Diagnosis of Brain Tumours in Children: A Guideline for Healthcare Professionals

**Headaches**
Consider a brain tumour in any child presenting with a new, persistent* headache
Brain tumour headaches occur at any time
Children aged younger than 4 years may not be able to complain of a headache - observe behaviour

**CNS imaging required for:**
- Persistent* headaches that wake a child from sleep
- Persistent* headaches that occur on waking
- Persistent* headaches at any time in a child younger than 4 years
- Confusion or disorientation and a headache

**Common headache pitfalls**
Failure to re-assess a child with a migraine or tension headache when the headache character changes
*Persistent = continuous or recurrent headache present for more than 4 weeks

**Nausea and vomiting**
Consider a brain tumour in any child presenting with persistent* nausea and / or vomiting
A child with persistent* nausea and / or vomiting requires specialist assessment within 2 weeks

**CNS imaging required for:**
- Persistent* vomiting on awakening (NB: exclude pregnancy where appropriate)

**Common vomiting pitfalls**
Failure to consider a CNS cause for persistent nausea and vomiting
*Persistent = nausea and / or vomiting present for more than 2 weeks

**Visual symptoms and signs**
Consider a brain tumour in any child presenting with a persisting* visual abnormality
Visual assessment requires assessment of:
- Acuity
- Eye movements
- Pupil responses
- Optic disc appearance
- Visual fields (> 5 years)
- Pre-school and uncooperative children should be assessed by hospital eye service within 2 weeks of referral

**CNS imaging required for:**
- Papilloedema
- Optic atrophy
- New onset nystagmus
- Reduction in acuity not due to refractive error
- Visual field reduction
- Proptosis
- New onset paralytic (non-comitant) squint

**Common visual pitfalls**
Failure to fully assess vision in a young or uncooperative child (REFER IF NECESSARY)
Failure of communication between community optometry and primary and secondary care
*Persistent = visual abnormality present for more than 2 weeks

**Diabetes insipidus**
(see www.nice.org.uk/G137)

**Seizures**
(see www.nott.ac.uk/paediatric-guideline)

**Assess these children using:**
- Associated symptoms
- Any predisposing factors
- Visual system
- Motor system
- Height and weight
- Head circumference
- (<2 years)
- Pubertal status

**Assessment pitfalls**
The initial symptoms of a brain tumour frequently mimic those that occur with common childhood conditions.
- Symptoms frequently fluctuate - resolution and then recurrence does not exclude a brain tumour.
- A normal neurological examination does not exclude a brain tumour.
- Language difficulties: use interpreting service if necessary.

**Motor symptoms and signs**
Consider a brain tumour in any child presenting with:
- Abnormal gait
- Abnormal co-ordination
- Focal motor weakness

**Growth and developmental abnormalities**
- Growth failure (weight / height)
- Delayed, arrested or precocious puberty

**Behavioural change**
(see www.nott.ac.uk/paediatric-guideline)

**CNS imaging required for:**
- Regression in motor skills
- Focal motor weakness
- Abnormal gait and / or co-ordination (unless local cause)
- Bells palsy with no improvement within 4 weeks
- Swallowing difficulties (unless local cause)

**Common motor pitfalls**
Attributing the abnormal balance or gait caused by a cerebellar lesion to middle ear disease
Failure to identify swallowing difficulties and aspiration as the cause of recurrent chest infections
*Persistent = motor abnormality present for more than 2 weeks

**Growth and development**
Consider a brain tumour in any child presenting with any combination of growth failure, delayed / arrested puberty and polyuria / polydipsia

**Common growth and development pitfalls**
Failure to consider diabetes insipidus in children with vomiting and weight loss
Failure to consider diabetes insipidus in children with polyuria and polydipsia

**Behaviour**
Lethargy is the most common behavioural abnormality that occurs with brain tumours

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*Lower risk = CNS tumour in differential diagnosis, low index of suspicion*