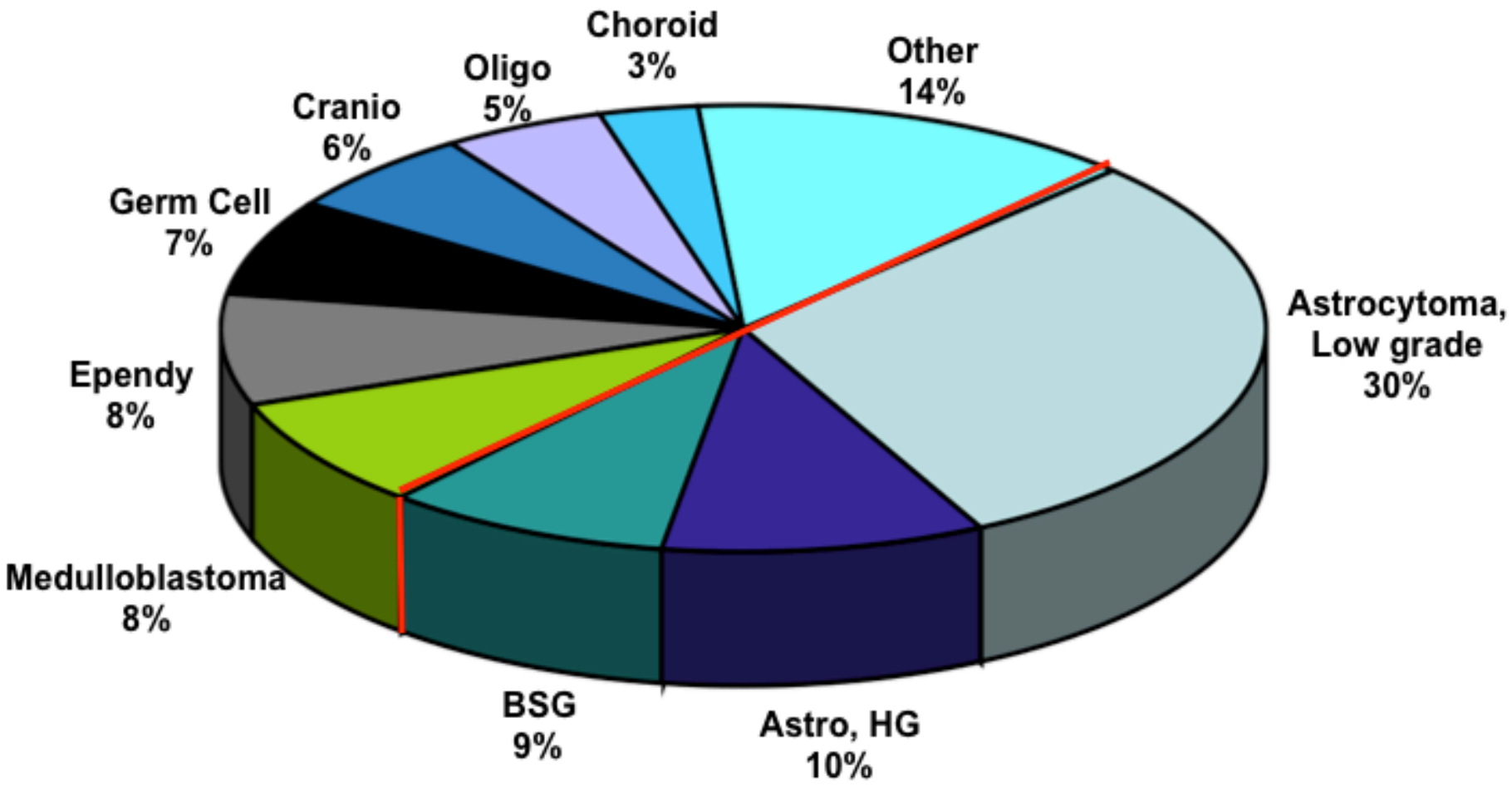
Orbital abscess



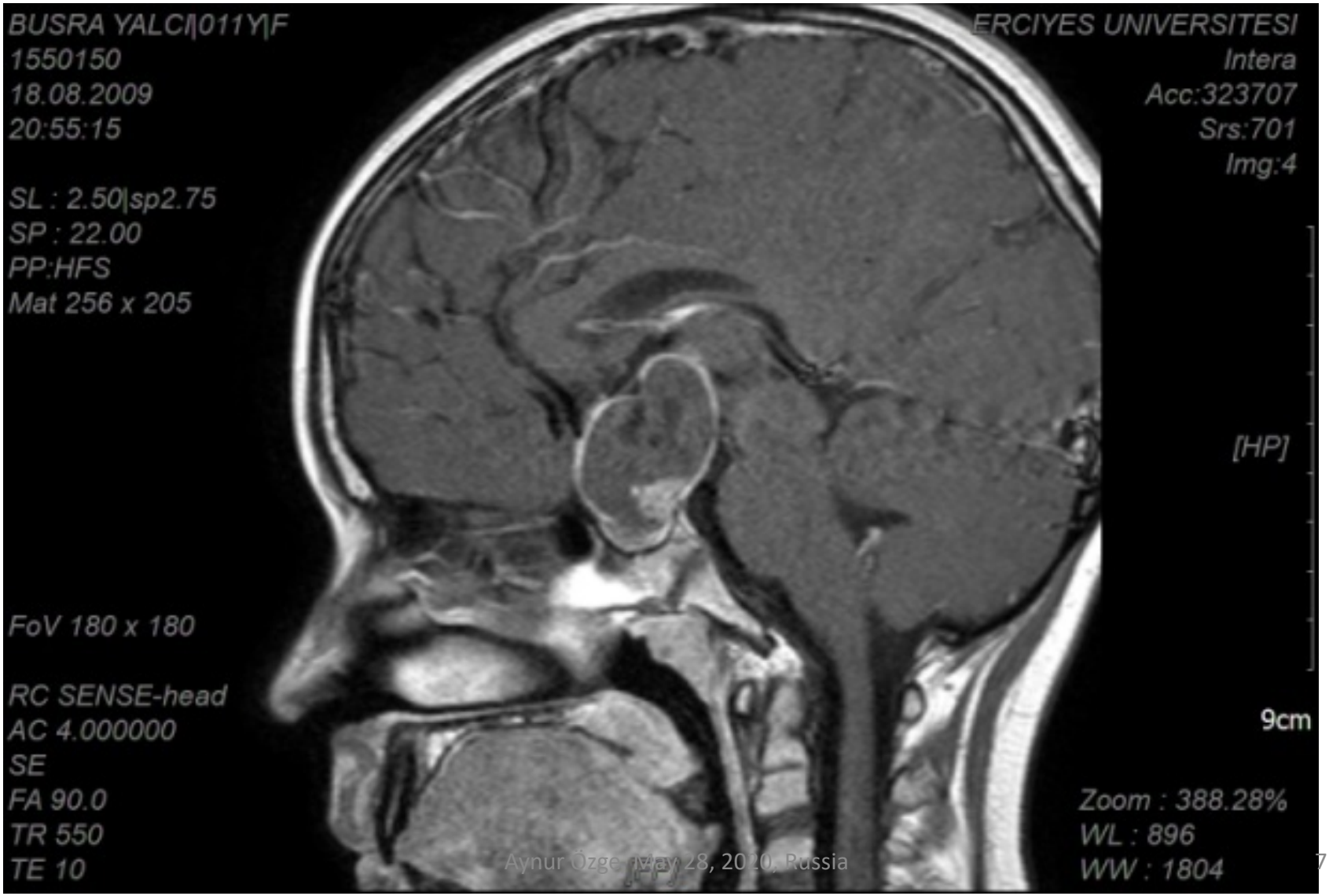


