Acute Concussion Considerations: When to Call an Ambulance and Documenting and Absence of Suspicion

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Two Main Sections for This Talk

- 1. in the acute phase, when to call the ambulance and why. Please do not miss these as they are medical emergencies.
- 2. if determining a person does not have a mild TBI, some recommendations on how to document that. Safe return to duty, return to life, return to play documentation.

When to Call an Ambulance – and Why

- 1. Prolonged unconsciousness.
- 2. Worsening symptoms.
- 3. 3x vomiting or 1x projectile vomiting
- 4. CSF (blood and CSF) from ears and or nose.
- 5. Paralysis, Paresis, Peripheralization.
- 6. Asymmetric, Blown or fixed pupil(s).

1. Prolonged Unconsciousness

- We do not fully understand unconsciousness. However, prolonged unconsciousness is a cause for concern as critical brain functions could be compromised and urgent care needed.
- Use good BLS techniques, call an ambulance and get that person to a higher level of care.
- Many concerns here, because there could be underlying issues such as, paralysis, brain hemorrhage, brain swelling and others.

2. Worsening Symptoms

- If symptoms seem to be getting worse, and / or new symptoms appear transfer to a medical center.
- A concern here is progressing of an injury such as increased intra cranial pressure, brain bleeding (SAH, SDH et cetera).
- Get that person to medical care immediately.
- Don’t let them go to sleep. Use good life support methods.
- Onset of seizures and / or prolonged seizures.

Concussion is high in the public consciousness

- So lets talk about concussion for a moment.
- Car accident, IED, sports, slip and fall etc can all cause a concussion.
- There are about 3.8 million TBIs in the USA annually.
- A lot of talk has been about Natasha Richardson.

EMS was called but turned away

British actress Natasha Richardson dies after a skiing accident in Canada

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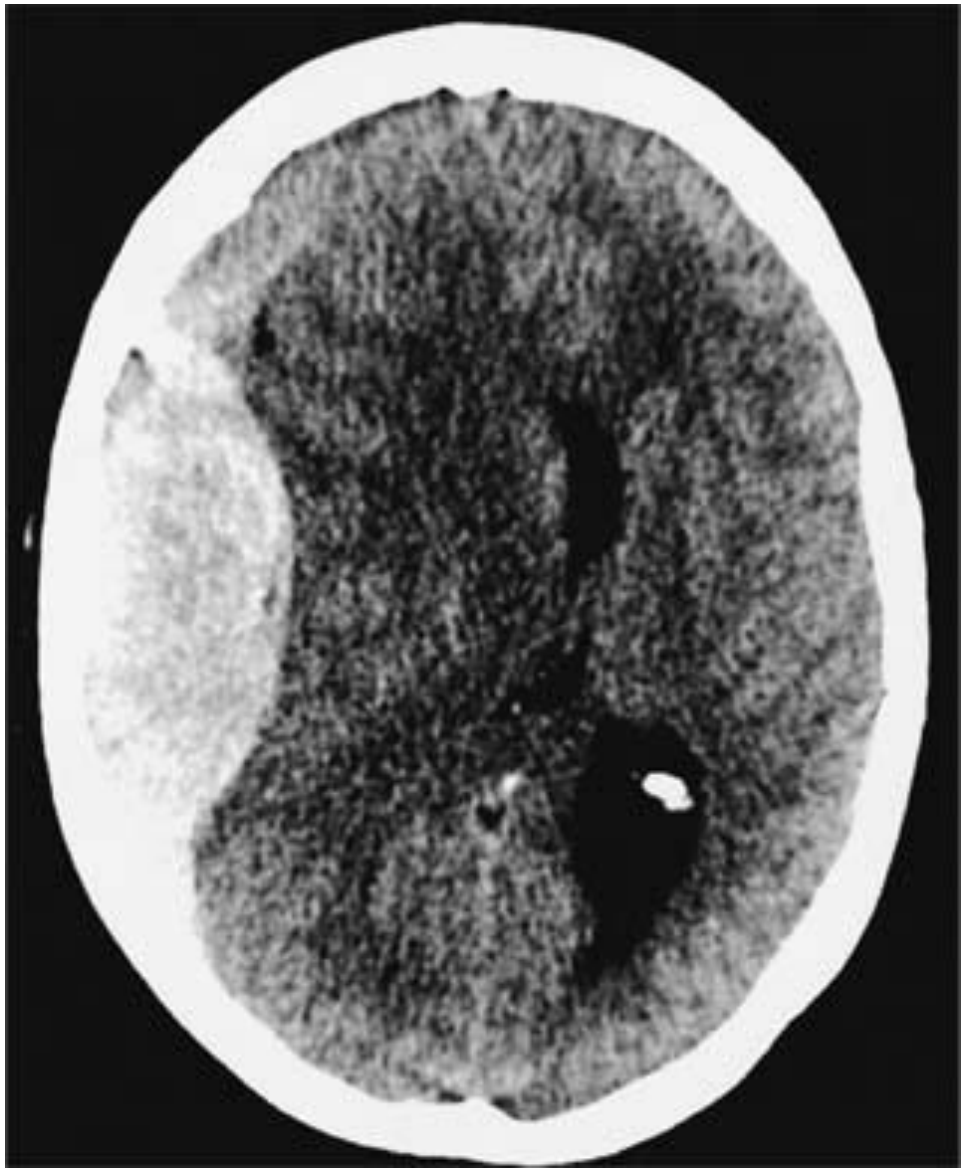

3. 3x vomiting or 1x projectile vomiting

- Vomiting can be an indication of something impacting the parasympathetic nervous system. But it is also a response to high ICP.
- Multiple bouts of emesis (3 times) or projectile vomiting could indicate a dangerous rise in ICP.
- Elevated ICP can cause more brain damage and can impact bodily functions such as breathing. Maintain good life-support techniques.
- **Projectile vomiting; if you see it, you can’t miss it. But you want it to miss you.**
- Get that person to the hospital immediately. If your gut says this is too much vomiting, call an ambulance.

