

TABLE E-1 Demographic Data, Mechanism of Injury, Glasgow Coma Scale Scores, Intubation Details, Initial Neurologic Examination Findings, Associated Injuries, Type of Atlanto-Occipital Dislocation, and Survival Status for Our Sixteen Patients

Case	Age (yr + mo)	Mechanism of Injury	Glasgow Coma Scale	Intubation	Initial Neurological Examination	Associated Injuries	Status After Primary Arrival at Emergency Department	Final Status	Type of Atlanto- Occipital Dislocation	Radiographic Evaluation*
1	4 + 2	Struck by motor vehicle	3	Field	Crying during intubation, no spontaneous movement	Scalp abrasion, pulmonary contusion, right midshaft femoral fracture, left-sided hemiparesis, spinal cord contusion on magnetic resonance imaging	Survived	Survived	I and II	Powers + Harris +
2	12 + 5	Bicycle-motorcycle accident	3	Field	Bilateral withdrawal to stimuli in upper and lower extremity	Unconscious from time of impact. Scalp abrasion, right subdural hematoma, left pneumothorax, left pubic ramus fracture, right clavicular fracture	Died	Died	II and III	Kaufman +
3	16 + 4	Motor-vehicle accident	3	Field	Flaccid, unresponsive	Unconscious from time of impact. Mastoid ecchymosis, right trimalleolar fracture, left distal radial fracture	Died	Died	I and II	Powers + Kaufman + Harris +
4	3 + 3	Struck by motor vehicle	11	Emergency department	Flaccid, unresponsive	Mastoid ecchymosis, periorbital edema, subarachnoid hemorrhage, basilar skull fracture	Survived	Survived	II	Kaufman +
5	2 + 4	Struck by motor vehicle	10	Emergency department	Bilateral withdrawal to stimuli in upper and lower extremity	Unconscious from time of impact. Facial and scalp abrasions, subarachnoid hemorrhage	Survived	Survived	I and II	Powers + Kaufman + Harris +
6	4 + 5	Struck by motor vehicle	11	Not intubated	Moaning/crying	Facial laceration, right hemiparesis, left hemiplegia, right pulmonary contusion, right psoas hematoma	Survived	Survived	II	Kaufman +
7	1 + 3	Struck by motor vehicle	3	Field	Flaccid, unresponsive	Unconscious from time of impact. Scalp abrasions, intraventricular hemorrhage, subarachnoid hemorrhage	Died	Died	I and II	Powers + Kaufman + Harris +
8	4 + 4	Struck by trolley while riding bicycle	3	Field	No spontaneous movement	Unconscious from time of impact. Scalp abrasion, bilateral pulmonary contusion, elbow abrasions	Died	Died	II and III	Kaufman + Harris +
9	11 + 3	Struck by motor vehicle	3	Field	Bilateral withdrawal to stimuli in upper and lower extremity	Unconscious from time of impact. Scalp abrasion, pulmonary contusion, right femoral fracture	Died	Died	III	Harris +
10	12 + 6	Playing football and hit by another player's helmet	15	Not intubated	No spontaneous movement	Concussion, C1-C2 spinal cord contusion, subarachnoid hemorrhage, subdural hemorrhage	Survived	Died	I	Powers + Harris +
11	2 + 5	Neck injury while playing (rotatory motion)	15	Field	Crying/moaning, no spontaneous body movements	No external injuries. Concussion, subarachnoid hemorrhage, subdural hemorrhage, cord contusion	Survived	Died	I and II	Powers + Kaufman +
12	13 + 4	Struck by motor vehicle	3	Cardiopulmonary resuscitation, field intubation	Flaccid, unresponsive	Scalp abrasions, right elbow fracture, T1 vertebral fracture, multiple splenic lacerations	Died	Died	I and II	Powers + Kaufman + Harris +
13	9 + 1	Struck by motor vehicle	3	Cardiopulmonary resuscitation, field intubation	Flaccid, unresponsive	Facial abrasions, sphenoid sinus fracture, subarachnoid hemorrhage, subdural hemorrhage, sternal contusion	Died	Died	II	Kaufman + Harris +
14	6 + 5	Bicycle-motor vehicle accident	15	Cardiopulmonary resuscitation, field intubation	Bilateral withdrawal to stimuli in upper and lower extremity	Facial abrasions, scalp abrasions, splenic hematoma, subarachnoid hemorrhage, subdural hemorrhage	Survived	Died	II	Kaufman +
15	5 + 3	Rode bicycle into parked truck	15	Not intubated	Moaning	Facial abrasions, scalp abrasions, left hemiparesis	Survived	Survived	II	Harris +
16	13 + 4	Attempted suicide by hanging from tree	3	Cardiopulmonary resuscitation, field intubation	Bilateral withdrawal to stimuli in upper and lower extremity	Neck abrasions, mark of rope, right leg abrasions, C1-C2 subluxation	Died	Died	II and III	Kaufman + Harris +

TABLE E-2 Details of Management and Follow-up Examination

Case	Initial Immobilization	Definitive Stabilization	Steroid Use*	Transfer to Rehabilitation Center	Neurologic Outcome	Follow-up
1	Cervical collar and spine board	Halo, occiput-C2 fusion	Methylprednisolone	Day 21	L hemiparesis	55 mo
2	Cervical collar and spine board	None	—	Died	Died	Died
3	Cervical collar and spine board	None	Methylprednisolone	Died	Died	Died
4	Cervical collar and spine board	Cervical-thoracic-lumbosacral orthosis, halo, and occiput-C2 fusion	Decadron and methylprednisolone	Day 57	Ventilator-dependent, quadriplegia	99 mo
5	Cervical collar and spine board	Minerva cast	Methylprednisolone	Day 8	Normal findings	28 mo
6	Cervical collar and spine board	Halo, occiput-C2 fusion	Methylprednisolone	Day 18	Ataxia, mild L hemiplegia	39 mo
7	Cervical collar and spine board	None	Methylprednisolone	Died	Died	Died
8	Cervical collar and spine board	None	Methylprednisolone	Died	Died	Died
9	Cervical collar and spine board	None	Methylprednisolone	Died	Died	Died
10	Cervical collar and spine board	Halo	Methylprednisolone	Died during neurosurgical procedure (8 hours after admission)	Died	Died
11	Cervical collar and spine board	Halo	Methylprednisolone	Died during neurosurgical procedure (10 hours after admission)	Died	Died
12	Cervical collar and spine board	None	Methylprednisolone	Died	Died	Died
13	Cervical collar and spine board	None	Methylprednisolone	Died	Died	Died
14	Cervical collar and spine board	Halo	Methylprednisolone	Died during neurosurgical procedure (7 hours after admission)	Died	Died
15	Cervical collar and spine board	Halo, occiput-C2 fusion	Methylprednisolone	Day 21	Mild L hemiparesis	30 mo
16	Cervical collar and spine board	None	Methylprednisolone	Died	Died	Died

*Steroid dosage: 30 mg/kg followed by an infusion of 5.4 mg/kg for twenty-three hours.