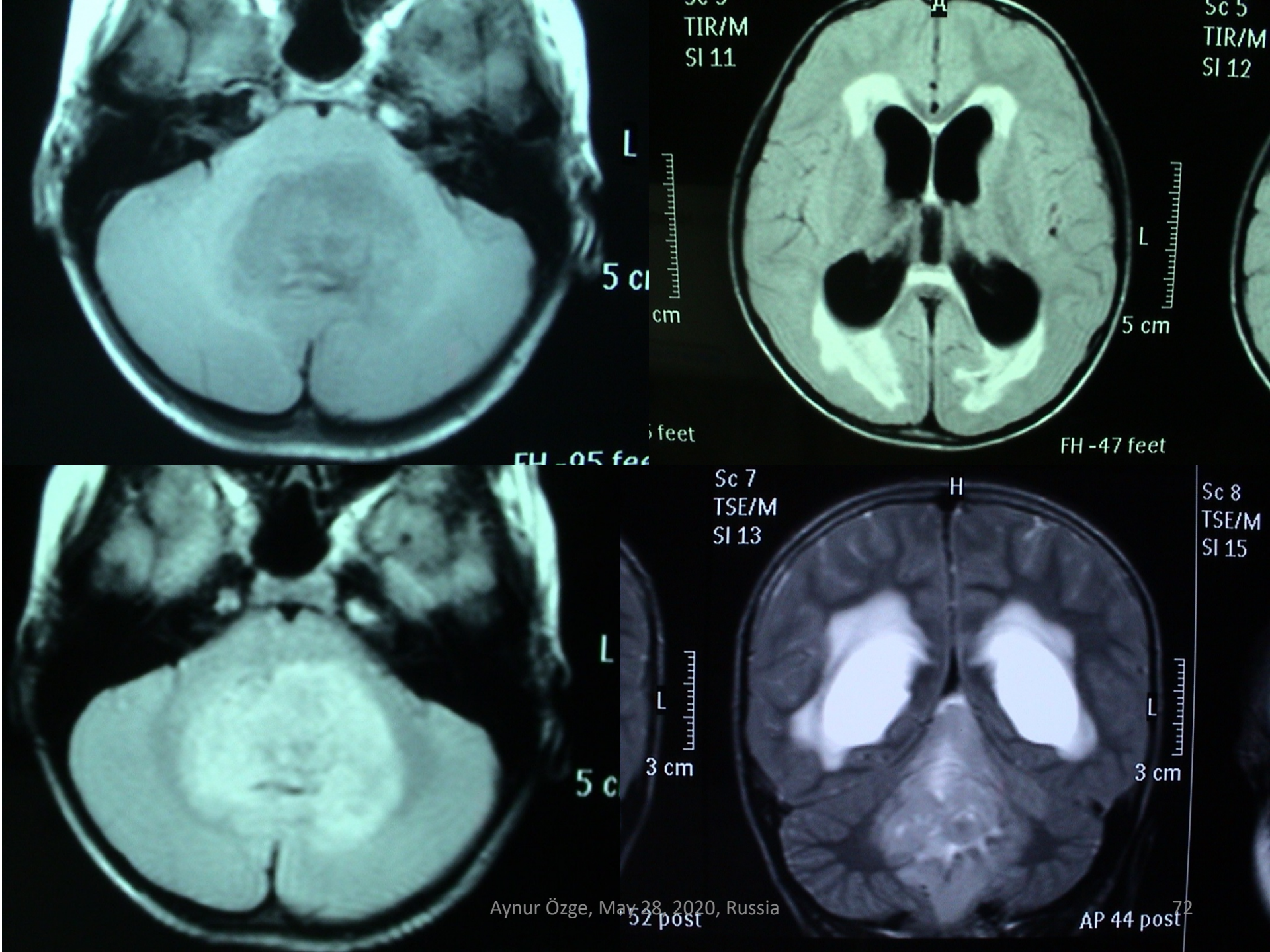


Brain tumors in children and adolescents

