Restraint Asphyxia “Near-Death” Case Study
HOSPITAL RECORDS INFORMATION:

All records regarding this patient's emergency department (ED) course of examination, treatment, and findings – in addition to his brief in-hospital stay – were obtained with permission of the receiving hospital. All identifying references to the actual patient have been deleted, to preserve patient confidentiality.

The Patient was Delivered to the ED:

We arrived at the ED's door at 0157.54 hours. Upon transfer to the hospital bed in the "Crisis Room," the patient was immediately put on a ventilator, at a rate of 12 ventilations per minute [FI02 80, Tidal volume of 700, PEEP at 2.5].

The patient's persistent, forceful attempts to defeat restraint and immobilization continued.

At 0205 hours the patient was chemically paralyzed and sedated with IV injections of 70 mg Zemuron (rocuronium bromide) and 4 mg Versed (midazolam).

A Summary of the Initial ED Examination and Impressions
(ALL of the following notations are QUOTES from the ED Nursing Care Record):

[0200 hours] Initial VS = B/P 116/73, pulse 120, ventilated respirations, temp of 36.6 C.

Patient follows no commands in ED.

Spontaneous eye opening.

Purposeful movements.

No past medical history available.

Warm, dry, (pink), white male, nasally intubated, awake, agitated.

Multiple contusions to face/forehead.

Right eye hematoma with edema and laceration.

Pupils equal and reactive to light – 7 (constricting to 4) millimeters bilaterally.

Extra ocular movements intact.

Ears, nose, teeth all intact and without abnormal findings.

Neck placed in collar.

No "steps" noted in spine.

Rapid respiratory rate with clear breath sounds bilaterally.

Abdominal exam = contusion left upper quadrant, abrasion right lower quadrant.

All quadrants soft with no masses.

Bowel sounds appropriate.

Pelvis stable.

Extremity exam = abrasion left shoulder, and bilateral knee abrasions.

Movement of all extremities.

After paralysis, rectal exam shows decreased tone, with heme-negative stool.

Heme-negative urine.

Normal prostate.

Patient is awake and opens eye to voice, does not follow commands.

The ED "Diagnostic Impressions" were as follows:

1. **Altered Mental Status / THC (marijuana) Intoxication**
2. **Respiratory Failure**
3. **Multiple Facial Contusions / Abrasions**
4. **Eyelid Laceration**
5. **Extremity Abrasions**

Detailed ED Treatment/Exam Chronology

- 0205 the patient's vital signs were 116/73, pulse of 120, ventilated at 12/minute.
- 0210 another 3 mg of Versed were administered IV.
- 0210 an NG tube was placed.
- 0220 activated charcoal was administered.
  The patient's vital signs were 141/70, pulse of 116, ventilated at 12/minute.
- 0238 another 70 mg of Zemuron were administered IV.
  The patient's vital signs were 152/87, pulse of 110, ventilated at 12/minute.
- 0245 the patient was sent for a CT scan of his head.
  Chest and C-spine x-rays were negative for any chest or spine trauma.
  The patient's vital signs were 161/107, pulse of 113, ventilated at 12/minute.
- 0300 another 5 mg of Versed were administered IV.
  The patient's pulse was 98.
- 0340 another 3 mg of Versed were administered IV.
- 0345 the patient returned from CT.
- 0400 an EKG was done. It showed a normal sinus rhythm, with nonspecific ST abnormality. The patient's heart rate was 84 per minute.
- 0415 the patient's vital signs were 142/70, pulse of 84, ventilated at 12/minute.
- 0420 the nursing staff noted the patient to be increasing in agitation.
  The patient's vital signs were 155/82, pulse of 84, ventilated at 12/minute.
- 0430 muscle tremors were noted and attributed to Zemuron (withdrawal?).
- 0435 another 3 mg of Versed were administered IV.
- 0440 another 2 mg of Versed were administered IV.
- 0445 head CT revealed no bleed, no mass or mass effect. Soft tissue right orbital trauma was found, with "fluid" (not blood) in patient's frontal and sphenoid sinuses.
- 0500 the patient was first noted to be **following commands**, and was sent to undergo a CT scan of his abdomen and pelvis.
  The patient's vital signs were 143/70, pulse of 78, ventilated at 14/minute.
- 0530 the patient returned to the ED.
- 0550 the abdominal and pelvic CT revealed normal findings for everything, except for multiple small calcification findings in the patient's spleen.
- 0600 the urine toxicological screen showed the patient was positive for marijuana.
  The patient's vital signs were 138/66, pulse of 74, ventilated at 14/minute. A spinal tap was done and the findings were negative for any cerebrospinal fluid abnormalities.
- 0636 the patient received 4 sutures in his right upper eyelid laceration.
- 0700 the patient was transferred to the intensive care unit. His total fluid intake while in the ED was 1300 cc of Normal Saline. His total output was 1400 cc.

