

# A drowsy baby

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## History

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### Presenting complaint

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A 1-month-old male infant is brought into A&E by his parents and maternal grandmother. The grandmother is concerned that the infant is unusually drowsy and hard to rouse for feeding.

### Pregnancy

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- **Gravidity:** The number of times a woman has been pregnant, regardless of the outcome.
- **Parity:**
  - **X** (any live or stillbirth after 24 weeks)
  - **Y** (number of pregnancies lost before 24 weeks)
- Gestational age at delivery
- Birth weight
- Mode of delivery
- Complications in the antenatal, perinatal, postnatal period

### Mother's response

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*"I've only been pregnant once, with this child and he was born at 37 weeks. I can't remember exactly how much he weighed at birth, but I know it was a normal weight. I had a vaginal delivery and there were no complications."*

### How long has the infant been lethargic?

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Initially, the parents stated that the infant had been drowsy for 1-2 days. After speaking with the grandmother, it became apparent that the infant had been lethargic for over two weeks and had vomited several times over the last week.

### Do the parents have any other concerns about the infant?

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No concerns are voiced by the parents and they denied any fevers, vomiting, seizures, or accidental injury. However, the child's father mentions to you in the corridor after your initial discussion that he had accidentally dropped the infant in his crib a week ago and wondered if that might be related to the infant's current presentation.

### **How is the infant feeding?**

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The infant is breastfed and feeding 10 times a day, however, he needs to be woken for feeds. She denied any issues with breastfeeding and is receiving support from a lactation consultant.

### **Elimination history**

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- Passed meconium shortly after birth
- Opening bowels regularly
- 5-6 wet nappies a day

### **How are the parents coping?**

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The child's mother reports feeling exhausted and depressed. She is slow to process information and has difficulty answering questions. The child's father states he couldn't be happier and is enjoying spending time with his son. The maternal grandmother is very proud and supportive of her daughter.

### **Past medical history**

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- No known medical conditions
- No regular medications
- No allergies

### **Relevant family history**

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No significant family history.

### **Social history**

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- Occupation (both parents are currently unemployed but the father is currently looking for some work)
- Alcohol history (the parents each drink 10-15 units a week of alcohol but do not smoke or use recreational drugs)
- Smoking history
- Recreational drug use

### **Current living situation**

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- Both parents and the infant are living with the infant's maternal grandmother.
- Domestic violence has previously been reported during the pregnancy, but the mother denies any recurrence of this recently.

**Inconsistent history, delay in seeking medical treatment, and suspicious mechanism of injury** are all red flags for non-accidental injury. Poor feeding, vomiting, and lethargy are all non-specific findings but can indicate head trauma. Signs of brain injury may include seizures, altered mental status and apnoeic episodes.

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## Examination

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In young children the history is not as useful for narrowing down the differential diagnosis as the infant can not report symptoms and signs are generally non-specific (e.g. crying, poor feeding). As a result, a full clinical assessment of **all systems** should be adopted to reduce the risk of missing pathology.

### Basic observations and measurements

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- **Vital signs** are within normal limits
- **Measurements:**
  - Weight: 3.8kg (10<sup>th</sup>-25<sup>th</sup> percentile)
  - Length: 54cm (25<sup>th</sup>-50<sup>th</sup> percentile)
  - Head circumference: 38cm (25<sup>th</sup>-50<sup>th</sup> percentile)

### General inspection

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- The infant is sleeping, with no obvious evidence of injury, no abnormal posturing and no signs of distress.
- There is normal child-caregiver interaction.

### Systems based physical exam

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#### Cardiovascular and respiratory examination:

No abnormalities

#### Abdominal examination:

No abnormalities

#### Musculoskeletal examination:

- No swelling or obvious point tenderness of extremities
- Normal passive range of motion in major joints

#### Neurological examination:

- Normal head size and shape
- No bulging fontanelle
- Normal tone
- Primitive reflexes present
- Deep tendon reflexes were normal
- Drowsy and lethargic

- Very difficult to elicit spontaneous eye-opening
- Eyes were of normal shape and symmetrical
- Red reflex present
- Pupils equal and reactive to light
- No subconjunctival haemorrhage
- Fundoscopy – **extensive bilateral retinal haemorrhages**

#### **Dermatological examination:**

- No rashes or birthmarks noted
- No visible signs of trauma

When head trauma, is suspected, the clinician should be looking for signs of raised intracranial pressure such as a **reduced level of consciousness, bradycardia, reduced respiratory rate, apnoeic episodes, vomiting and bulging fontanelles.**

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### **Investigation**

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At this stage, acute and reversible causes of the infant's altered mental status need to be investigated.

#### **Blood tests**

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- Full blood count
- Serum biochemistry
- Coagulation studies
- LFTs
- CRP
- Lactate
- Capillary blood glucose
- Blood culture

#### **Other investigations**

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Urinalysis

#### **Results**

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All of the above investigations return normal results.

#### **CT head**

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Given the history and the presence of bilateral retinal haemorrhages on fundoscopy, this child needs an **urgent CT head** to look for signs of intracranial pathology.

#### **Skeletal survey**

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Given the history of trauma and the possibility of non-accidental injury, the child requires a **skeletal survey**. A skeletal survey involves multiple x-rays to assess all of the child's bones for fractures, these images are reviewed by a senior paediatric radiologist.

### Investigation results

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- **CT Head** – small left subdural haematoma with no midline shift
  - A **skeletal survey** – two anterior and one posterior rib fracture
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### Diagnosis

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#### Non-accidental injury – shaken baby syndrome

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When the infant is being shaken by their caregiver, rib fractures and intracranial haemorrhages can result if enough force has been applied. Subdural haemorrhages are most commonly seen, but subarachnoid haemorrhages can occur as well. Neurological signs that point towards raised intracranial pressure secondary to bleeding and/or brain swelling include vomiting, apnoeic episodes, seizures, irritability and altered mental status. An absence of these signs does not rule out non-accidental head trauma. Retinal haemorrhages are noted in 80% of these cases and are highly suggestive of non-accidental injury. Mandatory reporting and further work-up are required.

It should be noted that although the above mentioned clinical signs can be found in children who have been shaken, they can also occur due to other causes that are not related to a non-accidental injury. As a result, a multidisciplinary team of specialists review all of the available evidence to decide if a non-accidental injury is likely to have occurred.

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### Management

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The management of possible non-accidental injury is complex and involves a multidisciplinary team including:

- Consultant paediatrician
- Specialists relevant to the child's injury (e.g. neurosurgery and ophthalmology in this scenario)
- Senior paediatric nursing staff
- Consultant paediatric radiologist
- Social worker
- Police

The child's safety is the first concern, which can mean removing caregivers access to the child during the investigation (or providing supervised access).

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### References

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