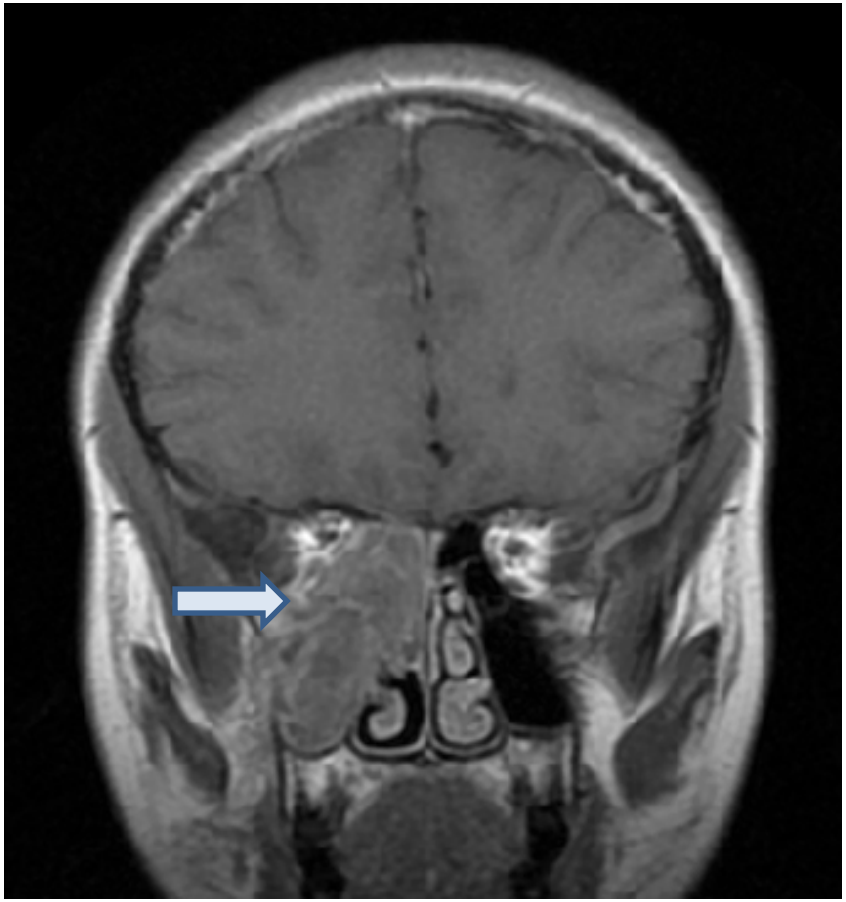


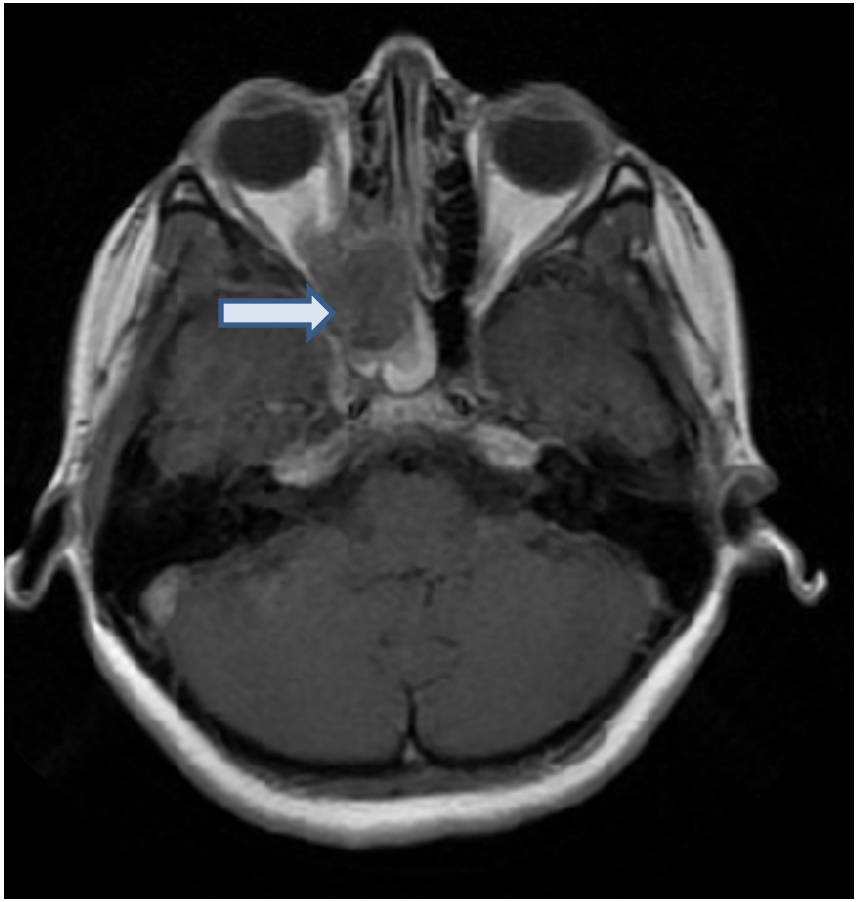
Chraniopharyngioma




TIR/M
SI 11
Sc 5
TIR/M
SI 12
5 cm
FH -47 feet
Sc 7
TSE/M
SI 13
Sc 8
TSE/M
SI 15
3 cm
3 cm
AP 44 post

