

EM CASE OF THE WEEK

BROWARD HEALTH MEDICAL CENTER DEPARTMENT OF EMERGENCY MEDICINE



Stupor and coma are recurring problems in the Emergency Department. Either due to trauma or other causes, it is important to promptly evaluate your patient and intervene quickly for the best prognosis.

EM CASE OF THE WEEK

EM Case of the Month is a monthly “pop quiz” for ED staff. The goal is to educate all ED personnel by sharing common pearls and pitfalls involving the care of ED patients. We intend on providing better patient care through better education for our nurses and staff.



Stupor and Coma

A patient comes into the ED by way of air from a Caribbean island. The patient is an international man on vacation. He was having severe headaches and upon ED visit on the island, was found to have bilateral subdural hematomas. The doctors on the island were not able to intervene, so he was sent here for craniotomy. Upon ED admission, he was found to be in an out of consciousness. He was able to open his eyes to verbal commands. He communicated appropriately when aroused and was able to squeeze his hands on command.

What was his Glasgow Coma Score?

- a) 11
- b) 12
- c) 13
- d) 14
- e) 15



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Glasgow Coma Scale

Stupor and Coma

	Score
Eye opening	
Spontaneous	4
Response to verbal command	3
Response to pain	2
No eye opening	1
Best verbal response	
Oriented	5
Confused	4
Inappropriate words	3
Incomprehensible sounds	2
No verbal response	1
Best motor response	
Obeys commands	6
Localizing response to pain	5
Withdrawal response to pain	4
Flexion to pain	3
Extension to pain	2
No motor response	1
Total	

The correct answer is D. Using the Glasgow Coma Scale, each parameter (eye opening, verbal response and motor response) is given an individual score and they are added together. In this patient, he had eye opening to verbal command (4 points), was oriented (5 pts), and obeyed motor commands (6 pts). This totals a score of 14 points. GCS is often an important predictor of mortality but is not the only tool we should use when assessing a patient.

Discussion:

Stupor and coma are clinical states in which patients have impaired responsiveness (or are unresponsive) to external stimulation and are either difficult to arouse or are unarousable. Coma is defined as "unarousable unresponsiveness." An alert patient has a normal state of arousal.

An alteration in arousal represents an acute, life threatening emergency, requiring prompt intervention for preservation of life and brain function. Emergent evaluation and management of stupor and coma in adults is required. Evaluation is done by taking vital signs and performing a general exam, neurologic exam and GCS, screening laboratories (CBC, CMP, PT, PTT, ABG, drug screen), ECG, CXR and head CT.

As always, remember your ABCs. Check a fingerstick glucose for a potentially easily reversible cause. Intubate the patient if they have a GCS ≤ 8 . Use supplemental O₂ if not intubating. Have two large bore IVs bilaterally for access, and maintain blood pressure as needed.

For a list of educational lectures, grand rounds, workshops, and didactics please visit

<http://www.BrowardER.com>

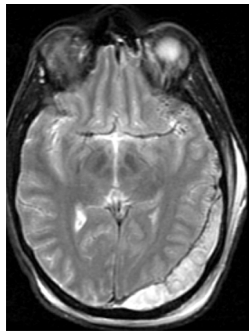
and click on the "Conference" link. All are welcome to attend!

Subdural hematoma

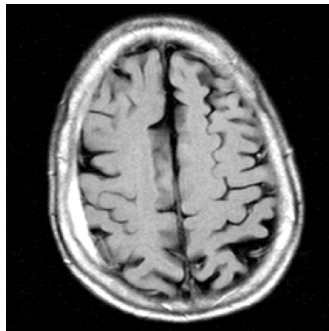
Acute SDH is usually caused by tearing of the bridging veins that drain from the surface of the brain to the dural sinuses. Rupture of these vessels allows for bleeding into the space between the arachnoid membranes and dura through which the vessels traverse.

The initial presentation of SDH has a spectrum of manifestations. Severe head trauma may result in SDH with coma, while a lesser injury may produce acute SDH with only momentary loss of consciousness. Subacute and chronic SDH may present insidiously, typically with disturbances of consciousness. Acute SDH presents one to two days after onset, while subacute SDH presents 3 to 14 days after onset, and chronic SDH presents 15 or more days after onset.

Following an acute SDH, coma is present from the time of injury in approximately 50 percent of cases. However, approximately 12 to 38 percent of patients have a transient "lucid interval" after the acute injury that is followed by a progressive neurologic decline to coma.



Subdural hematoma
"crescent-shaped"



Epidural hematoma
"biconvex shaped"

Epidural Hematoma

This is a type of traumatic brain injury in which a buildup of blood occurs between the dura mater and the skull. The majority of bleeds originate from meningeal arteries, particularly in the temporal region. Often due to trauma, the condition is potentially deadly because the buildup of blood may increase pressure in the intracranial space, compress brain tissue, and cause brain shift.

As with subdural hematoma, the initial presentation of EDH has a spectrum of manifestations. Severe head trauma may result in EDH with coma, while a lesser injury may produce EDH with only momentary loss of consciousness.

In some patients with acute EDH and transient loss of consciousness, there is a so-called "lucid interval" with recovery of consciousness, followed by deterioration over a period of hours due to continued arterial bleeding and hematoma expansion. This deterioration is typically associated with symptoms such as headache, vomiting, drowsiness, confusion, aphasia, seizures, and hemiparesis.

In a study that prospectively collected data for 107 consecutive patients with EDH, the overall mortality was 5 percent, and there were no deaths among patients with a Glasgow coma scale score ≥ 8 who underwent hematoma evacuation. At six months after injury, a good recovery was observed in 89 percent of the cohort.

This case was written by Erica Schultz. Erica is a 4th year medical student at NSU who rotated at Broward Health's ED in February of 2015. She is pursuing a career in Pediatric EM.