July 26, 2010

Re: J.C. Case

Dear Mr. B:

I have completed a review of CC’s autopsy and toxicology reports. As we discussed, my focus was to determine if the injuries showed any indication of self defense on behalf of your client as well as the role alcohol and cocaine played, if any, in the death of CC.

**Overview**

Per your information from our meeting on June 14th, CC and his brother, hereinafter referred to as the defendant, had gone out drinking one evening and apparently had quite a bit to drink. While at the bar, an individual offered both of them some Cocaine, which they both accepted. Later they went home and became involved in an argument. It escalated into fist fighting; they were rolling around on the ground and at some point, a bat was obtained and a struggle ensued over trying to get ownership of the bat. The defendant’s story is the 2 of them were pulling back and forth on the bat with great force, similar to tug of war. CC finally got the bat out of the defendant’s hands but the force was excessive and caused the bat to hit him on the head. I describe the injuries below and explain why this story does not correlate due to the magnitude of the lethal injuries CC sustained.

The autopsy was performed by Dr MK, MD, Deputy Chief Medical Examiner, County, on October 12, 0000. My information was obtained from his report. One of the first things I noticed is there is not just an isolated, localized blunt trauma injury as one would expect from a single, accidental blow to the head from a bat. Rather, there is extensive skull and brain damage and in addition, blunt trauma of the face, left chest and left hip. The multiple locations and the force required to produce these injuries suggests that not one but multiple blows were delivered out of anger. Anatomical illustrations have been included to understand the locale and magnitude of the areas of his brain trauma.

**Blunt force trauma of head**

The most serious injury contributing to his death was the blunt force trauma to his head.

1. **Depressed, comminuted left temporal, parietal and occipital skull fracture extending into left middle and posterior cranial fossae.**

   Discussion of injury:
   a. Depressed skull fracture - a depression of the skull bone in toward the brain (dented in).
   b. Comminuted – broken into fragments. With comminuted fractures the blow to the head is so forceful that it actually shatters the skull at the site of the injury into a number of pieces. In a “simple” comminuted fracture, bones remain in alignment and the skull is not depressed or dented inward. **[1]** CC’s fracture is not simple as his fragments are not in alignment and his skull is depressed indicating the blow was delivered with great force. The area affected is also described as "large".
   c. Middle and posterior cranial fossae – the cavity of the skull. The middle fossa contains the 2 temporal and parietal lobes of the brain. The posterior fossa contains the occipital lobes. See Figure 1.

2. **Cerebral, brainstem and cerebellar contusions with intracranial hemorrhage** - a cerebral contusion is basically bruising to the brain. A brain contusion causes areas of localized brain swelling and tiny zones of bleeding within the brain tissue. **[2]** Jesus had multiple contusions in all 4 lobes of the left brain, the left frontal, temporal, parietal and occipital lobes, the brainstem and cerebellar regions of the brain, as well as an isolated one in the pons (part of the brainstem). See Figure 2.

   Intracranial hemorrhage is accumulation of blood within the cranial cavity. Specifically there was a subarachnoid hemorrhage. In a subarachnoid hemorrhage, blood accumulates in the space beneath the inner arachnoid layer of the meninges. This is the space where cerebral spinal fluid (CSF) flows. In addition, intraventricular hemorrhage was
identified, which is bleeding into the ventricles of the brain. He also had a subdural hemorrhage, bleeding between the dura and arachnoid membranes.\textsuperscript{[3]} See Figure 3.

3. **Left orbital roof fracture with orbital and eye hemorrhage** – a bone basically located in the eyebrow area. He had swelling and bruising of his left eye in association with this fracture. See Figure 4.

**Toxicology**

As you know, CC’s toxicology showed him positive for alcohol and cocaine, which does match the story the defendant gave that they went out drinking and took cocaine when it was offered. You asked me to clarify if the levels were indicative of high or low intoxication. Although specific toxic levels are not available, the following information will specify significant data I was able to find. The blood alcohol level was at 0.156 Gm or nearly twice the legal level of 0.08 Gm. Blood cocaine level was positive at 21 NG/ML. Of course negative is the expected result but I did find information that states when taken nasally it peaks at about 100NG/ml in 50-60 minutes. When smoking crack cocaine, it peaks at 200-400NG/ml in 5-10 minutes. I do not know the route of administration the brothers took for the cocaine but the effects do not last long regardless. He was positive for Benzoylecgonine at 260 NG which is a substance derived from the cocaine. Cocaine alone is a drug known to produce numerous psychiatric symptoms, syndromes, and disorders. The symptoms include agitation, paranoia, hallucinations, delusions, violence, as well as suicidal and homicidal thinking. Cocaine causes dramatic change in levels of norepinephrine and serotonin in other parts of the brain which might provoke aggression, hyperactivity, impaired judgment, and paranoia. Homicide has been associated with cocaine use in as many as 31% of homicide victims.\textsuperscript{[3]} The third drug identified was Cocaethylene which is a substance produced from the combined intake of cocaine and alcohol. His blood level was 33 NG/ML. My research discovered that the combination of alcohol and cocaine is dangerous and produces an “18-25 fold increase over cocaine alone in risk for immediate death.”\textsuperscript{[4]} In addition, one study shows cocaethylene may induce symptoms such as impulsivity or aggressive violence behavior which is also known to be associated with cocaine alone.

**Summary**

With skull fractures, the fracture itself is not deadly, but when it is deforming, the fractures often result in underlying brain damage. This indicates a high velocity impact and requires substantial force. His brain injury was extensive, involving all 4 lobes of the brain and ventricles and most likely the injury which lead to his death. You asked how many blows there was to the head. In my opinion, it was one devastating blow to the parietal skull bone which “spidered” out into the temporal and occipital bones and created such a depression it did significant damage to the brain itself such as the hemorrgages and contusions previously described. This blow was most likely the “death” blow. There were also blunt trauma injuries to the left chest. These blow(s) here were severe enough to fracture the left 10\textsuperscript{th} and 11\textsuperscript{th} ribs and bruise the lower lobe of the left lung. The left hip also sustained blunt force trauma evidenced by a large area of bruising/soft tissue hemorrhage from the left flank to the buttck. His face had multiple traumas including the inside of the mouth. This could possibly be from hand to hand fighting as opposed to being from the bat, but I am not positive of that. The autopsy report categorizes it under blunt force trauma of the head. Multiple abrasions, contusions and lacerations were identified on his face, ear, orbital area of the eye, right arm, left hand, right thigh and knee and left leg. According to what you told me, the defendant only had one small laceration or abrasion. In my opinion, that shows the fight was one-sided without significant physical aggression by CC in fist fighting or with a weapon of any kind. In regard to the use of drugs being a factor in his death, in my opinion, this is not significant due to the magnitude of the brain injury CC sustained from the bat. Perhaps with the combination of alcohol and cocaine, the defendant was not in his right mind. As described above, cocaine alone can provoke aggression.

**Recommendations**

A forensic medical examiner, a toxicologist and/or a pharmacologist may be of benefit to you. If you should desire to locate one of these or any other expert, even a non-medical expert, I am able to assist you with this. In addition, as we discussed earlier, the EMS report of their findings when arriving on the scene, may be helpful.
Thank you for consulting me for this interesting case. Please do not hesitate to call if there is anything else I can assist you with.

Sincerely,

Linda Cain, RN, CLNC
Nationwide Medical-Legal Solutions