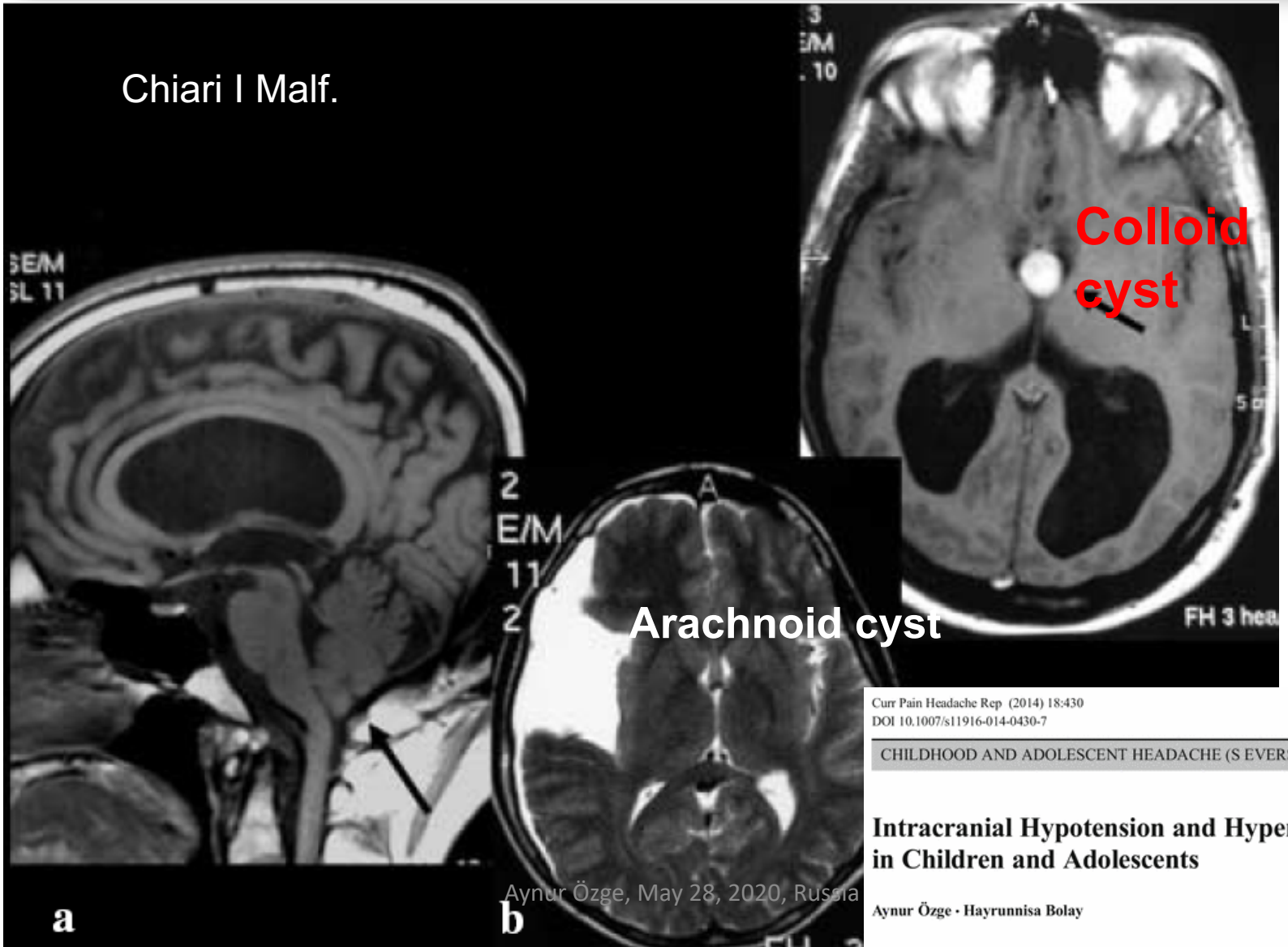
Atypical facial pain
Olfactor neuroblastoma





17 years, girl, non-throbbing headache on temples without known triggers or associates

CSF circulation disorders



Curr Pain Headache Rep (2014) 18:430
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CHILDHOOD AND ADOLESCENT HEADACHE (S EVERS, SECTION EDITOR)

Intracranial Hypotension and Hypertension in Children and Adolescents

Aynur Özge · Hayrunnisa Bolay

Home messages

- Childhood and adolescents headache requires good communication and knowledge.
- Depending on the presentation type and potential headache diagnosis management have to be planned for individually.
- Management of the headache subtype always care about comorbidities and potential side effects together with the quaility of life.
- All new application and presenting signs of red flags required further evaluation should be always kept in mind for secondary causes.

