



# Headache vs Migraine in children

Dr Aodhamair Lenagh-Maguire

Paediatric Fellow

Centennial Hospital for Women and Children

Canberra Health Services

# Learning objectives



Review your toolbox – how do you gain information from children about pain?



Distinguish primary from secondary headache disorders, and identify headache red flags



Understand how and when imaging is useful in paediatric headache



Confidently differentiate migraine from other types of headache in children



Update your knowledge of treatment options for paediatric migraine

# Headache in kids



**Common – around 20% of children under 18 have had report having had severe or recurrent headache in the last 12 months**



**Frequently benign in origin, but significant morbidity**



**Primary vs secondary headache:**

Primary – **migraine, tension headache**, autonomic headache syndrome (cluster headache)

Secondary – **URTI**, idiopathic intracranial hypertension, meningitis, hydrocephalus, intracranial mass/bleed/malformation

## Case study

Alex is 9 years old. He presents with his mother Jess because he's been complaining of headaches on and off over the last 2 months.

How are we going to find out more about Alex's headache?

# Finding out about children's headache

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OBSERVATION



EASE INTO IT –  
BACKGROUND FIRST



TALKING TO CHILDREN  
ABOUT THE PAIN



TALKING TO PARENTS  
ABOUT THE PAIN

## Tools

PedMIDAS

Headache diaries

HEADSS assessment

# Alex's headache

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Alex says the headache is 'just everywhere', and it is a throbbing pain that he rates 8/10 at its worst

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Once every 1-2 weeks, occur in the evening

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No nausea/vomiting/visual changes. Appetite ok

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Jess reports Alex behaves normally when he has the headache

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Occasionally missing football and sometimes he takes himself to bed a bit early

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Alex takes paracetamol for the headache 2-3 times a month. On two of these occasions, Jess has given him paracetamol because he woke during the night complaining of headache.

History of presenting complaint	Examination
<ul style="list-style-type: none"> <li>• Acute and severe pain</li> <li>• Chronic headaches progressing or changing</li> <li>• Focal neurological symptoms</li> <li>• Age &lt; 6yrs</li> <li>• Headache/vomiting that wakes child or present on waking (symptoms of raised intracranial pressure)</li> <li>• Rapid weight change, polyuria/polydipsia/ precocious or delayed puberty</li> <li>• Changes to behaviour, school performance or sleep</li> </ul>	<ul style="list-style-type: none"> <li>• Stigmata of <b>neurocutaneous syndromes</b> (e.g. neurofibromatosis and tuberous sclerosis)</li> <li>• Increasing head circumference</li> <li>• New focal abnormalities</li> <li>• Signs of raised ICP (<b>papilledema</b>, altered mental state, ataxia)</li> <li>• Signs of meningism (photophobia, neck stiffness)</li> </ul>
Medical history	Family history
<ul style="list-style-type: none"> <li>• Presence of ventriculoperitoneal (VP) shunt</li> <li>• Known vascular malformation</li> <li>• Hypercoagulable state (known thrombophilia, sickle cell, current malignancy)</li> <li>• Immunosuppressed</li> <li>• Hypertension</li> <li>• History of leukaemia, brain cancer, previous CNS irradiation</li> <li>• Known neurocutaneous syndrome - Neurofibromatosis types 1 and 2, Tuberous Sclerosis</li> </ul>	<p>Sarcoma and early onset breast or bowel cancer</p> <p>Brain cancer</p> <p>Colorectal polyposis</p> <p>Familial cancer predisposition syndrome – Li Fraumeni, Gorlins etc</p>



## Further history

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Pain sometimes delays sleep. No constitutional symptoms. No motor changes/clumsiness, no behavioural change.

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Usually well. No regular medications. Immunised.

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No concerns about growth and development. Unremarkable perinatal and early history.

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In Year 5 a Farrer Primary. Academically bright. Busy extra-curricular schedule.

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Family history of hypertension, and a history of migraine in Alex' mother and 2 paternal aunts. There is a history of bowel cancer in Alex' paternal grandfather.

# Examination

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Looks well, a little shy but easily engaged. Normal gait.

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Afebrile, HR 112 and regular, BP 100/68, weight on the 25<sup>th</sup> centile, height on the 50<sup>th</sup> centile, HC on the 25<sup>th</sup> centile

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Unremarkable cardio-respiratory and abdominal examinations

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Normal neurological examination, didn't tolerate fundoscopy.

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Visual acuity 6/6 L eye, 6/5 R eye

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ENT – slight scarring R TM, otherwise normal. Neck supple.

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No birth marks or other skin lesions, no nail changes

# HeadSmart: When to reassure

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## Reassure

- ✓✓ Persistent headache on most days over a four week period
- ✓✓ No worrying features
- ✓✓ No associated symptoms
- ✓✓ No associated high risk conditions
- ✓✓ Normal neurological examination

## Action

Reassure - an isolated headache, with no other symptoms and lasting for more than four weeks is unlikely to be a brain tumour.

# HeadSmart: When to refer

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## Review/refer

- ✓✓ Headache duration less than four weeks
- ✓✓ No worrying features
- ✓✓ No associated symptoms
- ✓✓ No associated high risk conditions
- ✓✓ Normal neurological examination

## Action

Observe and review four weeks after headache onset, repeat history and examination. If the headache remains, but there are still no other worrying features or associated symptoms, reassure.

# HeadSmart: When to image

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## Scan

- ✓✓ Headache with worrying features
- ✓✓ Headache with abnormal neurological examination
- ✓✓ Headache with associated high risk condition
- ✓✓ Headache with one or more other symptoms from symptom checklist

## Action

Scan

# Further developments



**Alex has an MRI brain,  
which is normal**



**Alex and Jess keep a  
headache diary for the  
next 4 weeks**

Alex continues to have headaches  
on every 1-2 weeks

Onset is in the evening, more  
likely to occur after reduced sleep  
or after a longer day eg after  
school sport

Relieved by paracetamol and  
sleep

No aura or autonomic symptoms



**What now?**

## Migraine

- Onset usually in first decade of life
- Duration of hours to days
- Usually 2-4 times a month or less
- Pain can be unilateral or bilateral
- +/- aura and autonomic symptoms
- Triggered by fatigue, foods, bright lights, strenuous activity, menses

## Chronic non-progressive headache

- Onset in adolescence
- Squeezing pain that waxes and wanes
- Can occur daily
- Often associated with school absence
- Can be associated with depression/anxiety

### Tension – type headache

- Variable duration
- Usually occur late in the day
- Temporal/retro-orbital pain
- Can be triggered by stress, noise, strenuous activity

# Migraine management in children: acute



Trigger avoidance



Rest



Simple analgesia early



Triptans



Nausea/vomiting management



Follow -up



# Migraine management in children – prevention

New guideline produced by the American Academy of Neurology – August 2019

**In children and adolescents with migraines, do preventive pharmacologic treatments, with or without cognitive behavioural therapy (CBT), compared with placebo, reduce headache frequency?**

Prevention:  
what doesn't  
work:

Calcium channel  
blockers

Amitriptyline alone

Botox

Prevention:  
what might  
work

Propranolol

Topiramate

Amitriptyline + CBT

# Bottom line



**Trigger avoidance, maintenance of healthy lifestyle remain mainstay of prevention**



**Pharmacological prevention of limited benefit, but should be considered if migraine refractory to acute management or analgesia use >10-15 days per month**



**Most evidence-based options are propranolol and topiramate**



**Non pharmacological adjuvants should be encouraged**

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