4. CSF (blood and CSF) from ears and or nose

- A bloody nose is one thing. But if you see blood mixed with a clear fluid coming from the nose and or the ears, that person needs immediate trauma care.
- The clear or golden fluid could be cerebral spinal fluid. A CSF leak is a strong suggestion of a skull fracture, which needs to be treated immediately.
- Use good BLS management techniques. Treat that person like you would a neck injury, back board etc, and transport to a hospital or trauma center.

5. Paralysis, Paresis, Peripheralization

- Post traumatic brain injury, a loss of feeling or sensation on one or both sides of the body is a strong indicator of neck and or brain injury.
- There is a substantial risk that this patient could have the injury progress and get worse, especially if untreated or treated incorrectly.
- Use good BLS techniques, including backboarding, head/neck/spinal immobilization. Maintain airway and transport immediately.

6. Asymmetric, Blown or fixed pupil(s)

- Dilated and fixed pupils, one or both pupils, is a sign of very altered brain function.
- Brain damage, increased intra cranial pressure, abnormal blood flow can all cause or contribute to the above. Essentially any of the casues are bad and require medical attention.
- Maintain good life support practices and transport immediately.

Call the ambulance

- I have never seen or heard of anyone being chastised, punished, fired, or in trouble for calling the ambulance.
- We've had people back from the hospital in time for dinner. No problem.
- If your intuition says get that person to the hospital. Do it.

AoST (Absence of Suspicion Test)

- A simple series of 7 tests that takes less than 10 minutes to perform.
- Useful to confirm brain health.
- Can be used as part of a return to life panel as well as RTP and RTD.
- AoST is Published, validated, objective and quantitative. It helps document decisions concerning patient disposition.

Brock String

- Uses a brock string and ruler. Is reported in inches.
- The brock string is a beaded string or twine. It can have 1 to many beads. Typically it has 2 to 6.
- For the AoST you only need one bead.
- Have the person hold the string up to the bridge of their nose, centered on their eyes (left right and up down – centering).
- Place the bead about 14 inches from the person’s eyes and have them focus on the bead.

Closed Eye Turns

- Uses a protractor or similar device with a scale of degrees in a circle. Typically a 180 or 360 degree device is used. Is reported in degrees.
- The person is instructed to close their eyes, put their feet together and turn 360 degrees.
- The degrees of the turn are measured and reported.

Maddox Rod

- Uses a Maddox rod, a light source and a ruler. Is reported in Inches.
- The light source is placed 20 feet from the person at eye level.
- The Maddox rod is placed directly in front of one eye.
- Both eyes open the person visualizes the line from the Maddox rod and the light. The Maddox rod is rotated until the line is vertical.
- The person reports where the line is in relation to the light.
- The distance between line and light is reported in inches, also noting which eye has the Maddox rod and the direction of the line (right or left).

Pupils

- Uses light source. Reported as PERRLA with consensual reflex.
- Have the person look straight ahead.
- Shine the light in each eye once. Look at the pupil and observe it to constrict (or not). Note constriction or absence therein.
- Repeat by shining the light in each eye, but look at the eye without the light. The other eye should have a reflex constriction, often not as big as the eye with the light.
- If both eyes constrict and both have the reflex with the non-light eye, the results are Pupils, equal, round, reacting to light and accommodating with consensual reflex; abbreviated as PERRLA with consensual reflex.

Convergence (NPC)

- Using a pen or unlit pen light, have the patient watch the tip of the pen as you slowly bring it towards the bridge of their nose.
- Start at about 2 feet away and, in a straight line, bring the tip of the pen to about 1 inch of the bridge of their nose.
- Watch for the two eyes to track and come together as the pen gets closer.
- If the eyes close, stop moving, look away; note the distance at which this occurs.
- Results are reported in inches.

Reading saccades.

- Uses a saccadic eye chart and timer.
- Using at 10 by 10 grid of 100 number/letters have the person hold the sheet in a comfortable position.
- Tell them they are to read back and forth the top numbers in the top outside corners. Then proceed to read down one row of those columns. The continue reading this way until they get to the bottom and come in one column on both sides.
- The continue to read this way until they finish the whole page.
- Note how long it takes them to finish and if they make any mistakes.

NAME: _____	**DATE:** _____
SIGNATURE FOR CONSENT: _____	
PARENTAL SIGNATURE (if under 18 y.o.): _____	

TESTS:	RESULTS:		TESTER INITIALS:	COMMENTS:
Ocular Motor Assessments				
Reading Saccades - OU Close (sec)	_____ seconds			
Near/Far - OU Dist. (# per min)	_____ in 1 min			
Suppression Assessment				
Brock String (inches)	_____ inch(es)			
Maddox Rod @ 20 feet	**Only 1 eye required**			
Vertical Phoria	**OD:** _____	**OS:** _____		
Horizontal Phoria	**OD:** _____	**OS:** _____		
Vestibular Assessment				
Closed Eye Turn	**R:** _____°	**L:** _____°		
Other Assessments				
Near Point of Convergence (inches)	_____ inch(es)			
PERRLA w/Consensual Reflex (circle)	**OD: Constrict YES / NO Consensual YES / NO**	**OS: Constrict YES / NO Consensual YES / NO**		

Thank you