More reading…

J Headache Pain (2011) 12:13–23
DOI 10.1007/s10194-011-0297-5

REVIEW ARTICLE

Overview of diagnosis and management of paediatric headache. Part I: diagnosis

Aynur Özge · Cristiano Termine · Fabio Antonaci · Sophia Natriashvili · Vincenzo Guidetti · Çiçek Wöber-Bingöl

Özge *et al. The Journal of Headache and Pain* (2017) 18:109
DOI 10.1186/s10194-017-0818-y

REVIEW ARTICLE Open Access

Experts' opinion about the primary headache diagnostic criteria of the ICHD-3rd edition beta in children and adolescents

Aynur Özge[1], Noemi Faedda[2], Ishaq Abu-Arafeh[3], Amy A. Gelfand[4], Peter James Goadsby[5], Jean Christophe Cuvellier[6], Massimiliano Valeriani[7,8], Alexey Sergeev[9], Karen Barlow[10], Derya Uludüz[11], Osman Özgür Yalın[12], Richard B. Lipton[13], Alan Rapoport[14] and Vincenzo Guidetti[15*]

J Headache Pain
DOI 10.1007/s10194-010-0256-6

REVIEW ARTICLE

Overview of diagnosis and management of paediatric headache. Part II: therapeutic management

Cristiano Termine · Aynur Özge · Fabio Antonaci · Sophia Natriashvili · Vincenzo Guidetti · Çiçek Wöber-Bingöl

Özge *et al. The Journal of Headache and Pain* (2017) 18:113
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RESEARCH ARTICLE Open Access

Experts' opinion about the pediatric secondary headaches diagnostic criteria of the ICHD-3 beta

Aynur Özge[1], Ishaq Abu-Arafeh[2], Amy A. Gelfand[3], Peter James Goadsby[4], Jean Christophe Cuvellier[5], Massimiliano Valeriani[6,7], Alexey Sergeev[8], Karen Barlow[9], Derya Uludüz[10], Osman Özgür Yalın[11], Noemi Faedda[12], Richard B. Lipton[13], Alan Rapoport[14] and Vincenzo Guidetti[15*]

Antonaci *et al. The Journal of Headache and Pain* 2014, **15**:15
http://www.thejournalofheadacheandpain.com/content/15/1/15

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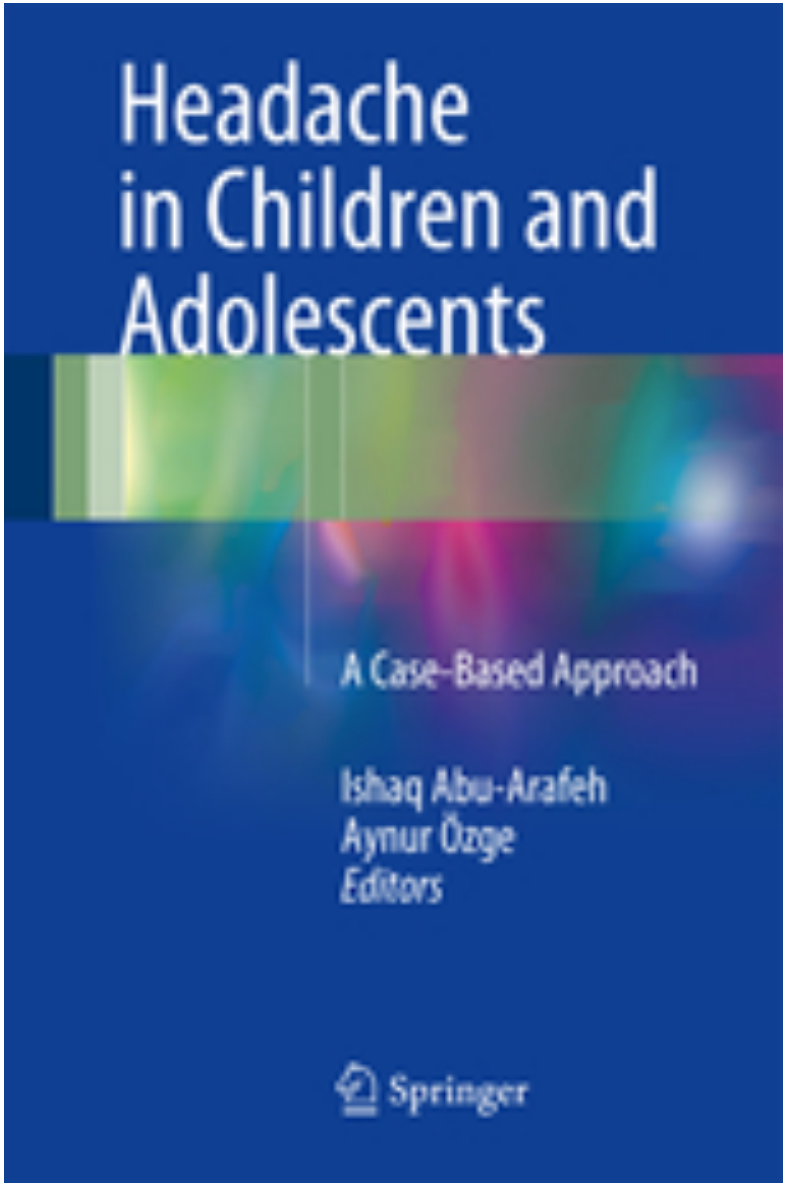
REVIEW ARTICLE Open Access