TOXICOLOGICAL FINDINGS

The blood samples obtained by PREHOSPITAL care providers revealed the following:

CBC:

- HCT 53.7
- HGB 17.7
- WBC 12.9
- PLTS 255

SMA 7:

- NA 149
- K+ 4.1
- CO2 14
- CL 102
- BUN 13
- CR 1.1
- GLU 129

TOX SCREEN:

- ETOH **[3 types of “alcohol”]** = negative
- SALICYLATES **[aspirin]** & ACETAMINOPHEN **["Tylenol"]** = negative
- COCAINE = negative
- NARCOTICS, BARBITURATES, BENZODIAZEPINES = negative
- METHAMPHETAMINES = negative
- HALLUCINOGENS **[apart from THC and "other" below]** & PCP = negative
- LIDOCAINE = positive **[likely from the gel used to prep his nare for intubation]**
- CAFFEINE = positive
- THC **[marijuana]** = positive
- "OTHER" = positive **[according to my physician document-interpreter, this is likely the psilocybin "mushrooms" the patient later admitted to taking]**

ED UA [Urine Sample Analysis]:

- RBC 5-10
- WBC 5-10
- BACT negative
- GLUCOSE 500
- PROTEIN 100

ED ABG:

At 02:30 hours on 08/23/98, the following Arterial Blood Gas (ABG) Values were obtained:

7.25 / 38 / 169 / 16 / 99%

Here is a table showing "normal" ABG values compared to this patient's ABG Values.

ABG Values	Normal	Study Pt
pH	7.35-7.45	7.25
PaCO2	35-45 mm Hg	38
PaO2	80-95 mm Hg	169
HCO3	22-26 mEq/L	16
O2 Saturation	95-99%	99%

As you can see, even though this patient's oxygenation (PaO2) was far ABOVE normal (a far greater amount of oxygen in his blood than normal), his carbon dioxide (PaCO2) level was within normal limits. But, his blood's pH was very "ACIDOTIC" (a pH less than 7.35). Such very acidotic pH levels are consistent with every restraint asphyxia victim who ever has had ABGs drawn.**(4-6)**

I have no record of the patient ever being given sodium bicarbonate (the chemical "cure") to correct this acidosis. Perhaps, the hospital's care providers believed that continued hyper-oxygenation (ventilation with concentrated oxygen) would correct the acidosis without chemical assistance. This is a reasonable anticipation, especially given the fact that the patient was gradually improving.

However, they never "hyperventilated" him – the mechanical "cure" for respiratory acidosis.

His artificial ventilations remained set at the MINIMUM required rate: 12 per minute, until 0500 hours, when he began "**following commands**" and his artificial ventilation rate was increased to 14 per minute. "Hyperventilation" requires a ventilation rate of 20 to 24 (or more) per minute. I also don't have a record of ***another*** ABG ever being drawn and analyzed. This is somewhat … concerning … in that, the "efficacy" of the receiving hospital's "hyper-oxygenation" treatment was never chemically evaluated.

In-Hospital Treatment Records

The patient was admitted to the "Short Stay" ward. **[Less than 48 hours of hospitalization anticipated.]** The ED nursing notes indicated that the patient was sent to the "Intensive Care Unit" from the ED, at 0700 hours on 08/23/98. But, unless he went there briefly, and THEN was sent to Short Stay, that note was in error.

The patient was removed from the ventilator and extubated soon after his arrival in Short Stay, demonstrating an adequate pulse-ox on room air.

Apparently the "psilocybin mushroom" usage **["other" on the TOX screen]** was identified while in Short Stay. I surmise that the patient volunteered information regarding this use. The patient's past medical history was obtained. He had diminished hearing in his left ear, secondary to a bout of meningitis when 5 years old. He had no other history of medical, traumatic, or psychiatric difficulties. He took no medications.

Continued observation and further lab tests were performed while the patient was in Short Stay, with no indications of any developing complications, injury or illness. A Psychiatry consult was obtained and the patient was referred for out-patient substance abuse treatment.

The patient was discharged "to his Sister" on 08/24/98 **[I can’t find a note of what time]**, without medications, without disabilities, and with instructions to return to the ED in 3 to 5 days for right eye suture removal.

Reportedly, on 08/26/98 the patient returned to the ED, complaining of a "severe headache." Examinations were negative. The patient was discharged from the ED with a diagnosis of "post-concussion syndrome."