

## Case 34 A severe head injury



Figure 34.1

A 38-year-old overseas tourist, visiting London, stepped off the pavement looking to the left and not to the right and stepped straight in front of a bus. She was rapidly brought into hospital by ambulance, lying on her side and with a cervical collar in place.

When assessed by the casualty officer, she was deeply unconscious. There were bilateral periorbital haematomas, as can be seen in Fig. 34.1, with subconjunctival haemorrhage, but the pupils were normal, equal and responded to light. She withdrew her arm when her hand was pricked with a pin, and there was a similar response when her feet were pricked. When spoken to loudly, she made incomprehensible noises only. Using the Glasgow Coma Scale (Box 34.1), the doctor graded her as 7 (E1, V2, M4).

Apart from quite extensive bruises on her legs and right shoulder, there were no other obvious injuries on full examination.

### What is the most important thing to ensure in the immediate management of an unconscious patient from whatever cause?

Maintenance of the airway. The patient in coma will die within a few minutes if the airway is blocked.

### Box 34.1 The Glasgow Coma Scale (GCS)

#### Eye opening (E)

- 4 Spontaneously
- 3 To speech/command
- 2 To pain
- 1 None

#### Best verbal response (V)

- 5 Orientated – knows who he or she is and where he or she is
- 4 Confused conversation – disorientated; gives confused answers to questions
- 3 Inappropriate words – random words; no conversation
- 2 Incomprehensible sounds
- 1 None

#### Best motor response (M)

- 6 Obeys commands
- 5 Localizes pain
- 4 Flexes to pain – flexion withdrawal of limb to painful stimulus
- 3 Abnormal (decorticate) flexion – upper limb adducts, flexes and internally rotates so that it lies across chest; lower limbs extend
- 2 Extends to pain (decerebrate) – painful stimulus causes extension of all limbs
- 1 None

### Figure 34.1 shows how this has been achieved in her case. What does it demonstrate?

The nasal and oral airways are in place. These were sufficient to maintain an adequate airway and endotracheal intubation was not necessary.

### Why did the ambulance men transport her on her side?

She was transported in the 'tongue position', so-called from the position children are placed in when recovering from

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the anaesthetic after tonsillectomy. The patient is turned on her side with the body tilted head-downward. This allows the tongue to drop forward so as not to occlude the oropharynx. With the patient tipped head-down, bronchial secretions, vomit or blood drain from the mouth rather than being inhaled into the respiratory passages. If necessary, the tongue is drawn forward by pushing the angle of the jaw forward on each side.

### **At present, she has an intravenous line with a drip of dextrose saline. What will be the simplest way of giving this comatose patient food and drink?**

A fine nasogastric tube is passed (ensure it is in the stomach and not the trachea). This allows adequate hydration and nourishment to be given, even in prolonged periods of coma.

### **What are the standard imaging investigations carried out in patients with severe head injuries, such as in the present case?**

- CT scan of the head has now replaced conventional skull and cervical spine X-rays. Including the cervical spine is important because cervical vertebral fractures are

common in head injuries and, of course, the unconscious patient cannot complain of neck pain or of symptoms of cord involvement.

- The CT scan should cover other areas of thoraco-abdominal trauma, with plain X-rays if there is clinical evidence of injury to the limbs.

*Under careful nursing care and close monitoring, this woman made a steady recovery and was fit to leave hospital 3 weeks after her accident.*

### **Is there a clinical method of assessing the severity of the head injury after the patient has recovered?**

Yes; determine the period of amnesia, both up to the time of the injury – the retrograde amnesia – and the amnesia following the accident – the post-traumatic amnesia. For some unknown reason, the former is always considerably shorter than the latter. If the period of amnesia is measured in minutes or a few hours, prognosis is excellent. If, however, the amnesia lasts for days or even weeks, this indicates a severe cerebral injury with poor prognosis for return of full mental function.