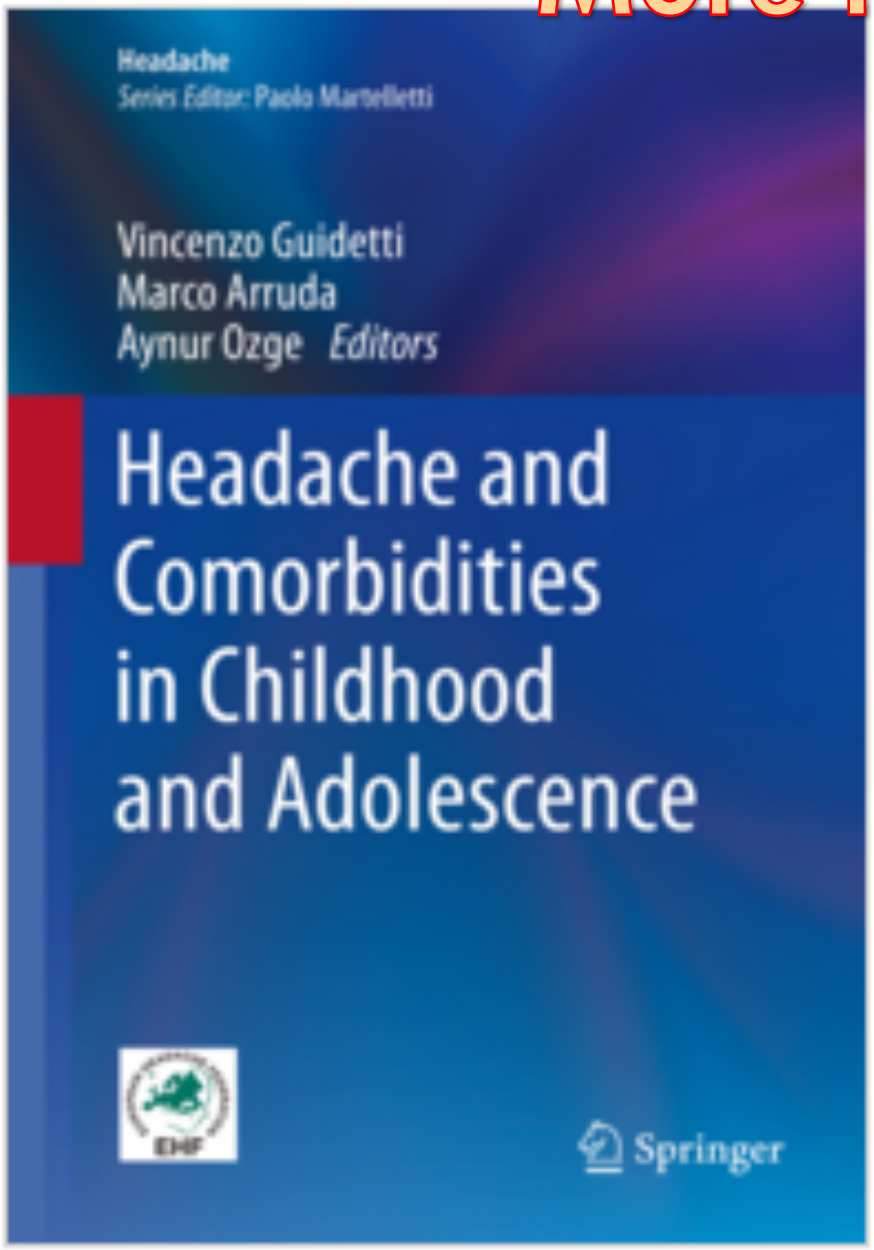
The evolution of headache from childhood to adulthood: a review of the literature

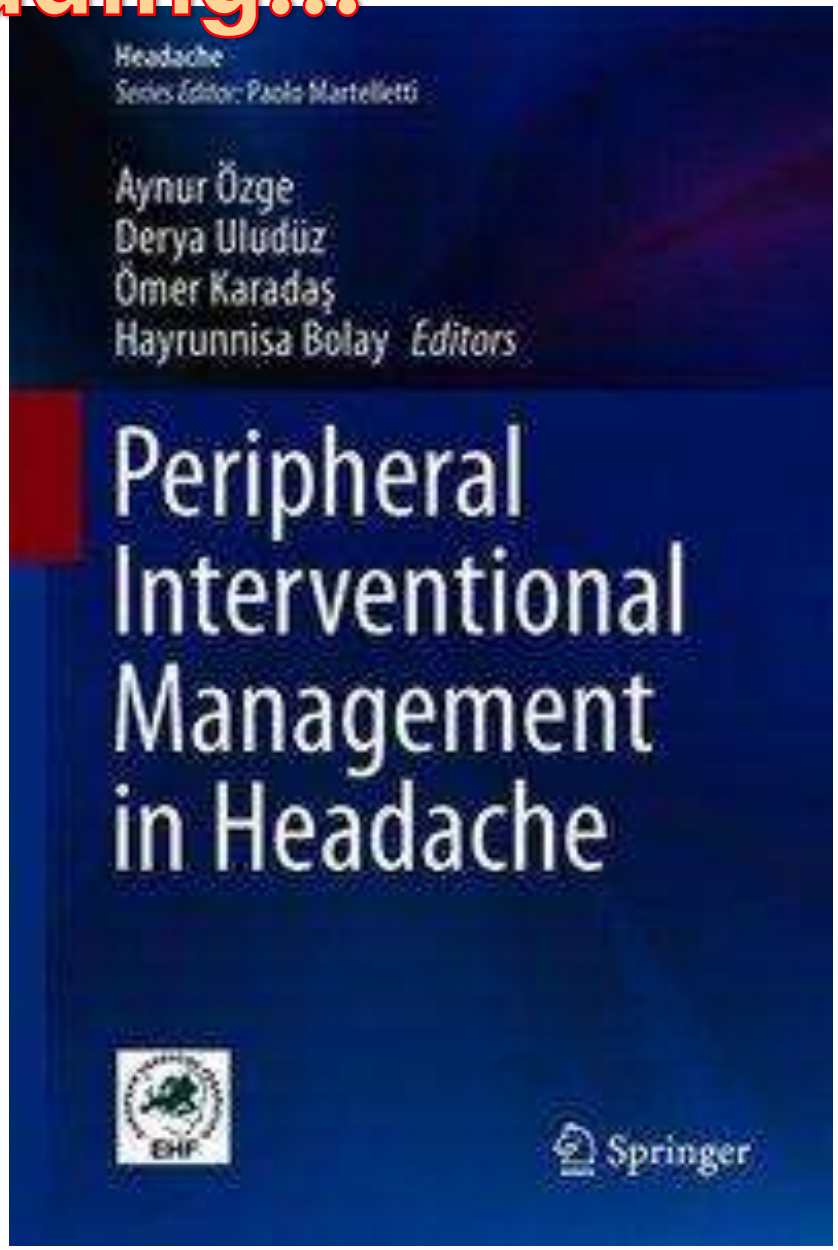
Fabio Antonaci[1*], Cristina Voiticovschi-Iosob[2,3], Anna Luisa Di Stefano[4], Federica Galli[1], Aynur Ozge[5] and Umberto Balottin[1,6]

More reading...



More reading...





Thanks for your attention…